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THE
POPULAR EDUCATOR.

VOLUME THE THIRD.

"From human view, what erst had lain concealed,
His piercing mind, to open light revealed;
By patient toil, his ardent soul constrained,
Of Nature's richest stores, possession gained;

And thence, with glowing heart and lib'ral hand,
He dealt her treasures round the list'ning land;
The wond'ring crowds, the laws of Nature hear,
And her great truths, in silent awe, revere."

LONDON:

JOHN CASSELL, LA BELLE SAUVAGE YARD, LUDGATE HILL.

MDCCLIII.

1853

செப்பனிருவர் பெயர்
த. இராசேந்திரன்
 செப்பனிருவருதற்காக எடுத்துக்கொண்ட
 கொள்கைபட்ட நாள் **அக்டோபர் 93**
 செப்பனிருவர் முடித்த நாள் **அக்டோபர் 93**
 சாப்பார்க்கும் **சுராயன்**
 ம. ப. எ. **சுராயன்**
 செப்பனிருப்பம். **சுராயன்**

TO OUR READERS.

LOOKING back upon the past half-year of our labours in endeavouring to educate the people, we cannot but congratulate our readers on the increasing evidence we have received from them, that our system of National Education has been eminently successful. By means of our Journal, hundreds have been led to study a variety of useful branches of learning and knowledge, of which beforehand they had not the remotest idea; and though coming to this study under the most disadvantageous circumstances, many have made a degree of progress in these branches which not only surprises themselves, but astonishes and delights us; and encourages us to go on in our labour of love, believing that we shall ultimately receive our reward. The new branches of knowledge which are to be brought before our readers in the next volume of THE P. will be found in the last page of the last Number of this Volume; and we trust that the same success which has attended our past labours will accompany our present endeavours to impart a knowledge of them to our readers; and that we shall have hundreds of diligent students of Chemistry and Natural Philosophy, who, though they may not rival Davy and Newton, yet may acquire a respectable proficiency in this department of learning, and one which will be of lasting avail to them through life. The Mathematics and the Languages will, of course, still form an important part of our series of Popular Instructions; nor will Biography and Mental and Moral Philosophy be omitted, as soon as ever we can find a place for them. Geography, Instrumental Arithmetic, and various other branches begun in this Volume, shall be continued in the next Volume; but whether our Lessons shall relate to former or to new branches of knowledge, every means shall be employed to convey the greatest possible amount of information in the least possible amount of space, and in the shortest possible time; and we hope that our readers will give us credit for being the best judges of these necessary elements in the great work which we have undertaken.

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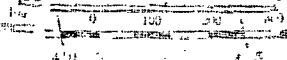
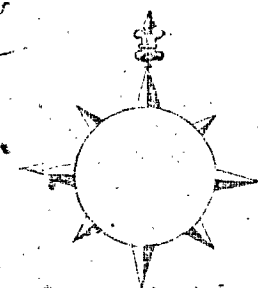
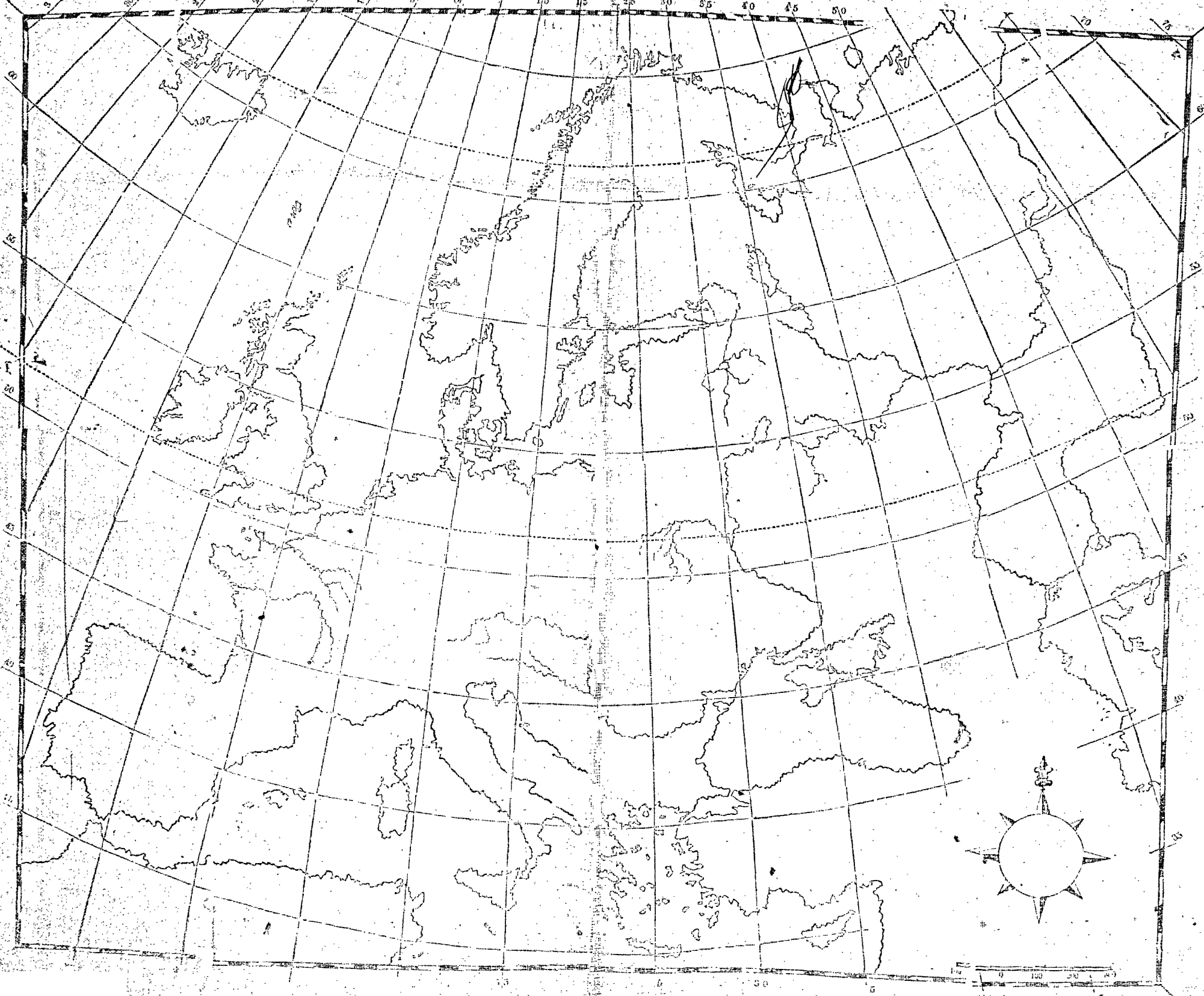
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The Popular Educator.

LESSONS IN GEOLOGY.—No. XXIX.

By THOMAS W. JENKYN, D.D., F.R.G.S., F.G.S., &c.

CHAPTER II.

THE ACTION OF WATER ON THE EARTH'S CRUST.

SECTION XIII.

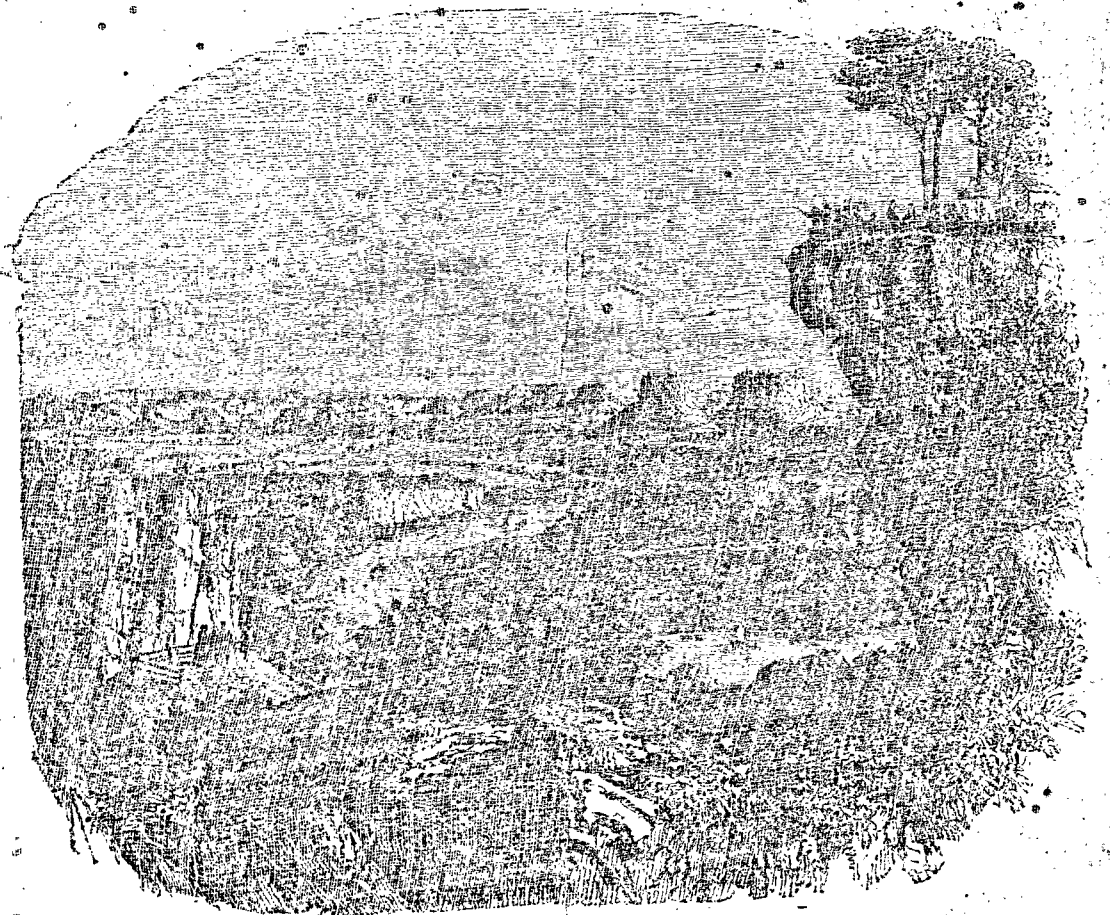
ON THE DENUDING AGENCY OF THE OCEAN.

DENUDATION is a word in frequent use among geologists. It means the act of laying bare some rocks that had been formerly covered up, the removal of the overlying masses being effected by water. It is used for the agency of rivers in scooping out their own channels in the bed or beds of a rock. Its principal application is to the agency of the ocean and sea currents in wearing down, and removing, rocks that were beneath the waves.

rather than excavating, their beds. In most longitudinal valleys, which form the bed of the principal river, there are frequently transverse valleys which run across them in such a way, that the water must have originally passed through them instead of excavating their present channels.

Depressions of land, called valleys, are not always easily accounted for. The diversity of their form would suggest a diversity of origin. Mountain valleys resemble large cracks

Fig. 65.



The Denudation of Rocks in Saxon Switzerland.

In a former lesson, I intimated that the formation of valleys was a difficult problem in geology. It is evident that rivers, in general, have not excavated their own beds, but flow in valleys which have been formed, for the most part, by other agents. In the majority of instances, rivers are filling up,

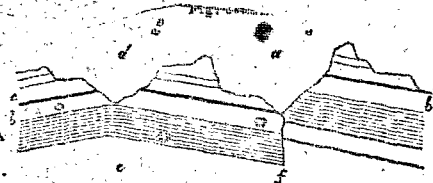
produced in the strata of the earth's crust, either when contracting, or when suddenly elevated from the bed of the ocean. They are longitudinal, following the direction of the mountain chain; or they are transverse, running across that direction. Their sides are generally rugged, mostly steep, and their edges

are crowned with lofty pinnacles. Ravines, gorges, and cleuchas, are bounded by more or less perpendicular walls of rock, and are due to the cutting power of running water, or to early rifts in the rock produced by some violent convulsion. Low-land valleys differ from both in being of a rounded form, as if a large body of water had passed over them, rounding their inequalities.

Accurate soundings have demonstrated that hill and dale, mountain and valley, exist now in the ocean, and must have existed in the crust of the earth from the earliest geological periods. Over many of these inequalities, sedimentary rocks have been deposited, which have filled up and covered their numerous hollows and fissures.

In our early lessons on volcanic agency, your attention was directed to that violent disruption of strata, by which stratified beds have been in some instances contorted, and in others thrown up on their edges. It would depend on the force of the upheaving power, whether the beds of the earth's crust would be merely bent and curved, or whether large rents and fractures would be produced in them, which would be longitudinal and transverse fissures.

If you suppose this disruption of the crust of the earth to take place beneath the waters of an ocean, the sea would be greatly agitated, and would react upon the rocks, rushing into the cracks, sweeping around them, rounding off their angles, and accumulating detritus at the bottom of hollows. Should the land which was in this process of being elevated or cracked, be partly in the ocean, and partly above the surface of the waves, the reaction of the sea would operate chiefly on the lower portion of the upraised strata, and the abrasion and the excavation would present a rounded or curvilinear form. Had the elevated rock been already in the atmosphere, the modification of the original cracks in the crust would be affected only by such atmospheric agents as rain, frost, and heat.



Horizontal Beds, first cracked by Upheaval, and then laid bare by Denudation.

Fig. 63 represents the upheaving power acting against the beds of the crust *a b*. At *e* it has so swelled up the lower rocks as to produce at *d* a crack, which was probably very small at first. On this the currents and waves began to act immediately, until they denuded all the beds down to the bed *b*. When the same subterranean force acted on the crust at *f*, it produced a fissure or a fault throughout the whole of the beds, and tilted a part of them on their edges. The rupture thus produced at *a* would be widened and deepened by the denuding agency of the ocean.

When this district would be raised to the elevation of several hundred or thousand feet, and appear as high plateaus, they would present the appearance of a wild and desolate landscape of broken and shattered hills, separated by deep and gloomy ravines, that speak distinctly of a period of convulsion, when upheaving fires from the abyss, and ocean currents above, had contended in sublime antagonism—the subterranean power slowly elevating the entire district, and the ocean grinding down the rocks and sweeping them away. As the region of this crust first presented its broad back over the waves, the upper surface consisted exclusively, from one extremity to the other, of a continuous tract, say of old red sandstone, though, ere the land fully emerged, the ocean currents of ages had swept it away, all except in the lower and last-raised beds, and in the detached localities where it still remains in pyramidal hills, to show the amazing depth to which it had once overlaid the inferior rocks.

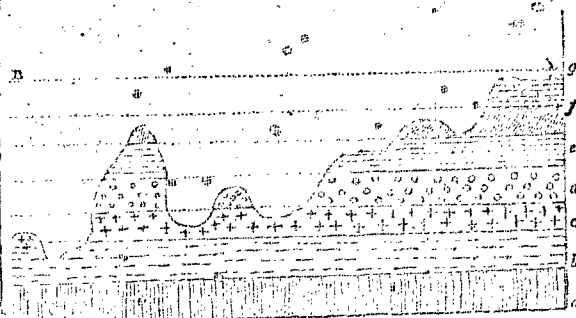
To understand this, imagine a large district of land several

scores of miles square, to have been, at an early epoch, covered with horizontal beds deposited by water, and that the present outline of the surface is like that represented in fig. 61.

While looking at this figure, you cannot doubt that, at one time the beds *a d e f g* were as continuous as those of *a b*. If the section in this diagram were a brick wall, and if the series of beds were layers of different coloured bricks, and you found that, after some tremendous hurricane or earthquake, the wall presented the omissions and gaps that now appear, you would never infer that the wall had been originally built in this manner. You must apply the same method of reasoning to the aspect of these layers of rock.

What, then, has become of all the materials marked by the dotted lines from *a* to *n*? They have all been worn away and removed by the denuding power of the ocean. Suppose the thickness of each bed to be 200 feet, and the distance from *a* to *n* to be forty miles. Then, strata of 1,000 feet thick, and of many miles in extent, have been removed by denudation.

Fig. 61.

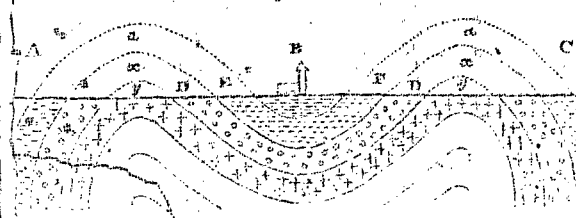


Horizontal Beds exposed by Denudation.

Its appearance now presents a broken surface of a country, with a series of hills, cliffs, valleys, and mountains in the landscape—one of the mountains rising to a height of 1,400 feet above the level of the sea.

Imagine, again, that instead of these beds being horizontal, they have been contorted by some powerful disturbing force from below, as is represented in fig. 65.

Fig. 65.



Contorted Beds removed by Denudation.

It is seen that, under the church at *b*, the beds are synclinal. We are sure that the beds of *a d e y* are continuous under *b*, for they all crop out at *n* and *e*. As their dip and their outcrop show that they are now continuous downward, the question arises whether they were once continuous and unbroken in the direction of the dotted lines between *a* and *c*? The regular position of these beds at *a* and at *c*, together with the amount of their curvature, prove that they were once continuous and unbroken upwards as well as downwards.

What, again, has become of all the materials of the rocks between *a* and *c*? The whole masses marked by the dotted

* Synclinal means having the same inclination, or rather inclining together.

lines have been removed by denudation. Sections in South Wales and Gloucestershire show that enormous beds of old red sandstone and mountain limestone, have been thus removed from the surface of the underlying rocks by the denuding action of sea currents.

In mountainous countries, these denudations are sometimes marked by rocks many thousand feet in height, which are separated from each other by intervals or valleys many miles, and even leagues in breadth. Of this there is a grand specimen on the north-west coast of Ross-shire, in Scotland. Those three stupendous mountains, Suil Veinn, Coul Beg, and Coul More, which consist of nearly horizontal strata of red sandstone repose on gneiss, the fundamental rock of the country.

These red sandstone mountains consist of an immense succession of thin layers, forming mere flags, with their surfaces distinctly ripple marked. They rise up at once, like pyramids, from the gneiss to the height of about 2000 feet, and to an average elevation of about 3000 feet above the level of the sea. It is impossible to look at these three high mountains, now rising in scattered and detached portions without inferring that, at one time, the whole country was covered with a great body of sandstone, and that enormous masses, from 1000 to more than 3000 feet in thickness, have been washed away by the denuding action of water.

One of the most splendid generalisations in geological science is presented in the "Survey of Great Britain," by Professor Ramsay. He shows that the missing beds which have been washed away from the summits of the Mendip Hills, between Wells and Bristol, must have been originally about a mile in thickness. In considerable districts of Monmouthshire and Breconshire on the west, and Gloucestershire and Herefordshire on the east, he shows that a series of ancient sedimentary rocks, no less than eleven thousand feet in thickness have been stripped off by denudation.

The stupendousness of this generalisation is in the two facts—that all these materials have been removed and transported to some other regions to compose rocks of a new formation; and that these plicose rocks are from twenty to thirty thousand feet thick. It is evident that whatever has been contributed to one area on the face of the globe, must have been derived and taken from another.

One of the most magnificent, and, at the same time, most clear and palpable specimens of denudation, is furnished by Saxon Switzerland, a district of Germany about ten miles beyond Dresden. The rock of the district is what the German geologists call *quadersandstein*, corresponding to the green sand formation of England. The rocks on each side of the river Elbe are cut in all directions into chasms, gorges, and passages, as if mechanical tools had been used to hew them into particular shapes. Some of these passages among the rocks look like narrow canals, so narrow are the openings and so smoothly perpendicular do the gigantic walls of rock rise on both sides. The walls of these rocks are cut vertically into separate masses by narrow passages, reaching from the summit to the very bottom, as if a cement that once united them had been washed away.

The perpendicular masses of these separate rocks or cliffs are divided horizontally into distinct layers, like blocks regularly laid upon each other in a massive work of artificial masonry. The terminations or perpendicular extremities of these masses or columns are very rarely sharp or angular, but are almost invariably well rounded, which is a clear proof of an almost invariably well rounded, which is a clear proof of subaqueous action. Some of them appear as if two sugar-loaves were put together, the small end of one resting on the small end of the other.

From what is called the Bastei (on the right of the engraving, fig. 66), and 600 feet above the Elbe, the country looks as an amphitheatre, studded with lofty and rounded ranges of mountains. From the bosom of this amphitheatre, huge columnar hills start up at once from the ground, at a considerable distance from each other. All these are monuments of the denuding agency of water—not that of the present Elbe, but of the sea—at a time when this part of Germany was slowly rising from the ocean. The identity of structure and of composition in all these columnar eminences prove that they once formed one body, and that all the softer parts of their beds have been removed by denudation.

It is not to be supposed that what are called valleys of denudation have been produced by the streams which flow through them now. In many parts of the world there are valleys without any water at all running in them. It is obvious that these valleys are not the result of river action. England abounds with examples of these dry valleys, especially in the combs of chalk districts, and in the numerous depressions found in the slate districts of Devonshire. Even in Jamaica, where heavy tropical rains are frequent, there are valleys in which the waters are immediately swallowed up by subterraneous cavities or sink-holes. On the west coast of Peru, where rain never falls, there are remarkable instances of dry valleys, which much resemble the lowland valleys of Europe.

These dry valleys appear as if they had been scooped out by moving masses of water passing over them, and carrying off the materials which offered the least resistance. This denudation might have been effected by great disturbances beneath an ocean, such as would be caused either by the elevation of a long range of mountains from the sea, or by a disruption of the strata of which the crust of the earth in that region was composed. They were produced either by a marine earthquake, or they may have been formed beneath agitated waters, in which there were strong currents moving with great velocity. The rocks which were thus worn and denuded beneath such currents were afterwards protruded above the level of the sea.

The ocean abounds in currents strong and deep. Some of these currents are constant, some are periodical, and some are only occasional. These currents consist of immense bodies of water, moving with different velocities, and in streams of different breadths and depths. Of the character of these currents we have a well-known specimen in the Gulf Stream of the Atlantic Ocean. High winds and heavy gales greatly affect the velocity and the strength of these currents—sometimes diminishing their breadth and augmenting their velocity, and *vice versa*. The principal causes of all ocean currents are supposed to be certain prevalent winds—such as the trade winds, the monsoons, &c.

Among the periodical currents of the ocean we must place the tides. These have great power in scooping shallow banks, and in abrading our coasts. The general velocity of the tide is about a mile and a-half in an hour. When any obstacles are presented to its currents, its abrading and transporting power becomes much augmented, and the process of denudation takes place very rapidly and extensively.

It is often found that at greater or less distances from the shore, a great discoloration of the sea frequently takes place. This discoloration is produced by heavy gales and powerful hurricanes, and is due to the action of the sea on the rocks beneath, and not to the sands and mud which the ebbing tide brings with it.

Since strong winds are generally the causes of currents in the ocean, it is obvious that the ocean streams thus produced will not extend deeper than the depth to which the propelling power of the wind or gale extends. All hydrographers have demonstrated that the waters of the ocean vary in density according to their depth. A wind, then, sufficient to agitate and propel the surface water to a certain depth beneath, will reach a point below at which it can produce no change or movement, as all water beneath that depth would, as far as surface causes are concerned, be immovable, and would consequently exert no denuding agency. Hence, the denuding power of ocean currents depends on the depth of the sea. The smaller the depth, the greater is their denuding power, and consequently the greatest amount of denudation has, in every geological era, taken place on shoals and near coasts.

Sea currents have always their greatest velocity and force in shallow water and in contracted channels. It is, therefore, in these situations that, among ancient rocks, we always discover the greatest effects of their denuding power. Their geological importance depends on two things: on the relative depth of the sea which they traverse, and on their proximity to land. By their shallowness, their velocity is increased; and by their nearness to coasts, they wear away and remove the rocks that resist them. At very great depths in the bed of the ocean we have no reason to suppose that this denuding power exists. If it does exist, its cause must differ from all surface influences.

LESSONS IN ENGLISH.—No. XLII.

By JOHN B. BEARD, D.D.

PART II.—INFLEXION.

NOUNS, THEIR ORIGIN AND CLASSES.

I HAVE given my scholars such instruction on the component elements of the English language as the occasion permits. You now see of what materials your mother tongue consists. In their origin, these materials are very diverse:—the Celtic, the Teutonic, the Norman-French, the Latin, the Greek, the Romance tongues—such as the French, the Italian, the Spanish—besides others, have all contributed a portion. Did I possess an unlimited command of space, I would here have entered into historical details, showing at what precise point of time the several elements entered our language. Some general ideas on this head you will already have obtained, and for the present, at least, this must suffice. Our labours, then, have put us into possession of the constituent parts of the English tongue. These constituent parts we now possess in their simple and in their compound form, that is, we know whence our words come, and of what verbal combinations they are capable. But we do not yet know what changes these simple words, and these compound words undergo in themselves. Equally are we uninformed of the laws under which they combine together so as to form sentences and become the vehicle of thought. In other words, we have dealt with the Etymology of our tongue, and have now to treat of its inflexions and its Syntax.

All the words of the English language have been brought into nine or ten classes. Arranging these classes according to their importance, I find them to be: 1, the noun; 2, the verb; 3, the adjective; 4, the pronoun; 5, the adverb; 6, the preposition; 7, the conjunction; 8, the article; 9, the participle; 10, the interjection. If, however, I follow a more natural order, it may be better to treat of these classes in the following succession:—1, the noun; 2, the article; 3, the adjective; 4, the pronoun; 5, the preposition; 6, the adverb; 7, the participle; 8, the conjunction; 9, the interjection. By this means we get together under one head the noun, and what chiefly pertains to the noun; and under another head the verb, and what chiefly pertains to the verb, as is seen in this arrangement:

1. Noun, article, adjective, pronoun, preposition.

Nominal Division.

Verbal Division.

2. Verb, participle, adverb, conjunction, interjection.

The reasons of this division are obvious; for, 1st, the article limits the noun; the adjective qualifies the noun; the pronoun takes the place of the noun; the preposition governs the noun; and, 2nd, the participle belongs to the verb; the adverb qualifies the verb; the conjunction governs the verb; the interjection is an abbreviated form of a proposition.

Nouns or names are of a very high antiquity. In the noun probably is the root of language to be found. One of the earliest acts of human intelligence, must have been to give a name to some object of sight and desire. Accordingly we read in the Bible (Gen. ii. 20), that at the beginning "Adam gave names to all cattle, and to the fowl of the air, and to every beast of the field." Food, of course, was man's first want; and a name for an edible object would be among man's first articulate sounds. That the noun preceded the verb is clear from the fact that men must have had a subject to speak of, before they could speak of a subject. In other terms, the subject was anterior to the predicate, for it is the business of the predicate to make some avowal touching the subject. It is not easy to determine whether names of persons or names of things were first in order. If we reflect that food is more necessary to man than even companionship, we should be disposed to assign the precedence to names of things. But if, on the other hand, we bear in mind the fact that language implies companionship, and that words are called forth by the presence of another, then, and reason for thinking a personal designation, an appellative, or a word of address, took the lead of articulate sounds.

Nouns originally were imitations; they were imitations of natural sounds. From the first breeze of wind and the first ripple of water, natural sounds existed and must have drawn attention. Those sounds were signs, and those signs would be the names of the things signified. Man's tendency to make names imitative of natural sounds, bears in learned phrase the designation of onomatopoeia, from two Greek words, *onoma* (Latin, *nomen*), *name*, and *poiein*, *I make*, so that the term literally signifies *name-making*, without any reference to the ground or principle of imitation on which such making proceeds. Instances of onomatopoeia exist in all languages. In English we speak of the *buzz* of the bee, the *mew* of the cat, the *crash* of falling timber, the *crashing* of a shell, &c. An English gentleman at a dinner table in China, was desirous, as he well might be, of knowing what was before him for his refreshment; but of Chinese he was ignorant. The dish on which his eyes were fixed had to him the appearance of a hashed duck. Acting on this notion, he put to the servant interrogatively the words *quack, quack*? He was understood, and received for answer, *bow, wow*. After a similar manner, the nurse designates a cow as *mistress moo*, or a *moo-cow*; a lamb, she terms for her child's instruction, a *baa*, or a *baa-lamb*. Thus have arisen imitative terms which lead us to ideas of the *quacking* of ducks, the *cackling* of geese, the *roaring* of the lion, the *snorting* of the elephant, the *whinnying* of a horse, the *bellowing* of a bull, the *meowing* or *purring* of a cat, the *croaking* of frogs and ravens, the *cawing* of crows, the *chattering* of magpies and monkeys, the *barking*, *yelping*, *howling*, *growling*, and *snarling* of dogs, the *clucking* of hens, the *bleating* of sheep and goats, the *twittering* of swallows, the *chirping* of crickets or sparrows, the *grunting* of pigs, and the *gobbling* of turkeys. Here too may be placed the names of several inarticulate sounds uttered by the human organs, as *laugh*, *cough* (both originally pronounced with a strong guttural sound, or sound in the throat), *sob*, *sigh*, *moan*, *groan*, *scream*, *shriek*, *hiccough*, *yawn*, *snore*, *whew*, *snore*, *hollow*, *whoop*. The last appears in *whooping* (whooping) *cough*. From imitation arise classes of words which severally express the same general sound under modifications, e. g.,

clap	dab	clash	bang	tramp	drum
rap	dash	dash	ding	tramp	hum
lap	bob	plash	doug	bump	whizz
snap	crack	splash	ring	plump	whizz
slap	clack	flash	twang	knell	buzz
whap	smack	smash	clang	bell	fliz
flap	thwack	slash	cliff	boom	hiss
pop	whack	swash	whine	bob	kiss

In general, names were originally descriptive. The fact is specially illustrated in the Hebrew nouns, and the book of Genesis is full of instances. Thus Isaac means *laughter*, and Jesus means *saviour*. The names of rivers in other languages, when traced back to their originals, are found to be descriptive of the flow of the stream, according as it is swift, slow, quiet, noisy, &c.

The name declares the qualities of the object; but, observe, there is no necessary connexion between the name and the qualities. Not always are names truly descriptive. With the progress of science even scientific names have ceased to be truly descriptive. But however correct a descriptor of the qualities of an object its name may give, nevertheless it has no necessary connexion with the object itself. This fact is best illustrated by reference to the different names borne by the same object in different languages. Take the name God. In Hebrew, God is called *Elohim* and *Jehovah* in Greek, *Theos*; in Latin, *Deus*; in French, *Dieu*; in English, *God*. You see there is no essential connexion between the Almighty and any one of these names. Yet the names are all descriptive. These names, and all names, are only sounds; or if you regard them as written rather than as spoken, then are they certain straight and curved strokes or lines representing sounds. By one sound is the Creator designated in Hebrew, by another sound he is designated in English. Hence you may learn that any sound may denote any object. The appropriation of sounds to particular objects is purely a matter of convention, or passive agreement. Take any familiar term, and you will see an exemplification. The term "Crystal Palace," pronounced by one pair of lips, speedily spread over the nation, and within a twelvemonth became a part of the English language. Any other suitable combination of sounds, as its designation, might have become recognised in the same way.

"A rose by any other name would smell as sweet."

If usage can originate nouns, usage can erect into nouns other parts of speech. Indeed, all the parts of speech may be regarded and used as nouns. You may know that a word not a noun is used as a noun, by its being constructed as a noun; that is, by its having connected with it such particles as nouns commonly take. Now, nouns take before them the articles, *the* and *a*; and they

have after them the preposition *of*. Consequently those words are nouns which have *the* or *a* before them, and *of* after them. Attend to these instances of

WORDS USED AS NOUNS.

1. Adjectives used as nouns: "The blacks of Africa are bought and sold."—"The Ancient of Days did sit" (Dan. vii. 9).—"Of the ancients." (Swift).

2. Pronouns used as nouns: "The nameless *He* whose nod is nature's birth." (Young).—"I was wont to load my *she* with knacks." (Shakespeare).—"When I see many *its* in a page, I always tremble for the writer." (Cobbett).—"Let those two try to do this with their *whos* and their *whiches*." (Speedy).

3. Verbs used as nouns: "The officer erred in granting a permit."—"A *may* be of mercy is sufficient." (Albridge).—"To err is human; to forgive divine." (Pope).

4. Participles used as nouns: "Neither regardeth he the dying of the driver." (Job. xxxix. 7).—"Reading, writing and cyphering are necessary parts of education."—"Knowledge of the past comes next." (Harris).—"I am my beloved's." (Sol. Songs, vii. 10).

5. Adverbs used as nouns: "One long *now*."—"In these cases we examine the *why*, the *what*, and the *how* of things."—"His Heaven itself that points out an *hereafter*." (Addison).

6. Conjunctions used as nouns: "None of your *ifs*." (Shakespeare).—"Your *if* is the only peacemaker; much virtue lies in an *if*." (Shakespeare).

7. Interjections used as nouns: "Will cut him short with a *What then?*" (Addison).—"With *hark* and *whoop* and wild *halloo*." (Scott).

8. Other words used as nouns: "Us is a personal pronoun." (Murray).—"I and J were formerly expressed by the same character, as were U and V." (Allen).—"Th has two sounds." (Murray).—"Let B. be a *now* or instant." (Harris).—"Within this wooden O." (Shakespeare).—"Here are eight *ands* in one sentence." (Blair).

From the study of these instances you will learn the grounds of the rule given by Campbell, in his Rhetoric, "All words and signs taken technically (that is, independent of their meaning, and merely as things spoken of) are nouns; or rather are things read and construed (constructed) as nouns; as, 'For this reason I prefer *contemporary* to *contemporary*.' You will also see that adjectives, when they represent more than one, take a in the plural, as if they were nouns; e. g., the ancients, the elders. Yet we do not say the wisest, but the wise. The reason seems to be, that elder and ancient, though adjectives in form and import originally, have come to have a permanent force as nouns; as is seen in the fact that you can say "an ancient," "an elder;" but you cannot say "a wise;" "a sage," you can say, though, *sage* and *wise* are nearly the same in meaning, and though properly they are both adjectives. These remarks illustrate the extent to which usage prevails in language, and show that in a living language so rich as the English, rules to which no exception can be given are not easily laid down.

In the French language adjectives are used as nouns much more than in English. A slavish adherence to the French idiom in this particular on the part of ignorant translators, has led to the introduction of words for which no sufficient authority can be found. *Les religieux* is a French designation of monks and nuns. This has been literally rendered into "the religious," a phrase which in English, if it means anything, does not mean what is meant by its Gallic original. That word *original* is an instance of an adjective, which, while it retains the force of an adjective, has acquired the quality and the rights of a noun. Accordingly we can say "this original," "that original," "the originals,"—but only in certain peculiar significations. In such a case as this it is dangerous to yield to analogy, and usage must be rigidly followed. Even usage, however, is not to be obeyed, if it is not present usage, or has not the popular sanction. Consequently, the following from "Steele (one of the writers in the *Spectator*) is not to be imitated—"For such imperfections;" "He is an ignorant in it."

With the aid of the logical terms, abstract and concrete, two other divisions of nouns are formed. Qualities may be considered under two aspects. They may be considered as belonging to some subject, as *white* paper; or they may be considered as altogether detached from any subject, as *whiteness*. In the former we regard the quality in question as *concrete*, in the latter as *abstract*. Hence the quality in question as *concrete*, in the latter as *abstract*. English, being readily formed from their respective concrete adjectives by certain terminations, as black, *blackness*; pure, *purity*.

If regard is had to the origin of nouns, we may be led to recog-

nise another class, namely, *verbal* nouns. *Verbal* nouns are such as are formed from verbs; e. g., "If the blood of bulls sanctifieth to the *purifying* of the flesh." (Heb. ix. 13). Here *purif.* is a noun derived from the verb *to purify*. The addition of the syllable *ing*, or the employment of the *present participle* as a noun, is a very prolific source of nouns. But observe, when a noun is thus formed, it has the attributes because it performs the functions of a noun. Now a noun is connected with another noun, when the one is dependent on the other, by the preposition *of*. Thus we say, "the *purification* of the temple." In the same way we ought to say the *purifying* of the temple. But inaccurate writers, while they use verbal nouns as nouns, allow them to retain their qualities as participles or parts of verbs, and deprive them of their rights as nouns; omitting the connecting *of*, and writing thus, "to the *purifying* the flesh;" "his *handling* the subject was good."

LESSONS IN GERMAN.—No. LXII.

Section LXXXIX.

Sin (Sect. 28.) applied to time, may refer as well to the future, as to the past. Ex.: Bis zu dem gewaltigen Jahrsundert hin, können noch viele Umwälzungen, in der alten Welt geschehen, wie in der neuen, Statt finden; up to (between this and) the twentieth century (thither) there may yet, in the old world, as well as in the new, many revolutions take place. Wemder flücht nach einem leidenschaftlichen Jünglingsalter, daß man die glücklichste Zeit um Kenntnisse zu erwerben hin sit; many a one complains, after a frivolously spent youth, that (now) the most favourable period for acquiring knowledge is past (lost, or gone). In this latter sense *hahn* is likewise employed; as, die Gmte ist vergangen, der Sommer ist dahin; the harvest is gone, the summer is passed.

I. Ginen Schritt thun—to take a step; as, welche Schritte müssen gehen werden? What steps must be taken? Schritt halten—to keep step; to keep pace;—wemder Schritte nicht richtig hält, der verliert den Schritt mit dem Vater zu halten; this boy tries to keep step with his (the) father. Grmlich ist nicht flüchtig genug, um gleichen Schritt mit Grm zu halten; Grmlich ist nicht flüchtig genug, um gleichen Schritt mit Grm zu halten; Henry is not diligent enough (in order) to enable him to keep pace with Ernest in learning the German language.

II. Ginen Schuß thun—to make a shot, to shoot; as, bis zu diesem Tage hat kein Mensch einen so berühmten Schuß gefahren, wie Wilhelm Tell; up to this day, has no man made so renowned a shot as William Tell.

Exercise 92.

Auftrag, m. order,	Fater, m. quarrel,	Verfähen, to miss,
direction;	brawl;	fail;
Aussetzen, to mend,	legen, to lay;	schrecken, to scare;
repair;	gen, to abate;	frighten;
Verfähen, to shame,	Majestät, f. majesty;	Verfäher, m. provider;
confound,	conspicuously, punctual,	sustainer;
fuse;	punctually;	Verfähen, to pass;
Winnen, within;	Schuss, m. shot;	one (unnoticed);
Grüßen, to freeze,	Schwertfench, m. Vertragen, to pass	
chill;	stroke with the	by;
Gnätig, gracious,	sword;	Wegen, to blow;
clement;	hergehen, to sur-	Wittich, m. poacher,
	render, deliver;	deer-stealer.

Wir fichen einen Menschen nicht länger, als wir ihn achten;—if (the) respect is gone, so also is (the) love.

Wer einmal den ersten Schritt zu einem Verbrechen gefahren hat, thut auch leicht den zweiten.

Er hat einen guten Schuß gefahren. He has made a good shot.

Er ist fecher an dem Fenster ver- über oder verbei gegangen.

Er will nicht ausgehen, weil der Wind bläst so hart (strong).

Wir werden wohl noch Schnee fe- (get) snow.

Es geht ein starker Wind. There is a strong wind blowing.

Von wem ist die Rede? Of whom is the speech (conver-

In this sentence, Livy, by the judicious use of the plural and the singular verb, has painted first, the scattered fugitives, and secondly, the dense phalanx of the band which kept its post.

In the example just given, the plural verb precedes the singular. The reverse may be the case, e. g.

*Par stuporem inopitiae donum exitiale Minervae,
A part est astutiae et destructioe gift of Minerva,
Et molens MIRANTUR equi.
And admire the huge size of the horse.*

Here the singular form of the verb which it immediately precedes into the singular number. At the end of the sentence, the writer's mind was free from the influence of that form, and, thinking of the gazing Trojans as individuals, he naturally employed a plural verb.

The principles here laid down may, as principles, be considered as applicable to the English language, though in details they may in such application require some modification. For instance, *pars*, and similar nouns (*turba*, *vis*, *multitudo*, *exercitus*, *juventus*, *nobilitas*, *gens*, *plebs*, *vulgus*) in *Livy*, are constructed with a verb in the singular, thus corresponding with our English usage; but in the above passage from *Virgil*, *pars* has after it *stupet*, a singular form, and finds in the rendering, *is astounded*, a translation which offends our English grammatical sense.

A subject may be compound. A subject is compound when it contains two or more nouns, e. g.,

*Pompeius, Lentulus, Scipio, Afranius foede perierunt.
Pompey, Lentulus, Scipio, and Afranius perished miserably.*

Here you see that a compound subject takes the verb in the plural. A compound subject is an abbreviated form of two or more simple subjects. The example just given, if analysed, resolves itself into these simple subjects:—*Pompeius perit; Lentulus perit; Scipio perit; Afranius perit*. Of course, when these single subjects are put together, they form a plural subject, and so demand a plural verb.

If, however, the single subjects combine so as to form a unit, or so as to give the idea of unity, then the verb is put in the singular number, e. g.,

*Tempus necessitasque portulit;
Time and necessity demands;*

that is, the necessity of the occasion demands. Two nouns are often employed to express one idea, an idea which could not otherwise be so well expressed; in such cases, the unity of the thought requires a singular verb.

The verb must also be in the singular, when prominence is given to one of the nouns forming a compound subject, e. g.,

*Aetas et forma, et super omnia ROMANUM NOMEN, te
Your age and form, and especially your Roman name, has
ferocem RACI,
made thee too fierce.*

The proximity of a singular noun to the verb may have the effect of putting it into the singular number, though other nouns in the subject are plural, e. g.,

*Nunc, mihi nihil libri, nihil litterae, nihil doctrina prodest.
Now, neither learning does me good, nor books, nor letters.*

Of the nouns in a compound subject, each one may be conceived of as applied to the verb separately, and so the singular number be rendered necessary, e. g.,

*Dubitare visus est Sulpicius et Cotta.
Sulpicius seemed to doubt and Cotta too.*

Hence disjunctive particles; inasmuch as they separate a compound subject, take the verb in the singular, e. g.,

*Si Socrates aut Aristippus contra morem civilem fecerint.
If Socrates or Aristippus said.*

The plural is, however, used when the two or more nouns, though spoken of separately, concur in the act set forth in the verb, e. g.,

*Si quid Socrates aut Aristippus contra morem civilem fecerint.
Whatever Socrates or Aristippus may have done contrary to social usage.*

A construction exclusively according to the sense puts the verb in the plural when the subject, besides a noun singular in the nominative case, contains a plural noun (one or more) in the ablative case, e. g.,

*Demonsthenes cum ceteris erat expulsi.
Demonsthenes with the rest was expelled.*

This latitude is not permissible in English.

VOCABULARY.

Cypri, at Cyprus; Lesbii, at Lesbos; vis telorum, literally, power of weapons, — that is, a great number; so in Devonshire, people speak of a power of grapes; and in other parts we find the phrase a power of words.

EXERCISES.—LATIN-ENGLISH.

Mollis educatio omnes nervos et corporis et animi frangit; nihilis somnus neque corpori neque animo prodest; venti mox pluviam, mox serenitatem adducunt; ab omnibus prohibetur is qui dulce cum ubi miscuit; credula spes vitam nostram alit, et nemper eras fore melius dicit; Viriathus quatuor decem annos contra Romanos bellum gesserat; placabilitas et elementa laudabilior est quam iracundia; magna pars nostrorum vulnerati aut occisi sunt; iumentis maxime Gallia delectatur, eaque ignem parant praetio; conclamant vir paterque; senatus populusque Romanus pacem comprobaverunt; senatus et C. Fabricius peringam Pyrrho dedit; religio et fides anteposantur amicitiis; Coson plurimum Cypri Visit, ephectates in Thracia, Timotheus Lesbii, Chares in Sigee; nec enim nunc primum aut Brutus aut Cassius salutem, libertatemque patriae legem sacrosanctam iudicavit.

ENGLISH-LATIN.

A great number (power) of weapons will inflict wounds; the king with some generals has been taken; all men are moved by riches, poverty, and death; justice and injustice are dissimilar; the rest (of the) crowd fled; some seek the city, some the country; the nerves of the body are broken by a soft (effeminate) education; our life is nourished by credulous hope; the youth of the city prepare war; beasts of burden are procured at a great price (are dear); the senate of the Roman people will approve the peace; religion and faith have been preferred to friendship; religion and faith must be preferred to all things; Brutus and Cassius will judge the safety of the republic the most sacred law; the safety of the republic is of all laws the most sacred.

C. A pronoun may agree with a verb, e. g.,

*Tu nidum servas, ego laudo ruris amoeni rivos.
Thou keepst thy nest, I praise the streams of the pleasant country.*

Here the personal pronoun *tu*, which is of the second person singular, has the verb *servas*, which is also in the second person singular. The same relation subsists between *ego* and *laudo*.

This example affords an instance of the proper use in Latin of the personal pronouns. Inasmuch as the verb-endings indicate the person, the personal pronouns are in general neither needed nor employed. Emphasis, however, as in the case before us, may require them.

When, in a compound subject, the pronouns and nouns are of different persons, the first person prevails over the second, and the second person prevails over the third, in determining the person of the verb, which, as referring to more persons than one, must be in the plural number, e. g.,

Si tu et Tullia valetis, ego et Cicero valemus.

If thou and Tullia (you) are well, I and Cicero (we) are well.

The verb *valetis* is in the plural number, because it has a compound subject; it is also in the second person, because *tu*, thou, in the second person has a grammatical preference over *Tullia*, a noun of the third person. The facts are similar in regard to *valemus*. Instead of the plural, the singular sometimes occurs, e. g.,

*Ipse meique ante Larem proprium vescor.
I myself and my friends eat at our own hearth.*

Other pronouns require a singular or a plural predicate according as they convey a singular or plural idea.

The general rule is, that *Pronouns agree with their verbs in number and person*; the first person taking precedence of the second, and the second of the third.

LESSONS IN FRENCH.—No. LII.

By Professor Louis FASQUELLE, LL.D.

§ 36.—DEMONSTRATIVE PRONOUNS.

Singular.		Plural.	
Masculine.	Feminine.	Masculine.	Feminine.
<i>celui</i> , <i>celle</i> .	<i>celle</i> .	<i>ceux</i> , <i>celles</i> .	<i>celles</i> .
<i>celui-ci</i> , <i>celle-ci</i> .	<i>celle-ci</i> .	<i>ceux-ci</i> , <i>celles-ci</i> .	<i>celles-ci</i> .
<i>celui-là</i> , <i>celle-là</i> .	<i>celle-là</i> .	<i>ceux-là</i> , <i>celles-là</i> .	<i>celles-là</i> .

cel, this, not used in the plural.

§ 37.—REMARKS ON THE DEMONSTRATIVE PRONOUNS.

(1.) The demonstrative pronouns *celui*, *celle*, &c., assume the gender and number of the nouns which they represent:—

*Je ne connais d'avarice permise que celle du temps.
I think no avarice is allowable unless it be that of time.*

*Les seules louanges que le cœur donne, sont celles que la bonté s'attribue.
The only praises which the heart gives are those which goodness deserves.*

(2.) These pronouns are sometimes used absolutely before *qui*, *que*, *dont*, etc., in the same manner as the English personal pronouns *he*, *they*, &c., before *who*, *whom*, &c.:—

*Celui qui rend un service doit l'oublier, celui qui le reçoit, s'en souvenir.
He who renders a service should forget it; he who receives it should remember it.*

*Ne per ceux qui vous haïssent ceux qui vous persécutent, c'est la charité du chrétien, c'est l'esprit de la religion.
To love those who hate you, those who persecute you, is the charity of the Christian; it is the spirit of religion.*

(3.) *Celui-ci*, *celle-ci*, etc.; *celui-là*, *celle-là*, are used when it is desirable to denote the comparative proximity or remoteness expressed in English by the words *this* and *that*:—

celui-ci, this one. celui-là, that one.

(4.) *Celui-ci*, *celui-là*, etc., are often used to express contrast or comparison. They are then equivalent to the English expressions *the former*, *the latter*; *this one*, *that one*:—

*Un magistrat intègre et un brave officier, sont également estimables: celui-là fait la guerre aux ennemis domestiques, celui-ci nous protège contre les ennemis extérieurs.
An upright magistrate and a brave officer are equally estimable: the former makes war against domestic enemies, the latter protects us against foreign enemies.*

*Tel est l'avantage ordinaire qu'ont sur la beauté les talents: l'un est d'être aimé de tous les temps; l'autre n'est qu'un temps pour plaire.
Such is the ordinary advantage which talents possess over beauty: the former please at all times; the latter has but one time to please.*

(5.) *Ceci*, *cela*, have no plural, and are used only of things. They do not refer to a word expressed before, but serve to point out objects:—

*prenez ceci, take this. donnez-moi cela, give me that.
J'ai déjà dit ce qu'il faut faire, quand un enfant veut avoir ceci et cela.
I have already said what should be done when a child will have this and that.*

(6.) *Ce*, a pronoun, must not be confounded with the demonstrative adjective *ce*. The pronoun *ce* is often used without an antecedent, as the nominative of the verb *être* in the same manner as the English pronoun *it*:—

*C'est moi, it is I. c'est vous, it is you.
Ce n'est plus le sport d'une flamme servile. It is no longer the sport of an unbecoming flame.
C'est Pyrrhus, c'est le fils de l'ivral d'Achille. It is Pyrrhus; it is the son and the rival of Achilles.*

For particular rules on this pronoun, see § 168.

§ 38.—RELATIVE PRONOUNS.

(1.) The relative pronouns are so named on account of the intimate relation which they have to a noun or pronoun which precedes, and of which they recall the idea. The noun or pronoun so preceding the relative pronoun is called the antecedent.

(2.) TABLE OF THE RELATIVE PRONOUNS:

Singular.		Plural.	
Masculine.	Feminine.	Masculine.	Feminine.
<i>lequel</i> , <i>lequel</i> .	<i>laquelle</i> .	<i>lesquels</i> , <i>lesquels</i> .	<i>lesquelles</i> .
<i>duquel</i> , <i>duquel</i> .	<i>de laquelle</i> .	<i>desquels</i> , <i>desquels</i> .	<i>desquelles</i> .
<i>auquel</i> , <i>auquel</i> .	<i>à laquelle</i> .	<i>auxquels</i> , <i>auxquels</i> .	<i>auxquelles</i> .

qui, who, which; (subj. nominat.) de qui, of, from whom; Regime in direct, personal, and absolute.

lequel, who, which; composed of the article and quel.

à qui, to whom; (régime indirect, dative.)

y, to it, of it, etc. en, of it, of them, etc.

quoi, what, which, why, etc.

§ 39.—REMARKS ON THE RELATIVE PRONOUNS.

(1.) *Qui*, *who*, *which*, is generally the subject or nominative. It is used for both genders and numbers, for persons and for things. (See No. 6 of this §.)

(2.) When used for things, *qui* cannot be preceded by a preposition. Its use, in this respect, is restricted to the nominative.

(3.) It is used relatively and absolutely.

(4.) It is used relatively when it has an antecedent expressed:

*Le premier qui fut roi, fut un père adoré. The first who became king, was an adored father.
L'athlète avidement croit tout ce qui le flatte. Love believes eagerly all that flatters it.*

(5.) It is used absolutely when it has no antecedent expressed. It then offers to the mind a vague and indeterminate idea. It is rendered in English by *he who*, *she who*, *they who*:

*Qui veut parler sur tout, souvent parle au hasard. Who (he who) wishes to speak on every subject, speaks often at random.
Lâche, qui veut mourir, courageux qui peut vivre. He who wishes to die is a coward; he who can support life has courage.*

Qui ne fait des heureux, n'est pas digne de l'être. He who does not render others happy is not worthy to be so.

(6.) *Qui* is also used absolutely when it is interrogative. It may then be nominative or régime:—

qui parle? who speaks? qui voyez-vous? whom do you see?

(7.) *Que*, *whom*, *what*, *which*, stands generally for the régime direct. This pronoun is used for persons and things. It is of both genders and numbers:—

les lettres que j'ai, the letters which I have, les hommes que j'ai vus, the men whom I have seen.

(8.) It is relative when it has an antecedent:—

La gloire prête un charme aux horreurs qu'on affronte. Glory lends a charm to the horrors which we face.

Des lois que nous suivons, la première est l'honneur. Of the laws which we follow, the first is honour.

(9.) It is absolute when it has no antecedent, and signifies *quelle chose? what thing? quoi? what?*

(10.) *Quor*, *what*, is invariable, and said only of things. It may be used absolutely and relatively:—

J'ignore ce à quoi il pense. I am ignorant of what he thinks.

In the above sentence it is relative, being preceded by its antecedent *ce*.

(11.) *Quor*, when absolute, means *quelle chose? what thing?* and is used mostly in interrogative and doubtful sentences:—

Il y a dans cette affaire je ne sais quel, que je n'entends pas. There is in that affair I know not what, which I do not understand.

Il y avait je ne sais quoi dans ses yeux perçants, qui me faisait peur. There was I know not what in his piercing eyes, which inspired me with fear.

(12.) *Dont*, *of whom*, *of which*, *whose*, is used for both genders and numbers; for persons and for things. It is always employed relatively, and is, therefore, always preceded by an antecedent:—

Un plaisir dont on est assuré de se repentir ne peut jamais être tranquille. A pleasure of which we are sure to repent, can never be a peaceful one.

Il faut plaindre le sort du prince infortuné, dont le cœur enduré n'a jamais pardonné. We must pity the fate of that unfortunate prince, whose hardened heart has never forgiven.

(13.) *Dont* is preferable to *de qui*, *of whom*, and *duquel*, *of which*. When, however, the pronoun has the sense of *from whom*, *i. e.*, when used to denote a transfer, *de qui* is better:—

Le libraire de qui j'ai reçu ces livres. The bookseller from whom I have received these books.

(14.) *Lequel*, *laquelle*, *lesquels*, *lesquelles*, *who*, *which*, should only be used in the nominative, and in the direct regimen, in order to avoid ambiguity. They may relate to persons or things:—

C'est un effet de la divine Providence, lequel attire l'admiration de tout le monde. — GRESSER.

It is an act of divine Providence, which (not) attracts the admiration of every one. —

(15.) *Lequel*, preceded by a preposition—that is, *duquel*, *auquel*, *dans lequel*, &c., must always be used for things in the indirect regimen. The word *qui*, as has been mentioned above, cannot relate to things in the oblique cases:—

Un livre curieux serait celui dans lequel on ne trouverait pas un mensonge.

That would be a curious book in which not a falsehood were found.

La Seine, dans la bade laquelle, viennent se jeter l'Yonne, la Marne, et l'Oise.

The Seine, in the bay of which the Yonne, the Marne, and the Oise empty themselves.

(16.) *Lequel*, in all its modifications, may be used absolutely or interrogatively:—

lequel? which one?
lequel voyez-vous?

duquel? of which one?
duquel voyez-vous?

(17.) *En, of it, of them.* This pronoun is of both genders and numbers, and relates almost always to animals and things. It is often used for the English words, *come, away*, when employed absolutely, or even when understood. It is also used as an indirect regimen in relation to things, and sometimes, but not often, in relation to persons (§ 92-2), instead of the personal pronouns *lui, elles, eux, elles*. (§ 103, Rule 1)

Vous en parlez, you speak of it.

J'en ai, I have some of it.

La fortune a son prix: l'imprudent en abuse.

Fortune has its worth: the imprudent abuses it; the hypocrite speaks evil of it, and the worthy man uses it.

L'hypocrite en médisait, et l'honnête homme en use.

The limits of science are like the horizon, the more we approach (them), the more they recede.

Les limites des sciences sont comme l'horizon, plus on en approche, plus elles reculent.

Life is a trust confided by heaven: to dare to dispose of it, is a crime.

La vie est un dépôt confié par le ciel.

Oser en disposer, c'est être criminel.

(18.) *Y, to it, to them, thereto, of it, &c.* This relative pronoun, of both genders and numbers, is used instead of *à lui, à elle, en lui, &c.* It is used of things, and also adverbially in the sense of *there*.

J'y pense, I think of it.

J'y donne mes soins, I devote my care to it.

J'ai connu le malheur, et j'y suis compatir.

I have known a misfortune, and I can sympathize with it.

N'y songeons plus, cher Paulin; plus j'y pense.

Let us think no more of this, dear Paulin; the longer I think of it, the more I feel my cruel constancy waver.

Plus je sens chanceler ma cruelle constance.

You have but little property; join my fortune to it.

Vous avez peu de bien; joignez y ma fortune.

In whatever country I have been, I lived (there) as if I were to spend my life in it.

En quelque pays que j'ai été, j'y ai vécu comme si j'eusse dû y passer ma vie.

(19.) Although numerous instances may be found in which French authors have used *y* with regard to persons, these are licenses which it is not desirable to imitate.

§ 40.—INDEFINITE PRONOUNS.

(1.) The indefinite pronouns indicate persons and things without particularizing them: they are—

autrui, others, quiconque, whoever.
chacun, every one, l'un l'autre, one another.
on, one, people, they, l'un et l'autre, both.
personne, no one, nobody, tel, such.
quelqu'un, some, somebody, tout, every thing, whole.

SKELETON MAPS.—No. I.

EUROPE.

In this number of the *POPULAR EDUCATOR*, the first of our third volume, we present our readers with a Skeleton Map of Europe, containing the lines of latitude and longitude, and the general outline of the Continent. In addition to these, there are outlines of the principal islands, and traces of the course of the principal rivers and lakes, belonging to Europe. The grand object of this map is to teach the student to fill up the interior of the map for himself, and thereby to acquire a

knowledge of the relative positions of places which he could not obtain in any other way. For this purpose we subjoin a list of the names of the principal cities, towns, and places in Europe, with their latitudes and longitudes, so that the student may be enabled by himself to lay them down in their proper positions on this skeleton map, and thus learn Geography in the most effective manner possible, while he at the same time acquires the power of constructing maps in general.

Before giving this list, however, we may just make some important observations on maps in general. A map is defined as a representation of the surface of the whole globe, or of any part of it, on a flat surface. In all modern maps, the top of the map is towards the north; the bottom of it towards the south; the right hand side of it towards the east; and the left hand side of it, towards the west. We have already given our readers a description of the method of construction employed in a common map of the world, in Lesson XVI., p. 220, vol. II., and we have there shown how latitude and longitude are marked upon that map, and how they are to be read. In maps of particular countries, or of continents, the longitude is always marked at the top and at the bottom of the map, and the latitude at the sides. In this skeleton-map of Europe, the longitude is marked at the top, where it extends from 36° west to 76° east; and at the bottom, where it extends from 76° west to 48° east: the meridian of 20° east being in the middle of the map, and extending from the top to the bottom. The latitude is marked at the right hand and the left hand sides, and extends from 30° north, to 63° north; but in the middle it extends from 31° north to 72° north. The meridians are drawn on this map through every 5 degrees of longitude; and the parallels of latitude through every 5 degrees of latitude; the arctic circle is drawn in its proper place, through the latitude of 66° 32' north, and the parallel of the latitude of London through 51° 31' north: these two parallels are dotted lines.

In the right corner of the map, at the bottom, a representation of the mariner's compass is placed, which, after the explanations we have given, may be looked upon merely as an ornament; its use formerly on maps was to point out the directions of north, south, east, and west, as well as some of the intermediate directions. The fleur de lis (*flower de luce*) always points to the north; and, of course, the point opposite to this always points to the south; the point in the middle between the north and south, and to the right hand, always points to the east, and the point opposite to this always points to the west. In the middle between the north point and the east point lies the north-east point; and in the middle between the north point and the west point lies the north-west point; and so, for the south-east and the south-west points.

Below this mariner's compass is a space for the name of the map, *Europe*; and below this again is a scale, called the *scale of miles*. The beginning of the scale here is marked 0, the next point is marked 100 on each side of this point, so that it may be measured either way; to the right of the point marked 100 on the right, is another marked 200; and to the right of this, another marked 300. These numbers indicate the distances between any two points on the map in British miles, allowing 69 British miles and a fraction of a mile, or, in round numbers, 70 British miles to a degree. Thus, if the distance between any two points or places on the map in the compasses stretches from 0 to 100, then the distances between these two points or places is 100 British miles.

To find the distance between any two points on the map in degrees and minutes, apply the distance taken in the compasses to the degrees marked on the side of the map, but taken in the direction of a meridian, observing that a degree in the skeleton map is one of either of the black or the white spaces measured on a meridian, the half of such a space, measured in the same way, is 30 minutes; the third part, 20 minutes; the fourth part, 15 minutes; the fifth part, 12 minutes; the sixth part, 10 minutes; and so on. To assist materially in laying down places on this map, take a narrow piece of stiff paper or thin slip of wood, and graduate it, that is, mark it with degrees of latitude from 30° to 76° along the straight edge; these degrees must not be taken from the sides of the map, although these are degrees of latitude and are so marked; because they are larger than the true size in consequence of their not being drawn parallel to any meridian; that is, they are drawn

making an angle with each meridian, and hence they increase the size of the degrees between the parallels of latitude. The easiest way to construct this moveable scale of degrees from 30° to 76° is to take the distance between any two parallels of latitude on the skeleton map; and lay it off 9 times on the piece of paper or slip of wood, upon the straight edge thereof, (called the *fiducial edge*); then, subdivide each of these distances or subdivisions into five equal parts, and you will have 45 degrees marked on the fiducial edge of the scale; next, mark the lowest or first of these 30°, the next 31°, the next 32°, and so on, till you come to the last, which will be marked 76°. If you draw a longer mark at every five degrees, say at 35°, 40°, 45°, 50°, &c., you will then have your scale graduated in accordance, but that in coincidence, with the scale on the sides of the map, and applicable to the accurate measurement or laying down of any latitude. The proof of the correctness of this scale will be obtained by laying the fiducial edge along any of the meridians, say that of London (Greenwich), so that the degree marked 30° may be upon the point of intersection of that meridian with the parallel of 30°; you will then find that the degree marked 40° will be upon the point of intersection of that meridian with the parallel of 40°; and so on through all the points of intersection of that meridian with the parallels on the map.

To find the exact point on the map where any place should be laid down, whose latitude and longitude are given in degrees, look for the given degree of longitude at the top and at the bottom, and lay the fiducial edge of your graduated scale along those points which represents this degree of longitude, so that the degree marked 35° on the scale shall coincide with some points in the parallel of 35°, or the degree marked 40° on the scale with some point in the parallel of 40°, &c. Then look for the given degree of latitude on the scale, and put a mark or prick on the map close by the point on the scale which represents this degree of latitude, and this mark will be the exact point on the map, or position of the place, whose latitude and longitude are given. The reason of this is plain; for the fiducial edge of the scale represents the meridian of the place whose longitude is given, and the point on the scale which represents the given latitude, is the point of intersection of that meridian with the parallel of latitude drawn through the given place. If the latitude and longitude of the place to be laid down on the map be given in degrees and minutes, it will be necessary, in finding the points answering to the longitude at the top and at the bottom of the map, to take such a part of the degree next to the given degree, but beyond it in the order of reckoning, as the given number of minutes is of 60 minutes; and in such cases, a near approximation to the exact truth is sufficient for practical purposes. The following table will assist in this matter:—

Minutes.	Fractions of a degree.
5	$\frac{1}{12}$
10	$\frac{1}{6}$
15	$\frac{1}{4}$
20	$\frac{1}{3}$
25	$\frac{1}{2}$
30	$\frac{1}{2}$
35	$\frac{7}{12}$
40	$\frac{2}{3}$
45	$\frac{3}{4}$
50	$\frac{5}{6}$
55	$\frac{11}{12}$

When the part or fraction of the next degree in order answering to the given number of minutes is determined on the scale of longitude at the top and the bottom of the map, then lay the fiducial edge of your moveable scale of latitude along these points and proceed as before. The same process must be followed in determining the point on the moveable scale of latitude answering to any given number of minutes, and this point being pricked off, when the scale is in its right position, will determine the position of the given place on the map. In some maps constructed on a large scale the degrees are subdivided into equal parts of a degree, each containing so

many minutes; in this case, the determination of the position of a place, when degrees and minutes are given in its latitude and longitude, becomes much more easy, and in fact suggests itself readily to the student. With these instructions, we now append our list of latitudes and longitudes, in order to enable our students to proceed at once to the filling up of the map.

Names of Places.	Latitudes.	Longitudes.
Aalborg, Denmark	57° 3' N.	9° 57' E.
Aarhus, do.	56° 10'	10° 14'
Abbeville, France	50° 7'	1° 15'
Aberedeen, Scotland	57° 0'	2° 6' W.
Abo, Finland	60° 27'	22° 20' E.
Agen, France	44° 12'	0° 37'
Aix, France	43° 32'	5° 27'
Ajaccio, Corsica	41° 55'	8° 44'
Alerman, Russia	46° 15'	20° 44'
Alby, France	43° 56'	2° 9'
Alcmaer, Holland	42° 38'	4° 45'
Algeiras, Spain	36° 8'	5° 26' W.
Alicante, Spain	38° 21'	0° 29'
Alicia, Spain	36° 61'	2° 31'
Altenburg, Prussia	50° 55'	23° 41' E.
Altona, Germany	53° 23'	9° 58'
Amiens, France	49° 54'	2° 18'
Amsterdam, Holland	52° 22'	4° 53'
Ancona, Italy	43° 38'	13° 29'
Angers, France	47° 28'	0° 33' W.
Angoulême, France	46° 39'	0° 9' E.
Annan, Scotland	54° 50'	3° 15' W.
Antwerp, Belgium	51° 13'	4° 24' E.
Aranjuez, Spain	40° 2'	3° 35' W.
Arkangel, Russia	64° 34'	40° 43' E.
Arendal, Norway	58° 27'	8° 51'
Aries, France	43° 47'	4° 38'
Arras, France	50° 13'	2° 46'
Astrakhan, Russia	46° 21'	48° 5'
Athens, Greece	37° 58'	14° 14'
Auch, France	43° 39'	0° 35'
Augsburg, Germany	49° 22'	10° 55'
Auxerre, France	47° 48'	3° 34'
Aveiro, Portugal	40° 38'	8° 38' W.
Avignon, France	43° 57'	4° 49' E.
Avranches, France	48° 41'	1° 21' W.
Aylesbury, England	51° 49'	0° 49'
Azov, Russia	47° 3'	39° 10' E.
Barcelona, Spain	41° 23'	2° 10'
Basle, Switzerland	47° 34'	7° 37'
Bassano, Italy	45° 45'	11° 45'
Bayonne, France	43° 29'	1° 28' W.
Beachy Head, England	50° 44'	0° 16' E.
Beauvais, France	49° 26'	2° 5'
Bellisle, France	47° 17'	3° 5' W.
Bender, Russia	46° 51'	29° 36' E.
Bergamo, Italy	45° 42'	9° 40'
Bergen, Norway	60° 24'	5° 29'
Bergen-op-Zoom, Holland	51° 29'	4° 17'
Berlin, Prussia	52° 32'	13° 22'
Berne, Switzerland	46° 57'	7° 25'
Berwick-on-Tweed, Scotland	55° 46'	2° 0' W.
Besançon, France	47° 14'	6° 3' E.
Beziers, France	43° 21'	3° 13'
Biols, France	47° 35'	1° 20'
Bologna, Italy	44° 30'	11° 22'
Bonnai, Holland	51° 49'	4° 55'
Bonifacio, Corsica	41° 23'	9° 9'
Bordeaux, France	44° 50'	0° 34' W.
Bornholm I., Baltic	55° 18'	14° 42' E.
Boulogne, France	50° 41'	1° 37'
Bourges, France	47° 5'	2° 24'
Brandenburg, Prussia	52° 27'	12° 43'
Braunau, Germany	48° 14'	12° 57'
Breda, Holland	51° 35'	4° 47'
Bremes, Germany	53° 5'	8° 48' E.
Brescia, Italy	45° 33'	10° 14'
Breslaw, France	51° 7'	17° 2'
Brest, France	48° 23'	4° 29' W.
Bridgewater, England	51° 8'	3° 0'
Briel, Holland	51° 54'	4° 10' E.
Brieux, St. France	48° 31'	2° 44' W.
Brighton, England	50° 50'	0° 8'
Bristol, England	51° 27'	2° 25'

Names of Places.	Latitudes.	Longitudes.
Brixen, Austria	46° 40'	11° 37' E.
Bruck, Austria	47° 24'	15° 16'
Bruges, Belgium	51° 13'	3° 14'
Brunn, Austria	49° 11'	16° 35'
Brunswick, Germany	52° 16'	10° 32'
Brussels, Belgium	50° 51'	4° 22'
Bucharest, Wallachia	44° 27'	26° 8'
Buckingham, England	52° 0'	0° 59' W.
Buda, Hungary	47° 30'	19° 38' E.
Burgos, Spain	42° 21'	2° 40' W.
Cadix, Spain	36° 32'	6° 17'
Caen, France	49° 11'	0° 22' E.
Caffa, Crimea	45° 7'	35° 13' E.
Cagliari, Sardinia	39° 13'	9° 6'
Cahors, France	44° 26'	1° 27'
Calais, France	50° 58'	1° 51'
Calmar, Sweden	56° 41'	18° 26'
Cali, Corsica	43° 24'	8° 45'
Cambray, France	50° 11'	4° 14'
Cambridge, England	52° 13'	0° 1'
Camerino, Italy	43° 6'	13° 24'
Candia, Crete	35° 19'	25° 18'
Canterbury, England	51° 17'	1° 5'
Caracas, France	42° 13'	2° 21'
Cardigan, Wales	52° 8'	4° 40' W.
Carlsburg, Hungary	46° 4'	25° 34' E.
Carlskrona, Sweden	56° 7'	15° 33'
Carlskrona, Sweden	56° 11'	14° 51'
Carmarthen, Wales	51° 51'	4° 19' W.
Carrikerfagus, Ireland	54° 43'	5° 46'
Cartagena, Spain	37° 33'	1° 0'
Cassel, Germany	51° 19'	9° 35' E.
Castiglione, Italy	42° 46'	19° 42'
Castres, France	43° 37'	2° 16'
Catania, Sicily	37° 28'	15° 5'
Cavan, Ireland	53° 52'	7° 25' W.
Cephalonia I., Mediterranean	38° 27'	20° 33' E.
Cefalu, Sicily	38° 49'	14° 3'
Cerigo I., Mediterranean	36° 6'	22° 42'
Chalons (Marne), France	48° 57'	4° 22'
Chalons (Saône), France	46° 47'	4° 54'
Charkow, Russia	50° 0'	35° 27'
Chartres, France	48° 27'	1° 29'
Chelmsford, England	51° 34'	0° 28'
Cheltenham, England	51° 51'	2° 4' W.
Cherbourg, France	49° 29'	1° 37'
Cherson, Russia	46° 34'	32° 29' E.
Chester, England	53° 14'	2° 53' W.
Chichester, England	50° 50'	0° 47'
Christiania, Norway	59° 53'	19° 48' E.
Christiansand, Norway	58° 5'	8° 3'
Christiansund, Sweden	56° 1'	14° 10'
Christiansund, Norway	63° 7'	7° 42'
Christiansstad, Russia	62° 16'	21° 18'
Cilli, Austria	46° 40'	15° 25'
Civita Vecchia, Italy	42° 5'	11° 45'
Cloghenfurt, Germany	46° 37'	14° 29'
Clear, Cape, Ireland	51° 25'	9° 29' W.
Clermont, France	49° 23'	2° 25' E.

(To be continued.)

ANSWERS TO CORRESPONDENTS.

MUSIC.—**ERNEST YOUNG:** We have seen an admirable Harmonicon made of bell-metal. — **JOHN FAITH (Paisley):** Answered p. 215. We certainly were not bound to correct exercises in musical composition; but we took some pains to find a person, there named, who is competent and willing to do so, at small cost to our subscribers. And we are glad to hear that, in consequence of the notice which Mr. Smith overlooked, Mr. Peyton's hands are full. As time with Mr. P. is more, we have our friends will not omit to enclose a fee according to their ability. — **T. S. CAZLEY (Grammar-school, Chudleigh, Devon):** We are much interested by the old melodies which he heard, and copied by ear, from the miners and shepherds at a lonely inn on Dartmoor. Can he send us words for number two? — **O. H. G.:** The "popular songs of the day" are mostly copyright, and should be purchased of the proper publishers. Some of the Tonic Solfa Classes club together for the purchase of such expensive glee and songs, and then copy them either into the 3rd Notation, or, which is much more easy, into the new, for the use of their members. On the German concertina, take whichever octave you find most convenient for your tune. — **I. T. L.** should apply to Mr. Bull, mentioned in our Concertina Lesson, for the harmonium tongues. — **AMICUS** should apply to Mr. ROCK CHILDER, 125, High Holborn, for particulars about the English Concertina.

OSWALD (Newcastle): Many of his remarks are true and just, but they do not apply to us at all; the discussion to which he refers would have

involved very many religious points, all of which we must now hand over to the *Popular Biblical Educator*, a work to be published by Mr. Cassell, early in May next. — **SCHOLASTICUS (Canterbury)** should write to Mr. Bagster, Paternoster-row, for his catalogue of Oriental books. No one should enter the church without a complete knowledge of the languages in which the Scriptures were written. By purchasing a copy of the Cambridge University Almanack, he will obtain all the information he requires. — **AMICUS POP. PRACER:** His suggestions are very good; but are they not followed out in the *Working Man's Friend*? — **T. S. (Birmingham):** Lessons in Book-keeping will soon appear. — **D. T. CAUTION (ham):** Something will be done as to pronunciation. — **LAMARINE (Waterford):** Something will be done as to pronunciation. — **LAMARINE (Newcastle):** We do not know any work on *Vegetable Cookery*; perhaps some correspondent will inform us. — **J. R. (Buckden):** People differ about the pointing of the explanatory *that*; we would use a comma both before and after it. Yes, lay beyond. No, lie on the table.

C. VICKERS (Canterbury): Persevere. — **J. C. JONES (Llanfyllid):** The solutions of the exercises on *Progs. 6* and *7* Cassell's Euclid are correct. — **J. P. THORNTON:** See p. 388, vol. II., col. 1, line 26 from bottom. A cistern 6 feet long, 6 feet deep, and 5 feet broad, will hold 1,537½ gallons. — **W. RAMPOED (Liverpool):** Thanks. — **HYPATIA:** should call at this office with specimens. — **G. W. (Saltfleet):** His arithmetical solutions are generally correct. — **G. SPARSON (Low Torry):** His solution of the exercise to the 3rd of Book I. right; but that to the 5th is inadmissible. — **L. T. (Salisbury):** The words referred to in Cassell's Euclid, Prop. 30, Book III., are essentially necessary to the demonstration, for if it were proved, by between a point and a line, that the arc is equal to an arc forming the difference, in fact, that the arc is equal to the whole circle. — **D. FLEMING (Isle of Wight):** wishes to insert a system of education adapted solely for one child, whether or not a teacher. Each individual must pick up out of our pages what will best answer his own purpose. — **AVATAR SCIENTIAR (Dundee):** We can't say when the Latin Dictionary will be ready; his studies appear to be judiciously selected. — **G. D.: Correct.** — **ONE GRINE (Blackburn):** should try our new system; but it will take longer time than that used in the House. — **A. S. (Kirkcaldy):** Thomson's Diff. and Integ. Calculus, to which is appended a short tract on Analytic Geometry.

E. J. HOSKINS (Winchester): 4+3×2 means that 4 is to be added to the product of 3×2, (which is 6); the sum is therefore 10; 4+3×2×2 means that 4 is to be added to the product of 3, 2 and 2, (which is 12); the sum is therefore 16; and so on.

W. H. FOWLES (Somerset): We do not see the object of his "Double set of Geometrical, Instructional, and Re-arranging Cards;" the small specimen sent to us conveys no idea of the whole. The 128 figures of the length of the circle whose diameter is unity, calculated by De Lagay are the following: 3.14159265 358979323846264338 32795028834197169399375105820974944592 367816406286208988628034825342117067 982148086513282 3066 470938446; to these may be added the following 27 figures on the authority of Montucla: — 095505822317253594031244802. This number has been carried to 208 figures by Mr. Rutherford, of the Royal Military Academy, Woolwich, by means of the following series:—

$$4 \left\{ \frac{1}{5} - \frac{1}{3} \cdot \frac{1}{5} + \frac{1}{5} \cdot \frac{1}{5} - \&c. \right\}$$

$$- \left(\frac{1}{70} - \frac{1}{3} \cdot \frac{1}{70} + \frac{1}{5} \cdot \frac{1}{70} - \&c. \right)$$

$$+ \left(\frac{1}{99} - \frac{1}{3} \cdot \frac{1}{99} + \frac{1}{5} \cdot \frac{1}{99} - \&c. \right) \}$$

See Philosophical Transactions of the Royal Society, 1841.

LITERARY NOTICES.

THE ILLUSTRATED EXHIBITOR AND MAGAZINE OF ART.—The first three Parts of a new and improved series of this work, under the title of the ILLUSTRATED MAGAZINE OF ART, are now ready, price One Shilling each. The Weekly Numbers are now reduced in a neat wrapper, price 3d. In addition to numerous Engravings in the text, each number contains a fine Engraving, worked on Plate Paper. The third Part, just issued, contains the following engravings, printed separately on plate paper, in addition to being profusely illustrated in the text: "Scene in the Dead Brier," "Return of the Herds," "John Bunyan: Portrait and Views of Chapel and Tomb," and "Paris Underground."

THE AUTOGRAPHS OF FAIRBANKS: Price 1s., in boards, or bound in cloth, with Eight beautiful Engravings from designs by Gilbert and Willis, price 1s. 6d.

ATHISM CONSIDERED THEOLOGICALLY AND POLITICALLY.—This Volume consists of thirteen Lectures, by the Rev. LYMAN BEECHER, D.D. (Father of Mrs. H. B. Stowe). The work, just issued, is well printed, and is sold for 3s. 6d. bound in cloth. It is important, in ordering this work, that John Cassell's edition should be specially named, as it contains an Introduction from his pen.

THE PATHWAY, A Religious Magazine. Vols. I. and II., price 2s. 3d. each. Vol. III., price 3s. 6d., neatly bound.

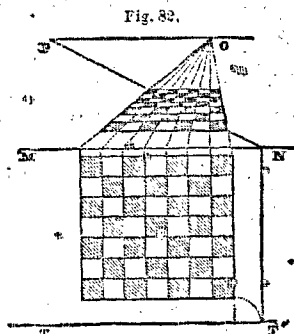
Printed and Published by JOHN CASSELL, La Belle Sauvage-yard, Ludgate-hill, London.—April 2, 1853.

LESSONS IN DRAWING.—No. IX.

PERSPECTIVE.—SECTION III.

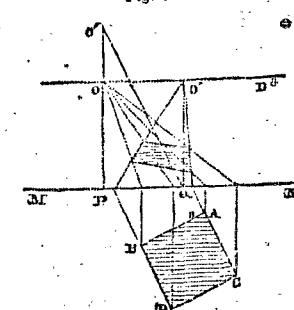
(Continued from page 378.)

TAKING the line *r r'* for the intersecting line, as in the preceding lesson, fig. 81, the following example shows how a tessellated pavement, divided into forty-nine small squares, is put into perspective.



In fig. 82, *r* is the distance point; drawing *r r'*, as before, and bringing up the perpendicular lines which divide the figure, to *x n*, the intersections of *r r'*, with lines drawn from the points in *x n*, to *o*, the centre, give the points in *x r*, through which lines, drawn parallel to *x n*, will produce the horizontal lines of squares in the perspective.

Fig. 83.

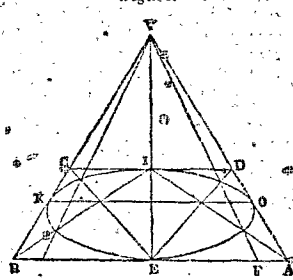


In fig. 83, you see how to put a square in perspective in another manner. The plan is not reversed as in former figures; *r o'* is the distance of the eye, which is made equal to *o p*, and being set up on the ground-line *m n*, the effect is as if the horizontal line were brought to coincide with the ground line; *o a* being drawn parallel to *a c*, and *a* being brought up to the line *o p d*, we obtain *p'*, the vanishing point of *a c*. This construction gives the sides of the square; in order to get the angles, draw the perpendiculars from the corners of the square, to intersect *m n*; from these intersections, draw lines to the point *o*, and the perspective figure is complete.

This is a very serviceable method of finding vanishing points, where your object is to occupy little space with the necessary constructions. By comparing it with the figures in the preceding lessons on Perspective, the principle of the construction will be easily understood, and in practice it will be perhaps the most useful of all that we have given.

We proceed now to show the method of describing a circle in perspective. A square is drawn in the first place, circumscribing the circle; the square is then put into perspective, as in fig. 84; that in the figure has the side *ab* parallel to the

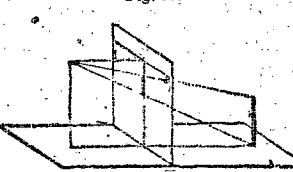
Fig. 84.



ground line; *ab* is then bisected in *e*, and the line *e v* is drawn to *v*, the vanishing point; this line divides the perspective square *abcd* into halves. Drawing in each half the diagonals *ce*, *ai*, *de*, *af*, a line *x o*, drawn through the intersections of these diagonals, is parallel to the ground line, and is the perspective representation of a diameter of the original circle parallel to the ground line. The line *x r* is the perspective representation of a diameter at right angles to *x o*. Take *r x*, equal to one-fifth of *ae*, and join *r* and *v*; repeat this operation on the part *ae*. Then the intersections of the line *r v* with the diagonals *ce* and *af* will give two points, and the intersections of the corresponding line next to *r v*, with the diagonals *de* and *ai* will give two more points. These four points, with the four points *e*, *i*, *x*, *o*, give the eight points, through which an ellipse being drawn, we have the correct perspective of a circle. You will be assisted in drawing the ellipse by first determining its centre; this is done by bisecting the line *x e*. The perspective centre of the circle and the centre of the ellipse are not the same point. The perspective centre of the circle is determined by the intersection of *x e* and *x o*.

In the examples of other objects drawn in perspective, which will follow in subsequent lessons, the perspective of plane figures will be more fully shown; but it is requisite, in completing this section, that we should now speak of lines which are not in the ground plane. Lines which are perpendicular to the ground plane, have no vanishing point, but are always perpendicular to that plane in their perspective representations, as shown in fig. 85.

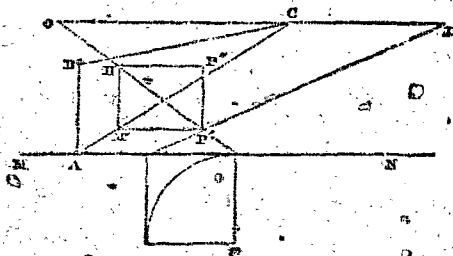
Fig. 85.



In fig. 86, let *ab* be the height of a perpendicular line of which it is wished to obtain the perspective; let the point *p* in the plan, be the foot of this perpendicular, or the point where it intersects the ground plane then *r* is the perspective of the point *p*, as obtained by the method already described; set up *a a'* any where in the ground line, and draw lines from the points *a* and *a'*, to a point *o*, taken any where in the horizontal line

o n. From r' draw the line $r' n'$ parallel to the ground line; from the point n' draw the line $n' n$ perpendicular to $r' n'$, and

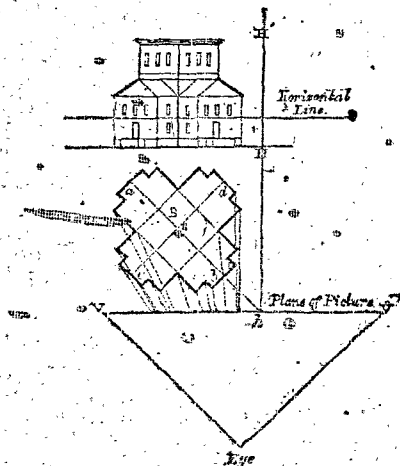
Fig. 86.



intersecting $o n$ in n ; then the line $r' n'$ perpendicular to $n' n$, and equal to $n' n$, is the perspective of the line $r n$.

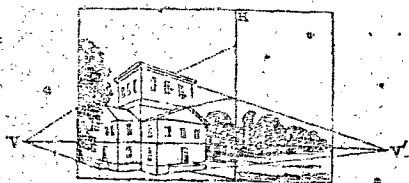
We now proceed to show the mode of drawing a perspective representation of a building.

Fig. 87.



In fig. 87, the part marked n is the plan of a building. The line $v v'$ is the ground line; lines drawn from the angles of the plan to the place of the eye, determine the points which when brought up to the ground line of the picture, and passing through n , show the points where the angles of the building will come in the representation.

Fig. 88.



In fig. 88 the points $v v'$ are the vanishing points of the sides of the same building; and as these sides are at right angles to each other, if v' be the vanishing point of lines making an angle of 60° with the ground line, v will be the vanishing point of lines making an angle of 40° with the ground line; this point will have to be taken in the opposite direction to v' .

LESSONS IN ENGLISH.—NO. XLII.

By JOHN R. BEARD, D.D.

NOUNS COMMON AND PROPER.

Nouns are ordinarily divided into *common* and *proper*. This is the most general division of nouns. A *common* noun is a noun which is common to a whole class or kind. *Trees* is a common noun, for it may be used of any tree, and of the whole class; thus we say *a tree*, and *the trees*. A *proper* noun is a noun which is proper or peculiar (proprius, Lat. *peculiar*) to an individual, as to a person, a place, a city, a nation. Thus *Alfred* is a proper noun; so is *Lancashire*, and *London*, and *England*.

The distinction between *common* and *proper* is not very satisfactory. If *tree* is a common noun because the term *tree* is common to all trees, might not *George* be accounted a common noun because it is common to all the Georges? And is not the name *Tree* as peculiar to the class *Tree*, as the name *George* is peculiar to the class of persons who bear this name? If, then, *Tree* is a noun peculiar to an individual and a class, and if *George* is the same, the distinction between *common* and *proper* does not appear determinate. In truth, the terms *peculiar* and *common* do not differ essentially, for what is peculiar to each of a class, is common to all the members of that class.

The difficulty seems to arise from the multiplication of the objects which are considered as nouns proper. So long as there is but one *London*, the word *London* is strictly a proper or peculiar name. But let there be several cities so called, then a class is formed, and the original peculiarity is lost. What was once peculiar to an individual place, is now common to several places. Proper names, you thus see, pass into common names.

This want of fixedness and precision is an objection. Nevertheless, the classification of nouns as nouns *common* and nouns *proper* has so rooted itself in our grammar, that I think it better to retain it, than to propose another which might be scarcely free from exception.

Emerson has written a book on what he calls "Representative Men." There are also representative nouns or names. Thus *Solomon* stands for a wise man, *Cyaxer* for a rich man, *Judas* for a traitor, *Demosthenes* for an orator, *Cicero* for the same, and *Homer* for a poet. Now mark how these are constructed. Shylock exclaims—

"A Daniel come to judgment! Yea, a Daniel!"

And, we also say of an eminent orator, "he is the Cicero of his age." Daniel and Cicero, in themselves, are proper nouns. In virtue of the articles they become common.

As proper nouns become common, so common nouns become proper, under the influence of the article. In the latter case, however, it is the definite article which produces the effect. A *Strand* is a river's bank. *The Strand* is a thoroughfare in London, so called because it runs alongside the Thames. So we speak of *the Channel*, *the Doorys*, *the United States*, *the Netherlands*. We also say *the Harbour*; but *the Harbour* is not a proper name, except at Portsmouth, where *the Harbour* means the particular harbour that is there; but the usage is local; whereas it requires national usage to convert such a common noun into a proper noun. This fact is exemplified in the phrase *the Lakes*, which from national usage means *the Lakes of Westmoreland*. *The Lakes*, therefore, has become the specific name for the whole district in the North of England where certain lakes are found. After a similar manner we speak of *the Highlands*.

The figure termed *Personification* (ascribing personal qualities to inanimate objects) may give to a common noun the attributes of a proper noun. "Reason is the highest gift of God; may we, O Divine Reason, listen reverently to thy voice?" In the first member or part of the sentence, *reason* is a common noun; in the second, in consequence of being the object of a direct address, it is a proper noun.

We have already seen that common nouns may represent an individual or a class. Thus a pigeon is one bird, but the pigeon is the class of birds, so denominated. Some common nouns in their essential import denote a number; such as *a fleet*, *a navy*, *a flock*. These nouns are called *collective*, or nouns of multitude. Singular in form, they are plural in import. Indeed, they denote a class. Thus a *crowd* is a number of individuals considered as forming one body; a *council* is a number of men met for consultation, forming the class councillor, in relation to some particular locality. Thus we say, *I am in the council*. *I am of the council*.

that is, *I am one of the class or body known under that general term*.

Proper nouns may be distinguished as names of places and names of persons. Names of places were originally descriptive; they described the places to which they were assigned. The Bible furnishes such names in abundance; for instance, a place in the Wilderness of Sinai was denominated Kibroth-Hattavah, that is, *graves of lust*, from an historical event recorded in the book of Numbers: 31. Names of places have, to the unlearned, ceased to be descriptive, because the terms have lost their meaning. Those who would know the meaning of the names in English topography must study the Teutonic and the Celtic languages, which contain the original elements out of which these names were formed. Some instances have been given—I add two or three. *Ore*, the name given to the Orkney islands in the Welsh Triads, signifies that which is *extremity*, so that Orkney is the extreme or last country, the ultima Thule. *Ramsgate* means the gate or pass leading into Ram, or Ruim, the British name for the Isle of Thanet. *Canterbury* is a corruption of the Anglo-Saxon *Cantabura byrig*, the forts or strongholds of the Gantware, that is, the men of Kent. *Cant* itself comes from *Caint*, which, in Welsh, means a plain or open country; and it was probably the old Welsh name for the slip of open land lying between the Weald and the Thames. The word *Winchester* is a hybrid, that is a cross between the British and the Latin. *Chester* is the Latin *Castra*, a camp, and denotes a Roman station. It is frequent in our names of places; e.g. Manchester, Dorchester, Chester. The first syllable *Win* is the Welsh *Gwyn*, which like *Gwyn* (probably the same word) signifies an open country. It seems to have been a name given to several districts in this island. *Monmouthshire* is still called *Gwent* by the Welsh, and was called *Went* by our English chroniclers as late as the 16th century. The Welsh name *Gwent* was softened by the Anglo-Saxons into *Winta*, whence came *Winchester*, that is *Winchester*.

Names of places, as being proper nouns, are distinctive as well as descriptive. Thus *Paris* is the capital of the French empire. But is there another Paris in the world? Our North American brothers have unparaphrasingly given the names belonging to the old country, to places of recent foundation in the new country. In so doing they have caused many of our names of places to lose their distinctiveness. The name *Boston* once denoted the town in Lincolnshire so called. The name was distinctive. Another *Boston* has sprung up in Massachusetts. Now, then, when we use the term, we are obliged to add some distinctive epithet, and call the one *Boston in England*, and the other *Boston in the United States*. Unless such an epithet is added, confusion must ensue. I have known a letter travel over a large part of England in search of the right *Broughton*, where lived the person for whom it was intended.

I subjoin some examples of the meaning of names of places in England.

Names of towns ending in *mouth* and *ford*.—Instances: Plymouth, Tyne-mouth, Yarmouth, Portsmouth; Oxford, Stratford, Romford, Balford.

The ending *mouth* denotes the *mouth* of a river, or the point where a river falls into the sea; thus Tyne-mouth is the mouth of the river Tyne. Portsmouth, the mouth of the Port, originally denoted the projecting land forming the narrow opening by which ships pass from the sea (Spithead) into the harbour. *Ford*, the German *furt*, signifies the part of a river or stream which, from its being shallow, may be forded, or passed dry-foot.

Names of towns ending in *chester*, *caster*, *cester*.—Instances: Dorchester, Porechester, Lancaster, Doncaster, Gloucester, Worcester, Leicester, Cirencester.

These endings come from either the Roman *castra* or the Saxon *caester*, according as the one or the other may be considered as the original word; not improbably the Saxon *caester* is a derivative from the Latin *castra* or *castrum*. *Castrum* in Latin, as *caester* in Saxon, denotes a *fort*, a *fortification*, a *castle*, an *encampment*; hence a *military settlement*, and so a town or city; for many of our towns were at the first military settlements.

Names of towns and villages in *wich* or *wick*.—Instances: Greenwich, Woolwich, Harwich, Norwich, Nantwich, Berwick, Keswick.

Wich or *wick* denotes an inlet or creek formed by the bend of

a river; then the land so enclosed, and then the collection of abodes fixed there; and so a *fortification*, a *village*, or *town*.

The ending *shire*.—Instances: Yorkshire, Cardiganshire, Devonshire, Lancashire, Cheshire.

Shire, connected with the German *schieren* (Saxon, *scir*), to cut, to cut off, to divide, denotes a *division of a country*, a *large district*; thus, Yorkshire is the district which belongs to the city of York, and of which that city is the (provincially) capital.

The ending *sex*.—Instances: Essex, Middlesex, Sussex, Wessex.

Sex is the remainder of the old Saxon term *Seaxe*, *Saxe* (German, *Sachs*), signifying *Saxons*; so that *Sussex* means the south Saxons, &c.

The endings *borough*, *burg* (German *burg*, a castle), *bury*.—Instances: Peterborough, Queensborough, Edinburgh, Sudbury, Bury.

Borough, softened into *burg* and *bury*, is the German *burg* (Greek, *purg*), a *fortified place*, a *town*; *borough*, considered as a municipality, is a derived and comparatively recent application. *Bury* or *Bury* also signifies a *bosom*, that is, a *vale* environed with hills; hence the use of the word in relation to places situated as is Bury in Lancashire.

The ending or prefix *Ham*.—Instances: Higham, Hampton, Oakham.

Ham, still continued as a separate word in the diminutive *hamlet*, denotes a *dwelling*, and hence a *village*.

The ending *minster*.—Instances: Westminster, Exminster, Warminster.

Minster is a Saxon word signifying a *monastery* or settlement of monks; hence its application to some of our cathedrals, as the *York Minster*.

COMPOSITION.

Study, and, as well as you can, reproduce the following observations; and while you employ them as an exercise in composition, "mark, learn, and inwardly digest," so as to observe and follow their practical wisdom.

THE BARBARIAN OF THOUGHT.

A little hard thinking will supply the place of a great deal of reading, and an hour or two spent in this manner sometimes lead you to conclusions which it would require a volume to establish. The mind advances in its train of thought, as a restive colt proceeds on the road in which you wish to guide him; he is always running to one side or the other, and deviating from the proper path, to which it is your affair to bring him back.

I have asked several men what passes in their minds when they are thinking; and I never could find any man who could think for two minutes together. Everybody has seemed to admit that it was a perpetual deviation from a particular path, and a perpetual return to it; which, imperfect as the operation is, is the only method in which we can operate with our minds to carry on any process of thought. It takes some time to throw the mind into an attitude of thought, or into any attitude; though the power of doing this, and in general of thinking, is amazingly increased by habit. We acquire, at length, a greater command over our associations, and are better enabled to pursue one object, unmoved by all the other thoughts which cross it in every direction.—*Sydney Smith*.

THE FOLLY OF UNIVERSAL ACQUIREMENTS.

There is another folly which is to be cautiously guarded against—the folly of *universality*,—of knowing all sciences and excelling in all arts,—chemistry, mathematics, algebra, dancing, history, reasoning, riding, fencing, Low Dutch, High Dutch, natural philosophy, and enough of Spanish to talk about Lope de Vega; in short, the modern precept of education very often is, "Take the admirable Ciceron for your model; I would have you ignorant of nothing!" Now my advice, on the contrary, is, to have the courage to be ignorant of a great number of things, in order to avoid the calamity of being ignorant of everything. I would exact of a young man a pledge that he would never read Lope de Vega; he should pawn to me his honour to abstain from Bettinelli, and his thirty-five original sonnets; and I would exact from him the most rigid securities that I was never to hear anything about that race of puny poets who lived in the reigns of Cosmo and Lorenzo di Medici.—*Sydney Smith*.

LESSONS IN FRENCH.—No. LIII.

By Professor LOUIS PASQUELL, LL.D.

§ 40.—REMARKS ON THE INDEFINITE PRONOUNS.

(1.) *AUTRUI*, others. This pronoun is applied only to persons. It has no change of form for gender or number, and is used only as an indirect regimen:—

L'honnête homme est discret; il remarque les défauts d'autrui, mais il n'en parle jamais. ST. EVREMOND.
Do not unto others that which thou wouldst not like to be done unto thee.

Ne fais point à autrui ce que tu ne voudrais pas qu'on te fit.

(2.) *CHACUN*, every one, each one. When this pronoun is absolute, and means every one, everybody, it is invariable:—

Le sens commun n'est pas chose commune. CHACUN pourtant croit en avoir assez. VALAINCOURT.
Common sense is no common thing, though every one believes he has enough of it.

Chacun est prosterné devant les gens heureux. DESTOUCHES.
Every one bows before the fortunate.

(3.) When *chacun* is used relatively it may take the form of the feminine:—

Chacune de nous (des femmes) se prétendait supérieure aux autres en beauté. MONTESQUIEU.
Every one of us (women) thought herself superior in beauty to the others.

(4.) *ON* (one, people, they) is always in the nominative; and although always constructed with a verb in the third person singular, it conveys most generally the idea of plurality. It is commonly used in indefinite sentences:—

On dit, people say, they say, it is said. On parle, somebody speaks, &c.

On garde ses secrets, ce qu'on acquiesce sans crime. CORNEILLE.
We (one, people) keep without remorse that which we (one, people) acquiesce without crime.

On relit tout Racine: on choisit dans Voltaire. DELILLE.
We (one, people) read again all Racine; we (one, people) select in Voltaire.

On ne surmonte le vice qu'en le fuyant. FENELON.
We (one, people) conquer vice only by avoiding it.

(5.) *ON*, coming immediately after the words *et, si, que, and qui*, is generally preceded by the article *le*, used for euphony:—

Ce que l'on conçoit bien, s'exprime clairement. BOILEAU.
That which one understands well, he clearly expresses.

C'est d'un roi que l'on tient cette maxime auguste, que jamais on n'est grand, qu'autant que l'on est juste. BOILEAU.
It is from a king that we derive this august maxim, that one is only great in proportion as he is just.

(6.) *PERSONNE*, no one, nobody, used as an indefinite pronoun, is always masculine and singular. When used as nominative to a verb expressed, it is followed by *ne*:—

Il n'est personne qui ne cherche à se rendre heureux.—Chinese thought.
There is no one who does not seek to render himself happy.

Personne ne veut être plaint de ses erreurs. VAUVENARGUES.
No one wishes to be pined on account of his mistakes.

NOTE.—The word *personne*, used as a noun, and meaning a particular person, is of the feminine gender.

(7.) *QUELQU'UN*, somebody, some one, any one, anybody, used absolutely, is invariable:—

Envier quelqu'un c'est s'avouer son inférieur. MLL. DE L'ESPINASSE.
To envy any one is confessing one's self his inferior.

Quelqu'un a-t-il jamais douté sérieusement de l'existence de Dieu? GIRAULT-DUVIVIER.
Has any one ever had serious doubts on the existence of God?

(8.) *Quelqu'un*, used relatively, changes for gender and number. It has then the sense of *some of, some one of*:—

Connaissez-vous quelqu'un de ces dames, quelques-uns de ces gens sages, any of these gentlemen? GIRAULT-DUVIVIER.

(9.) *Quiconque*, whoever, whosoever, is generally masculine, and has no plural. It is only said of persons:—

Quiconque flatte ses maîtres, les trahit. MASSILLON.
Whoever flatters his masters betrays them.

Quiconque est capable de mensonge, est indigne d'être compté au nombre des hommes. FENELON.
Whoever is capable of falsehood is unworthy to be counted among the number of men.

Quiconque est soupçonneux, invite la trahison. VOLTAIRE.
Whoever is suspicious, invites treachery.

(10.) *L'un l'autre*, one another, each other, the one and the other. This pronoun makes in the feminine *l'une l'autre*, and in the plural *les uns les autres, les uns les autres*:—

Tout le monde se confiait l'un à l'autre cette confidence. RULHIÈRES.
Everybody confided one to another this communication.

Tout le peuple suivit Virginie, les uns par curiosité, les autres par considération pour l'abbé. VOLTOT.
All the people followed Virginia, some through curiosity, some through respect for the abbot.

Il y a deux sortes de ruines: l'une l'ouvrage du temps, l'autre l'ouvrage des hommes. CHATEAUBRIAND.
There are two sorts of ruins: one the work of time, the other the work of men.

(11.) *L'un et l'autre, les uns les autres* (both.) This expression may be used of persons and of things:—

La Condamine a parcouru l'un et l'autre hémisphère. BUCON.
Both consuls followed his standards.

L'un et l'autre consul, guidés par ses étendards. CORNEILLE.
At both epochs a large number of citizens perished.

Sous l'une et l'autre époque, il périt un très grand nombre de citoyens. BARTHELEMY.
They united with one another against the common enemy.

Is se réunissaient les uns et les autres contre l'ennemi commun. GIRAULT-DUVIVIER.

(12.) *Tel, telle, feminine, such, many a person, many*, is an indefinite pronoun in the following and in similar sentences:—

Tel donne, à pleines mains, qui n'oblige personne. CORNEILLE.
Many a one may give bountifully without obliging any one.

Tel brille au second rang, qui s'éclipse au premier. VOLTAIRE.
Many a person may shine in the second rank, who is eclipsed in the first.

Tel est pris qui croyait prendre. LA FONTAINE.
Many are caught while attempting to catch others.

Telle, sans aucun attrait pour la retraite, se consacre au Seigneur par pure ferveur. MASSILLON.
Many (a nun) for whom retreat has no attractions, consecrates herself to the Lord through mere pride.

Tels que l'on croit d'inutiles amis, dans le besoin rendent de bons services. BOURCAULT.
Many friends whom we think useless render us, in our need, valuable services.

(13.) *Tel*, in connection with *Monsieur, Madam, &c.*, as *Monsieur un tel, Madame une telle*, Mr., Mrs. such-a-one, is used substantively.

(14.) *Tout, every one, every thing*. This word, employed absolutely, is invariable:—

A la seule vertu, sois sûr que tout prospère. P. DE NEUCHÂTEAU.
Be assured that it is with virtue alone that every thing prospers.

Tout n'est pas Caumartin, Bignon, ni d'Aguesseau. BOILEAU.
Every one is not Caumartin, Bignon, nor d'Aguesseau.

Son grand génie embrassait tout. BOSSUET.
His great genius embraced every thing.

§ 42.—VERBS.

(1.) The verb is that part of speech which expresses an action done or suffered by the subject; or simply indicates the condition of the subject.

(2.) The subject or the nominative of a verb is the person, or thing doing the action, or being in the condition expressed by the verb. It replies to the question *qui est-ce qui?* who? for persons; and *qu'est-ce qui?* which? what? for things.

(3.) Verbs admit two kinds of regimen: the direct regimen and the indirect regimen.

* The noun is in the singular, because the word *l'Amérique* is understood after the word *l'un*. This rule is observed by the best French authors.

(4.) The direct regimen, or immediate object, is that which completes in a direct manner the signification of a verb; that is to say, without the aid of any other intermediate word. It answers to the question *qui?* whom? for persons, and *quoi?* what? for things.

(5.) The indirect regimen, or remote object, is that which completes the signification of the verb by means of an intermediate word, such as the prepositions *à, de, pour, avec, dans, &c.*—*à qui?* to whom? *de qui?* of or from whom? *pour qui?* for whom? *avec qui?* &c., for persons; and *à quoi?* to what? *de quoi?* of or from what? &c., for things.

(6.) Verbs are regular, irregular, or defective. § 44 (2).

§ 43.—DIFFERENT SORTS OF VERBS.

(1.) There are five sorts of verbs: active, passive, neuter, reflexive or pronominal, and unipersonal.

(2.) The active verb is that which expresses an action performed by the subject, and having some person or thing for its object. This object is the direct regimen of the verb.

(3.) Every French verb after which *quelqu'un*, some one, *quelque chose*, something, may be placed, is an active verb. Thus, in the following sentences, *protéger, changer, chanter, &c.*, are active verbs, because we may say *protéger quelqu'un*, to protect some one; *changer quelque chose*, to change something:—

Dieu protège l'innocence.	God protects innocence.
L'habit change les mœurs.	Dress changes the manners.
Les cygnes ne chantent pas leur mort.	Swans do not sing their death.

(4.) The passive verb is the contrary of the active verb. The active verb presents the subject as performing an action immediately directed towards an object; whereas the passive verb presents the subject as suffering or receiving an action. The passive verb is composed of the past participle of an active verb and the auxiliary *être*, to be. (See § 54.)

Nos campagnes sont fertilisées par la pluie.	Our fields are fertilized by the rain.
Il était guidé par la force de son génie.	He was guided by the force of his genius.
Les petits esprits sont trop vexés des petites choses.	Little minds are too much vexed with trifles.

(5.) The neuter verb marks, like the active verb, an action performed by the subject; but this action can only reach the object indirectly; that is, by means of a preposition. Hence it is that the neuter verb never has a direct regimen, and that the words *quelqu'un* and *quelque chose* cannot be placed after it. A neuter verb can never be used in the passive voice:—

Socrate passa le dernier jour de sa vie à discuter de l'immortalité de l'âme.	Socrates spent the last day of his life in discussing upon the immortality of the soul.
Le feu qui semble éteint, dort souvent sous sa cendre.	The fire which seems extinct sleeps often under its ashes.

Les Platéens citent les Lacédémoniens à comparaître devant les Amphictyons.	The Platéans cited the Lacedæmonians to appear before the Amphictyons.
---	--

(6.) The reflexive or pronominal verb is conjugated with two pronouns of the same person; *je me, tu te, il se, nous nous, vous vous, ils se*. (See § 56):—

Je me flatte, I flatter myself.	Nous vous félicitons, you congratulate yourselves.
Il ne faut pas se flatter, les plus expérimentés ont fait des fautes capitales.	We should not flatter ourselves: the most experienced have committed capital errors.
Les peuples se féliciteront d'avoir un roi qui lui ressemble.	The nations will congratulate themselves upon having a king who resembles him.
Il ne faut pas permettre à l'homme de se mépriser entièrement.	We should not allow a man to deceive himself entirely.

(7.) The unipersonal verb can only be used in the third person singular: *il pleut, it rains; il gèle, it freezes; il tonne, it thunders*:—

Pour bien juger les grands, il faut les approcher. ALBERT.
To judge properly of the great, it is necessary to approach them.

Il faut rendre meilleur le pauvre qu'on soulage. SAINT-LAMBERT.
We should (it is necessary to) improve the poor whom we relieve.

(8.) There are two verbs called auxiliary, because they serve to conjugate all others. They are—*avoir, to have*; and *être, to be*.

LESSONS IN LATIN.—No. XLVIII.

By JOHN R. BEARD, D.D.

GOVERNMENT.

GOVERNMENT involves dependence between words as agreement involves similarity. One word is said to govern another when the one is dependent on the other, and is modified in form and meaning by the other. Take, as an instance, the words

Pignus amoris.
Pledge of love.

This is an example of dependence or government, for *amoris* is dependent on *pignus*, and is changed by that dependence from *amor* to *amoris*.

Government may take place between

1. One noun and another noun.
2. A pronoun and a noun.
3. An adjective and a noun.
4. An adverb and a noun.
5. Prepositions and nouns.
6. Verbs and nouns or pronouns.
7. Verbs and verbs.
8. Verbs and relatives.
9. Verbs and conjunctions.

1. One noun may govern another, e. g.,
Hic est hortus regis;
This is the garden of the king;

where *regis* is in the genitive case governed by the noun *hortus*.

The rule then is—One noun governs another in the genitive case.

This construction resembles the English—*this is the king's garden*, where *king's* is in the possessive or genitive case governed by *garden*. *King's*, it will be observed, is a form derived from *king*, as *regis* is a modification of *rex*. Here the Latin idiom agrees with the English idiom.

The effect of this genitive, or of the governed word, is to define more exactly the governing word, e. g., we may ask: "Whose garden?" The answer is, "the king's garden." The noun in the genitive then performs the part of an attributive, and the phrase *hortus regis* is pretty much the same as *hortus regius, the royal garden*.

This instance of a noun-government denotes possession. Similar is the import when relationship is indicated; as, *Hectoris uxor Andromache, Andromache, the wife of Hector*.

The genitive, also, denotes a whole of which a part is taken, and hence is termed partitive (genitivus partitivus), as, *partes corporis, parts of the body*.

It may, moreover, signify the originator, cause, or producer; and hence the word *genitive*, from *gigno, I beget*; for instance: *conjuratio Catilinæ, Catiline's conspiracy*, that is, *the conspiracy originated by Catiline*; *desiderium patriæ, desire for one's native land*, that is, the longing caused in the mind by one's native land.

Of, is the general sign of the genitive, but here we have employed *for*; for is sometimes the only word which will give the sense of the original. The Latin genitive has a wider application than the English.

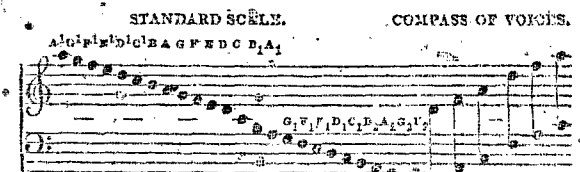
In English we employ the partitive genitive where there is in reality no partition. Thus, we say, "There were four of us," that is, "we were four," so said the Latins, *quattuor cramus*, avoiding the previous form.

2. A pronoun may govern a noun or another pronoun, e. g.,
1. *Animalium alia rationis expertia sunt, alia tentia.*
Of animals, some are devoid of reason, others use (reason).
2. *Quis eorum est medicus?*
Which of you is a physician?

organ in the throat, these sounds, instead of being full, will be of a hollow quality—being the extreme sounds of the baritone, whilst they are in the middle and fullest part of the tenor. If the voice is at all strained on this part, instead of gaining the soft and full baritone quality, it will become an imperfect mixture of the baritone and tenor."

c. The Bass Voice reaches its extreme sounds in a (on the lowest line of the treble clef) and a (below the bass clef). Its easy compass is from d down to c. "It is naturally of a hard and inflexible quality, but very full and powerful in sustaining sounds."

Those who understand the old notation will like to see the following diagram:—



The statement of the extreme compass of voices, and the remarks included between inverted commas, are either condensed or extracted from the "Art of Singing," by D. Crevelli, a work which is "the result of study and experience, for nearly thirty years" of a gentleman, who is spoken of by the "Athenaeum" as "the most successful vocal teacher in England."

It should be noticed that boys' voices, especially for some time before they begin to break, are of a different timbre from those of girls, are heavier and less flexible. They should, as much as possible, be employed in singing "records."

The voices of women and children are commonly called "treble voices." The highest female voice is often called simply "soprano," and the second voice is then called the "mezzo soprano." The "part" adapted to the second soprano or contra-alto is sometimes called the "seconds," but that term is occasionally used in reference to the tenor! The "alto" is a very high man's voice, reaching very nearly to the lowest of women's voices, which is called, on that account, the contra-alto. But the two voices differ greatly in character—the one being light and flexible, the other not so.

Every pupil should mark the extent of his own voice on the scale above given at the side of the page.

The pupils need scarcely be warned against the common foolishness of boasting "how high they can sing." Let them remember that God has made their voices differently, that it is the honour of some to sing the lower parts for which their voices were made, as it is of others to sing the higher parts—that and the medium sounds of every voice are not only its easiest, but its very best.

Vocal music is commonly so written that several melodies may be sung together—each melody being adapted, in its compass, to one particular voice. The leading (or most striking) melody is almost invariably, and very properly, that which is sung by the highest voice. Each of these concurring melodies is called a "part"—the highest is called the "air."

Those who sing in parts should seek to *attune* their voices one to the other, and to maintain the several parts with an equal volume of voice, so that one part may not overpower the others. Each singer should also take care to sing the part proper to his own voice.

We have music "in two parts," written for soprano and contra-alto voices, or for tenor and bass (like the exercises in this work), or for soprano and bass,—music "in three parts" written "for three equal voices" (that is, for three female or three male voices), or for soprano, contra-alto, or baritone (like "School Music"), or for soprano, tenor, and bass, &c.—music "in four parts" for soprano, contra-alto, tenor, and bass, &c. (like most psalm tunes),—also music in five, six, and eight parts.

There is no harmony more perfect than the "concord of sweet voices." "All musicians knew," says Col. Thompson, "that by practising together, and, as it were, mutually rubbing down each other's asperities and defects, a quartett of

performers on instruments of the viol kind, arrived at a perfection of execution in point of harmony, or what is popularly called 'being in tune,' which nothing could effect, and no known thing, except a quartett of singers, equal. In short, there was no doubt that by following the directions of the ear as to what was most harmonious, and each labouring to accommodate the other with this common object in view, they did practically break in upon the thing so much sought for under the title of correct harmony. * * * But nobody could tell what it was they did." The Colonel then shows that the thing they did was—to sing or play notes which were mathematically correct according to the scale which the human ear requires—to free themselves from the temperament of keyed instruments—and to observe that double form of *ra* and *ray* which he calls "the duplicity of the dissonances." Let the singer make full use of the advantage he thus possesses.

The "balancing" of parts is important. For a congregation containing every kind of voice, music in four parts, soprano, contra-alto, tenor, and bass, is most appropriate. The second soprano and the baritone voices, in such music, would have to join with the parts above or below according to convenience. But in the Sabbath-school, where the immense preponderance of voice is that of females and children, to divide the voice of the male teachers into bass and tenor would make them out of all proportion weak. A far better distribution and more equal volume of voice is obtained by using music written for three parts—two for the voices of females and children, and one (of medium compass) for the united voices of the men—as in "School Music." A similar proportion is desirable for boys' schools with a master, but the parts should be so written that the two upper melodies may be harmonious when the bass is absent. In girls' schools music in two parts is desirable.

After these explanations, it is scarcely necessary to warn the pupil against the too common but absurd practice of females attempting to sing the tenor, or that of males sullying with their tenor or baritone voices, the purity and brightness of the "air." If men are obliged to *pitch* the air of a tune, let them do so; but let them leave the females to sing it while they return to the part which is proper to their own voices.

In "leading" a tune it is advisable first to let all the school or congregation distinctly hear the key-note. If necessary, the first note or two (not more) may be sung by the leader in the "air." The leader should then take his own part. He will find himself able to keep up the *pitch* or the *rate of movement* much better by means of a *firm bass* or a *clear tenor*, both well accented, than by singing the air however loudly or however angrily. When a "clerk" or "precentor" will sing the "air," it takes the spirit from the female voices: but if, perchance, for a line, he leaves them to themselves, they seem to rise with new vigour, sweetness, and brilliancy.

A good enunciation of words is most important to the singer. He cannot use that accent and inflection on each word which so much helps us to distinguish the words of the speaker, however badly uttered. It is therefore the more necessary for the singer, if he would be "intelligible and edifying," to use an articulation strong, distinct, and correct.

Care should be taken to make the *vowel* sounds most clear and accurate, and to deliver the *consonants* both quickly and forcibly.

For this purpose, the words should be read aloud by the teacher, so as to show the feeling and proper expression belonging to them, and to exhibit a "pattern" of good utterance. This the class should imitate, in one voice, taking the teacher's pattern line by line. The practice of reading together in a loud whisper will be found very conducive to the end sought.

It will sometimes be convenient to shorten a note when it falls on an ill-sounding syllable, and sometimes to throw the sound of a final consonant on to the following word.

If we were to pursue this important subject further, we should be tempted into a course of lessons on elocution, which would be beyond our province here.

(The Exercises attached to this Lesson will be given in our next.)

SKELETON MAPS.—No. 1E

(Continued from page 12.)

Names of Places.	Latitudes.	Longitudes.	Names of Places.	Latitudes.	Longitudes.
Charles, Germany.....	51° 45' N.	6° 7' E.	Geneva, Switzerland.....	46° 12'	6° 10'
Coblenz, Germany.....	50° 22'	7° 38'	Genoa, Italy.....	44° 25'	8° 53'
Cobourg, Germany.....	50° 15'	10° 58'	Ghent, Belgium.....	51° 3'	2° 41'
Coimbra, Portugal.....	40° 13'	8° 21' W.	Gibraltar, Spain.....	36° 7'	5° 23' W.
Colchester, England.....	51° 53'	0° 51' E.	Girgenti, Sicily.....	37° 18'	13° 31' E.
Cologne, Germany.....	50° 55'	6° 35'	Glasgow, Scotland.....	55° 52'	4° 16' W.
Como, Italy.....	45° 48'	9° 8'	Glastonbury, England.....	51° 9'	2° 41'
Constance, Germany.....	47° 26'	9° 8'	Gloucester, England.....	51° 52'	2° 14'
Constantinople, Turkey.....	41° 1'	29° 55'	Gluckow, Russia.....	51° 41'	31° 20' E.
Copenhagen, Denmark.....	55° 41'	12° 36'	Gluckstadt, Germany.....	53° 48'	9° 27'
Cerfu I., Mediterranean.....	39° 38'	19° 48' E.	Gotha, Germany.....	50° 56'	10° 44'
Corinth, Greece.....	37° 58'	23° 28'	Gothland I., Baltic.....	57° 50'	18° 0'
Cork, Ireland.....	51° 55'	8° 17' W.	Gottenburg, Sweden.....	59° 42'	11° 55'
Ceron, Greece.....	36° 47'	21° 13' E.	Gottlingen, Germany.....	51° 32'	9° 42'
Cestrat, Belgium.....	50° 50'	3° 15'	Gorda, Holland.....	52° 0'	4° 42'
Costances, France.....	49° 3'	1° 26' W.	Gradisca, Italy.....	45° 54'	13° 25'
Cotentry, England.....	52° 24'	1° 30' W.	Gradesca, Italy.....	47° 4'	15° 27'
Cracow, Galicia.....	50° 4'	19° 57' E.	Graz, Germany.....	48° 59'	2° 8'
Cremona, Italy.....	45° 8'	10° 2'	Gravelines, France.....	50° 29'	0° 0'
Cronstadt, Russia.....	53° 52'	29° 50'	Greenwich, England.....	51° 11'	0° 44'
Cuxhaven, Germany.....	53° 50'	8° 42'	Grenoble, France.....	45° 41'	23° 50'
Dago, Baltic.....	58° 50'	22° 40'	Grodna, Russia.....	52° 44'	28° 40'
Dantzig, Prussia.....	54° 21'	18° 38'	Gugubila, Italy.....	51° 51'	6° 12'
Darmstadt, Germany.....	49° 56'	8° 35'	Gueldres, Germany.....	52° 5'	4° 19'
Deventry, England.....	52° 16'	2° 9' W.	Haarlem, Holland.....	52° 54'	11° 4'
Deal Castle, England.....	51° 13'	1° 21' E.	Hallensdorf, Germany.....	51° 29'	11° 58'
Delft, Holland.....	52° 1'	4° 22'	Halle, Germany.....	51° 49'	12° 32'
Derby, England.....	52° 58'	1° 24' W.	Halmstadt, Sweden.....	56° 40'	12° 32'
Dieppe, France.....	49° 56'	1° 4' E.	Hamburg, Germany.....	53° 33'	9° 50'
Dijon, France.....	47° 19'	5° 2'	Hammerfest, Norway.....	70° 38'	23° 44'
Dixmude, Belgium.....	51° 2'	2° 52'	Hannover, Germany.....	52° 22'	9° 42'
Dorchester, England.....	50° 43'	2° 26' W.	Harlem, Holland.....	52° 23'	4° 58'
Dordrecht, Holland.....	51° 49'	4° 46' E.	Haringen, Holland.....	53° 10'	5° 25'
Dorpat, Russia.....	58° 23'	26° 42'	Hartlepool, England.....	54° 42'	1° 11' W.
Dover Castle, England.....	51° 3'	1° 19'	Havre de Grace, France.....	49° 23'	0° 7' E.
Dresden, Germany.....	51° 3'	13° 43'	Heligoland, North Sea.....	54° 12'	7° 53'
Dronthim, Norway.....	63° 23'	19° 23'	Helsingborg, Sweden.....	56° 3'	12° 43'
Dublin, Ireland.....	53° 23'	6° 21' W.	Helsingfors, Russia.....	60° 10'	25° 0'
Dundee, Scotland.....	56° 28'	2° 56'	Helvoetsluys, Holland.....	51° 49'	3° 28'
Dunkirk, France.....	51° 2'	2° 23' E.	Heracles, Turkey.....	41° 11'	27° 55'
Durazzo, Turkey.....	41° 20'	19° 27'	Herenthals, Belgium.....	51° 11'	4° 50'
Durham, England.....	54° 47'	1° 34' W.	Hermosand I., Sweden.....	62° 38'	17° 43'
Dusseldorf, Germany.....	51° 14'	6° 45' E.	Hola, Iceland.....	65° 44'	19° 44' W.
Edinstone L., England.....	55° 11'	4° 15' W.	Holy Is., England.....	55° 40'	4° 47'
Edinburgh, Scotland.....	55° 57'	3° 11'	Holthead, Wales.....	52° 19'	4° 30'
Eisenach, Germany.....	50° 59'	10° 20' E.	Hofsham, England.....	51° 4'	0° 20'
Elba I., Mediterranean.....	42° 49'	10° 20' E.	Huntingdon, England.....	52° 20'	0° 11' E.
Ebing, Prussia.....	54° 8'	19° 22'	Huesca, France.....	42° 7'	0° 8' E.
Elsinore, Denmark.....	56° 25'	12° 38'	Iglau, Germany.....	49° 23'	15° 36'
Elly, England.....	52° 25'	0° 17' E.	Iichester, England.....	51° 6'	2° 40' W.
Emden, Germany.....	53° 22'	7° 18'	Ingolstadt, Germany.....	48° 46'	11° 26' E.
Enkhuysen, Holland.....	52° 42'	5° 18'	Innsbruck, Germany.....	47° 16'	11° 24'
Erfurt, Germany.....	50° 59'	11° 25'	Ismail, Turkey.....	45° 21'	29° 50'
Escorial, Spain.....	40° 35'	4° 9' W.	Ivica I., Mediterranean.....	38° 53'	1° 29'
Etreux, France.....	48° 56'	1° 9' E.	Jaroslav, Russia.....	57° 38'	40° 10'
Exeter, England.....	50° 43'	3° 31' W.	Jassy, Moldavia.....	47° 9'	27° 30'
Faro, Portugal.....	36° 59'	7° 51' W.	Jersey I., British Channel.....	42° 13'	2° 10' W.
Ferroe Is., Atlantic.....	62° 0'	11° 36' E.	Johannisherg, Prussia.....	53° 38'	21° 49' E.
Ferrara, Italy.....	44° 50'	11° 36' E.	Kaminka, Russia.....	55° 48'	49° 21'
Ferril, Spain.....	45° 29'	8° 15' W.	Kasan, Russia.....	56° 41'	49° 21'
Floisterre, Cape, Spain.....	45° 20'	14° 26' E.	Kashon, Russia.....	62° 22'	21° 11'
Fiume, Illyria.....	45° 47'	0° 23'	Kertcha, Crimea.....	45° 21'	32° 21'
Florence, Italy.....	43° 47'	11° 16'	Kidwelly, Wales.....	51° 44'	4° 17' W.
Flushing, Holland.....	51° 27'	3° 35'	Kiel, Germany.....	54° 20'	10° 8' E.
Folkstone, England.....	51° 5'	1° 11'	Kinsale, Ireland.....	51° 42'	8° 25' W.
Fontarbia, Spain.....	43° 22'	1° 47' W.	Klov, Russia.....	50° 27'	30° 28' E.
Foreland N., England.....	51° 23'	1° 27' E.	Klin, Russia.....	56° 20'	26° 48'
Forland S., England.....	51° 3'	1° 22'	Koenigsburg, Prussia.....	54° 42'	20° 29'
Frankfort (Maine), Germany.....	50° 7'	8° 33'	Kola, Russia.....	68° 53'	33° 1'
Frankfort (Oder), Germany.....	52° 22'	14° 52'	Koluga, Russia.....	54° 30'	26° 5'
Frejus, France.....	43° 26'	6° 44'	Koolof, Russia.....	45° 12'	33° 22'
Fulda, Germany.....	50° 34'	9° 44'	Kostroma, Russia.....	57° 46'	41° 13'
Gall, St., Switzerland.....	47° 28'	9° 22'	Krageroe, Norway.....	58° 52'	15° 35'
Gallipoli, Turkey.....	40° 25'	26° 33'	Kroma, Germany.....	48° 22'	36° 28'
Gap, France.....	44° 34'	6° 4'	Kurak, Russia.....	51° 41'	38° 38' W.
Gata, Cape, Spain.....	35° 44'	2° 13' W.	Lagos, Portugal.....	37° 3'	2° 43'
Gefle, Sweden.....	60° 40'	17° 9' E.	Lancaster, England.....	54° 3'	10° 54' E.
			Landsberg, Germany.....	43° 3'	12° 51'
			Landskron, Sweden.....	55° 52'	12° 51'
			Langes, France.....	47° 52'	5° 20'
			Lasa, France.....	40° 34'	3° 27'
			Lautach, Germany.....	48° 2'	14° 46'
			Launceston, England.....	50° 33'	4° 21' W.

Names of Places.	Latitudes.	Longitudes.	Names of Places.	Latitudes.	Longitudes.
Leasowes, England.....	53° 25'	3° 7'	Negropont, Archipelago.....	39° 28'	23° 34' E.
Leghorn, Italy.....	43° 33'	10° 17' E.	Neustadt, Germany.....	47° 48'	16° 14' E.
Leipzig, Germany.....	51° 20'	12° 12' E.	Norwich, England.....	53° 5'	1° 40' W.
Le Mans, France.....	48° 1'	0° 12'	Newbury, England.....	51° 24'	1° 19'
Leon Is., Spain.....	36° 28'	6° 13' W.	Nice, Italy.....	43° 41'	7° 17' E.
Le Puy, France.....	45° 3'	3° 54' E.	Nieuport, Belgium.....	51° 8'	2° 45'
Leyden, Holland.....	52° 10'	4° 29'	Nimwegen, Holland.....	51° 51'	5° 51'
Libau, Courland.....	56° 32'	20° 55'	Nismes, France.....	43° 50'	4° 22'
Lichtenau, Germany.....	51° 37'	8° 54'	Niemi Novgorod, Russia.....	56° 20'	44° 29'
Liege, Belgium.....	50° 39'	5° 52'	Niemi Oudinsk, Russia.....	54° 55'	29° 2'
Lilienthal, Germany.....	53° 9'	8° 54'	Noirmontier, France.....	47° 0'	2° 14' W.
Limoges, France.....	45° 50'	1° 15'	Norkoping, Sweden.....	59° 35'	16° 11' E.
Lincoln, England.....	53° 14'	0° 32' W.	North Cape, Lapland.....	71° 10'	26° 1'
Lindesnes, Norway.....	57° 58'	7° 3' E.	Nottingham, England.....	52° 57'	1° 8' W.
Lintz, Germany.....	48° 19'	14° 56'	Novara, Italy.....	45° 27'	3° 33' E.
Lipari Is., Mediterranean.....	38° 23'	14° 56'	Novogorod, Russia.....	58° 32'	31° 33'
Lisbon, Portugal.....	38° 42'	9° 9' W.	Nuremberg, Germany.....	49° 27'	11° 4'
Litchfield, England.....	52° 41'	1° 49'	Oczakow, Russia.....	46° 27'	31° 26'
Liverpool, England.....	53° 23'	2° 59'	Odessa, Russia.....	46° 30'	30° 45' E.
Lizard Point, England.....	49° 58'	5° 11' E.	Oerebro, Sweden.....	59° 17'	15° 13' E.
Lodi, Italy.....	45° 19'	9° 31' E.	Oldenburg, Germany.....	53° 9'	8° 15'
London, England.....	51° 31'	0° 6' W.	Oléron, France.....	43° 11'	0° 36'
Londonderry, Ireland.....	54° 50'	7° 15'	Omer, St., France.....	50° 45'	2° 15'
Loretto, Italy.....	43° 27'	13° 35' E.	Onega, Russia.....	63° 55'	38° 6'
L'Orient, France.....	47° 45'	3° 21' W.	Oporto, Portugal.....	41° 9'	8° 37' W.
Loughborough, England.....	52° 47'	1° 12'	Orel, Russia.....	52° 57'	35° 57' E.
Louvain, Belgium.....	50° 53'	4° 42' E.	Orford Lt., England.....	52° 5'	1° 34'
Lowestoft, England.....	52° 29'	1° 46'	Orleans, France.....	47° 54'	1° 55'
Lubeck, Germany.....	53° 51'	10° 10' E.	Ortega, Cape, Spain.....	43° 47'	7° 49' W.
Lugano, Italy.....	45° 0'	8° 58'	Osnaburg, Germany.....	52° 17'	8° 1' E.
Lunde, Norway.....	58° 27'	6° 36'	Ostend, Belgium.....	51° 14'	2° 55'
Lundy I., England.....	51° 10'	4° 39' W.	Otranto, Italy.....	40° 9'	18° 29' W.
Lutterworth, England.....	52° 27'	1° 12'	Oxford, England.....	51° 46'	1° 15' W.
Luxemburg, Germany.....	49° 38'	6° 10' E.	Paderborn, Germany.....	51° 44'	8° 44' E.
Lynn, England.....	52° 47'	0° 25'	Padua, Italy.....	45° 24'	11° 52'
Lyons, France.....	45° 46'	4° 49'	Palermo, Sicily.....	38° 7'	13° 22'
Macon, France.....	46° 18'	4° 59'	Palma, Majorca.....	39° 34'	2° 30'
Madrid, Spain.....	40° 25'	3° 42' W.	Pamplona, Spain.....	42° 50'	1° 41' W.
Maestricht, Holland.....	50° 51'	5° 11' E.	Paris, France.....	48° 50'	2° 20' E.
Magdeburg, Germany.....	52° 8'	11° 39'	Parma, Italy.....	44° 48'	10° 27'
Maton, Mitoca.....	39° 51'	4° 13'	Paros I., Archipelago.....	37° 4'	25° 11'
Malaga, Spain.....	36° 44'	4° 25' W.	Pavia, Italy.....	45° 11'	9° 10'
Malines, Belgium.....	51° 2'	4° 29' E.	Penicola, Spain.....	40° 23'	0° 33'
Malmö, Sweden.....	55° 37'	13° 1'	Pearth B., England.....	54° 41'	2° 44' W.
Mals, St., France.....	48° 39'	2° 1' W.	Perikop, Crimea.....	46° 9'	35° 42' E.
Manchester, England.....	53° 29'	2° 14'	Perigueux, France.....	45° 11'	0° 41'
Manheim, Germany.....	49° 20'	8° 28' E.	Perru, Russia.....	58° 1'	56° 27'
Mantua, Italy.....	45° 0'	10° 48'	Perpignan, France.....	42° 42'	12° 54'
Marburg, Austria.....	46° 35'	15° 43'	Pesaro, Italy.....	43° 55'	12° 54'
Marienburg, Prussia.....	54° 2'	19° 2'	Peterborough, England.....	52° 36'	0° 15' W.
Markoe I., Norway.....	57° 59'	6° 59'	Petersburg, Russia.....	59° 56'	30° 19' E.
Marseilles, France.....	43° 18'	5° 22'	Piacenza, Italy.....	45° 3'	9° 43'
Martin, St., Scilly Isles.....	49° 58'	6° 15' W.	Pillau, Prussia.....	54° 34'	14° 53'
Mary, Cape St., Italy.....	39° 48'	18° 23' E.	Pilsen, Austria.....	49° 46'	13° 23'
Matapan, Cape, Greece.....	36° 23'	22° 30'	Plombino, Italy.....	42° 55'	10° 31'
Mataro, Spain.....	41° 32'	2° 27'	Pisa, Italy.....	43° 43'	10° 24'
May I., Scotland.....	56° 11'	2° 33' W.	Plymouth, England.....	50° 22'	4° 7' W.
Meaux, France.....	48° 58'	2° 53' E.	Poitiers, France.....	46° 35'	0° 21' E.
Meiningen, Germany.....	50° 35'	10° 24'	Polia, Istria.....	44° 52'	13° 50'
Memel, Prussia.....	55° 42'	21° 8'	Polotsk, Russia.....	55° 29'	28° 48'
Messina, Sicily.....	38° 12'	15° 36'	Pool, England.....	50° 43'	1° 59' W.
Metz, France.....	49° 7'	6° 10'	Portland, England.....	50° 31'	2° 27'
Middleburg, Holland.....	51° 30'	3° 38'	Porto Vecchio, Corsica.....	41° 35'	9° 17' E.
Milan, Italy.....	45° 28'	9° 11'	Portsmouth, England.....	50° 48'	1° 6' W.
Milo I., Archipelago.....	36° 43'	24° 14'	Prague, Germany.....	50° 6'	14° 25' E.
Mittau, Russia.....	56° 39'	23° 43'	Presburg, Hungary.....	48° 8'	17° 11'
Modena, Italy.....	44° 38'	10° 57'	Quimper, France.....	47° 58'	4° 56' W.
Mohilew, Russia.....	53° 54'	30° 54' E.	Quimper, St. France.....	49° 51'	3° 17' E.
Mondego, Cape, Portugal.....	40° 12'	1° 11' W.	Ramsey I., Wales.....	51° 52'	6° 20' W.
Montauban, France.....	44° 1'	1° 26' E.	Ratisbon, Germany.....	49° 1'	12° 5' E.
Montpellier, France.....	43° 3'	3° 33' E.	Ravenna, Italy.....	44° 25'	12° 11' E.
Moscow, Russia.....	55° 46'	37° 33'	Rendburg, Denmark.....	54° 19'	9° 40'
Mosdok, Russia.....	43° 44'	29° 50'	Remes, France.....	48° 7'	1° 41' W.
Munich, Germany.....	48° 8'	11° 35'	Revel, Russia.....	59° 27'	24° 35' E.
Munster, Germany.....	51° 58'	7° 36'	Rheil, France.....	46° 15'	1° 33' W.
Namur, Belgium.....	50° 23'	4° 51'	Rheims, France.....	49° 15'	4° 3' E.
Nancy, France.....	48° 42'	6° 11'	Rhodes I., Archipelago.....	36° 26'	28° 15'
Nantes, France.....	47° 13'	1° 12' W.	Riga, Russia.....	56° 57'	24° 8'
Naples, Italy.....	40° 50'	14° 16' E.	Rimini, Italy.....	44° 4'	12° 33'
Narbonne, France.....	43° 11'	3° 0'	Rochefort, France.....	46° 56'	0° 58' W.
Nava, Russia.....	59° 23'	28° 10'	Rochelle, France.....	46° 9'	1° 10'
Needles Lt., England.....	50° 40'	1° 34' W.	Rodosto, Turkey.....	41° 59'	27° 26' E.

Names of Places.	Latitudes.	Longitudes.	Names of Places.	Latitudes.	Longitudes.
Rome, Italy.....	41° 54'	12° 30'	Urbino, Italy.....	43° 44'	12° 57'
Rondoe I., Norway.....	62° 25'	5° 36'	Ushant I., France.....	48° 25'	5° 2' W.
Rotterdam, Holland.....	51° 55'	4° 29'	Utrecht, Holland.....	52° 6'	5° 7' E.
Rouen, France.....	49° 26'	1° 6'	Valencia, Spain.....	39° 29'	0° 23' W.
Rugen I., Sweden.....	54° 25'	13° 30'	Valletta, Malta.....	35° 53'	14° 31' E.
Rutemonde, Holland.....	51° 12'	5° 50'	Valona, Turkey.....	40° 23'	19° 26'
Rypen, Denmark.....	55° 20'	8° 47'	Vannes, France.....	47° 39'	2° 46' W.
Saintes, France.....	45° 45'	0° 38' W.	Venice, Italy.....	45° 26'	12° 21' E.
Salisbury, England.....	51° 4'	1° 47'	Vendée, Germany.....	51° 22'	5° 11'
Salonica, Turkey.....	43° 38'	23° 56' E.	Verden, Germany.....	52° 55'	9° 13'
Salzburg, Germany.....	47° 48'	13° 1'	Verdun, France.....	49° 10'	5° 22'
Santander, Spain.....	43° 28'	3° 41' W.	Verona, Italy.....	45° 26'	11° 1'
Saratov, Russia.....	51° 31'	46° 0' E.	Versailles, France.....	48° 48'	2° 7'
Sark I., English Channel.....	49° 23'	2° 25' W.	Vicenza, Italy.....	45° 32'	11° 33'
Schladam, Holland.....	51° 55'	4° 24' E.	Vienna, Austria.....	48° 13'	16° 23'
Schmaalkalden, Germany.....	50° 45'	10° 16'	Vigo, Spain.....	42° 13'	8° 34' W.
Schweldnitz, Germany.....	50° 51'	16° 27'	Villach, Germany.....	46° 35'	12° 52' E.
Sebastian, St., Spain.....	43° 20'	1° 59' W.	Villalpando, Spain.....	41° 51'	5° 24' W.
Sebastopol, Crimea.....	44° 58'	34° 9'	Vineent, Cape St., Portugal.....	37° 3'	9° 0' W.
Seckness, England.....	51° 11'	0° 41' E.	Viviers, France.....	44° 29'	4° 41' E.
Shrewsbury, England.....	52° 42'	2° 45' W.	Vologda, Russia.....	58° 14'	40° 11'
Sicuna, Italy.....	44° 22'	11° 10' E.	Veronetz, Russia.....	51° 41'	39° 22'
Simpferopol, Crimea.....	44° 58'	34° 9'	Wakefield, England.....	51° 18'	1° 29' W.
Skagen, Cape, Denmark.....	57° 44'	10° 38'	Waldeck, Prussia.....	51° 18'	9° 2' E.
Sleswick, Denmark.....	54° 31'	9° 34'	Walden, Lapland.....	70° 23'	31° 7'
Sonderburg, Denmark.....	54° 55'	9° 47'	Warrington, England.....	53° 24'	2° 32' W.
Sonderhausen, Germany.....	51° 23'	10° 50'	Warsaw, Poland.....	52° 14'	21° 3' E.
Southampton, England.....	50° 54'	1° 24' W.	Weimar, Germany.....	50° 59'	11° 21'
Spartivento, Cape, Italy.....	37° 55'	16° 4' E.	Wesel, Germany.....	51° 39'	6° 37'
Spina, Italy.....	44° 4'	9° 51'	Whitehaven, England.....	54° 33'	3° 35' W.
Spire, Germany.....	49° 19'	8° 28'	Wiborg, Denmark.....	56° 27'	9° 26' E.
Spoletta, Italy.....	42° 45'	12° 36'	Wiborg, Russia.....	60° 43'	28° 46'
Stade, Germany.....	53° 37'	9° 28' W.	Wicklow, Ireland.....	52° 58'	6° 0' W.
Staples Lt., England.....	55° 23'	1° 37' W.	Wilna, Russia.....	54° 41'	25° 18' E.
Start Point, England.....	50° 53'	3° 38'	Winchester, England.....	51° 4'	1° 18' W.
Stavanger, Norway.....	58° 59'	5° 45' E.	Windsor, England.....	51° 29'	0° 35' E.
Stockholm, Sweden.....	59° 21'	18° 4'	Wittenberg, Germany.....	51° 53'	12° 48' E.
Stolberg, Germany.....	51° 35'	10° 57'	Wolfenbuttel, Germany.....	52° 35'	10° 32'
Strabane, Ireland.....	54° 49'	7° 23' W.	Wolverhampton, England.....	52° 35'	2° 7' W.
Stralsund, Germany.....	54° 19'	13° 32' E.	Worthington, England.....	54° 39'	3° 31'
Strasbourg, France.....	48° 35'	7° 45'	Worms, Germany.....	49° 38'	8° 21' E.
Stromboli I., Mediterranean.....	38° 43'	15° 13'	Wurtzburg, Germany.....	49° 40'	9° 56'
Stromness, Orkney.....	58° 53'	3° 31' W.	York, England.....	53° 53'	2° 53' E.
Stuttgart, Germany.....	49° 43'	9° 11' E.	Ypres, Belgium.....	50° 51'	2° 53' E.
Sunderland, England.....	54° 55'	1° 21' W.	Zante I., Mediterranean.....	37° 47'	20° 55'
Swansea, Wales.....	51° 37'	3° 56'	Zurich, Switzerland.....	47° 23'	8° 32'
Syracuse, Sicily.....	37° 3'	15° 16' E.	Zutphen, Holland.....	52° 8'	6° 12'
Taganrog, Russia.....	47° 13'	39° 41'			
Tambov, Russia.....	52° 44'	41° 45'			
Tarifa I., Spain.....	36° 1'	5° 35' W.			
Tarragona, Spain.....	41° 9'	1° 16' E.			
Taunton, England.....	51° 1'	3° 5' W.			
Teklenburg, Germany.....	52° 13'	7° 47' E.			
Tenby, Wales.....	51° 40'	41° 4' W.			
Tenedos I., Archipelago.....	39° 51'	25° 53' E.			
Terracina, Italy.....	41° 18'	13° 13'			
Terra Nova, Sicily.....	37° 2'	14° 16'			
Tornaa, Sweden.....	65° 51'	24° 12' E.			
Tortona, Italy.....	44° 58'	8° 57'			
Tortosa, Spain.....	40° 45'	0° 33'			
Toulon, France.....	43° 7'	5° 53'			
Toulouse, France.....	43° 26'	1° 27'			
Tournay, Belgium.....	50° 56'	3° 23'			
Tours, France.....	47° 24'	0° 42'			
Trafalgar, Cape, Spain.....	38° 10'	6° 0' W.			
Trapani, Sicily.....	38° 3'	12° 30' E.			
Trent, Germany.....	46° 6'	11° 4'			
Treves, Germany.....	49° 47'	6° 28'			
Trieste, Illyria.....	45° 38'	13° 47'			
Tripoli, Africa.....	37° 30'	22° 30'			
Troyes, France.....	49° 13'	4° 5'			
Tscherkask, Russia.....	47° 14'	9° 23'			
Tubingen, Germany.....	48° 31'	9° 4'			
Tula, Russia.....	51° 12'	37° 1'			
Tunbridge, England.....	51° 12'	0° 17'			
Turin, Italy.....	45° 4'	7° 40'			
Twer, Russia.....	56° 52'	35° 57'			
Tynemouth, England.....	55° 1'	1° 25' W.			
Udine, Italy.....	46° 3'	13° 15' E.			
Ulm, Germany.....	48° 23'	9° 59'			
Umea, Sweden.....	66° 4'	29° 23'			
Upsal, Sweden.....	59° 42'	17° 39'			
Uraniburg, Denmark.....	55° 55'	12° 43'			

In our last number we added to the Skeleton Map two important and useful scales; the one is a scale of latitudes by which all the places in the preceding list may be laid down on the Map of Europe; for if it were cut off the margin of the map, or if another were made like it (which is the better plan), the student could then use it in the manner proposed in our last lesson; the other is a scale of British miles of considerably larger extent than the one on the map itself; now by cutting this off the margin, or, rather, by making a scale like it, the student can measure on the map the distance between any two places, after he has laid them down on it, according to their latitudes and longitudes as given in the preceding lists. This is done by placing 0 on the scale on the one place and bringing the edge of the scale to the other place; the number marked or indicated at the point of the scale which stands close to that place will show the number of British miles between the two places. The same may be done with the scale of latitudes; for by reckoning 35° on that scale placed at the one place as 0°, the number of degrees marked or indicated on the edge at the other place, diminished by 35°, will be the number of degrees between the two places, which may be reduced to British miles as directed in our last lesson.

NOTE.—In using the table of the parts of a degree corresponding to any given number of minutes, if a number of minutes be given which is not in the table, an approximation to accuracy sufficiently near for common purposes may be had by taking the number of minutes in the table which is nearest to the given number as the real number in question, and proceeding as there directed. If greater accuracy be required, a degree must be graduated into minutes, and the exact number of minutes taken from this scale.

LESSONS IN ARITHMETIC. No. XXIV.

VULGAR FRACTIONS.

The following answers to the Exercises in our last Lesson were sent to us by W. E. Williams, Merthyr Tydfil, and others:—

EXERCISES TO PROB. VII.

Answers: (1.) $\frac{11}{12}$; (2.) $\frac{1}{12}$; (3.) $\frac{1}{12}$; (4.) $2\frac{1}{12}$; (5.) $598\frac{1}{12}$; (6.) $24\frac{1}{12}$.

EXERCISES TO PROB. VIII.

Answers: (1.) $\frac{1}{12}$; (2.) $\frac{1}{12}$; (3.) $\frac{1}{12}$; (4.) $\frac{1}{12}$; (5.) $\frac{1}{12}$; (6.) $\frac{1}{12}$.

MULTIPLICATION OF FRACTIONS.

Rule 2.—When the multiplier is a whole number, and the multiplicand a fraction, or *vice versa*. Multiply the numerator of the fraction by the whole number, and under the product place the denominator, the result is the answer. This rule is explained in Art. 11, p. 134, vol. ii, and by applying the general principle that the product is the same when the multiplier becomes the multiplicand, and the multiplicand the multiplier. Otherwise, by making the whole number a fraction, by Prob. IV., Rule 1 becomes applicable to this case also.

EXAMPLE 1.—Multiply $\frac{1}{2}$ by 12.

Here, $7 \times 12 = 84$; and $\frac{1}{2} = 10\frac{1}{2}$; answer.
Otherwise, $\frac{1}{2} \times 12 = \frac{12}{2} = 6$; as before.

EXAMPLE 2.—Multiply 156 by $\frac{1}{2}$.

Here, $156 \times 3 = 468$; and $\frac{1}{2} = 58\frac{1}{2}$, answer.
Otherwise, $\frac{1}{2} \times 156 = 78$; as before.

EXERCISES.

Find the products indicated by the following expressions:—
(1.) $79 \times \frac{1}{2}$; (2.) $86 \times \frac{1}{2}$; (3.) $123 \times \frac{1}{2}$; (4.) $\frac{1}{2} \times 112$; (5.) $\frac{1}{2} \times 476$; (6.) $\frac{1}{2} \times 2$.

Rule 3.—When the multiplicand is a mixed number, and the multiplier a whole number, or *vice versa*. Multiply the whole number in the given mixed number by the given whole number, by the rules of simple multiplication, vol. i.; then, multiply the fraction in the given mixed number by the same given whole number, according to the preceding rule; then add the two products together, and the result will be the answer required. The reason of this rule is evident, from the principle that the product of any two factors is equal to the sum of the products of the separate parts of the one factor multiplied by the other factor.

EXAMPLES.

Multiply $40\frac{1}{2}$ by 12; and 18 by $56\frac{1}{2}$.

First, $40 \times 12 = 480$; and $\frac{1}{2} \times 12 = 6$; first answer.
Whence, $480 + 6 = 486$; first answer.

Second, $18 \times 56 = 1008$; and $\frac{1}{2} \times 56 = 28$; second answer.
Whence, $1008 + 28 = 1036$; second answer.

Otherwise: reduce the given factors to improper fractions by Prob. IV., and apply Rule 1, the products thus obtained will be the same as before. Thus, in the preceding examples, we have

First, $40\frac{1}{2} = \frac{81}{2}$; and $12 = \frac{12}{1}$;
Whence, $\frac{81}{2} \times \frac{12}{1} = \frac{972}{2} = 486$; first answer.

Second, $18 = \frac{18}{1}$; and $56\frac{1}{2} = \frac{113}{2}$;
Whence, $\frac{18}{1} \times \frac{113}{2} = \frac{2034}{2} = 1017$; second answer.

Rule 4.—When the multiplicand and multiplier are both mixed numbers, multiply the whole numbers of the given mixed numbers together, by the rules of simple multiplication, vol. i.; then, multiply each given fraction by the whole number attached to the other given fraction Rule 3; next multiply the two fractions of the given mixed numbers together by Rule 1; lastly, add these three products together, and the sum will be the product required. The reason of this rule is founded on the principle formerly explained, that the product of any two factors is equal to the sum of the products of all

the parts of one of the factors, multiplied by all the parts of the other factor.

Otherwise: reduce the given mixed numbers to improper fractions by Prob. IV., and then apply Rule 1, as if they were proper fractions. The reason of this rule is plain from Rule 3, Prob. IV.; for, as the integers contained in the mixed numbers are added to the proper fractions which belong to them, the product will be the same as if the separate products of each were obtained, and then added together as above mentioned.

Note.—In all cases, the answer as usual, should be reduced to its lowest terms, or to a whole or mixed number, as may be required by the form in which it appears after the operation of the rule.

EXAMPLE 1.—Multiply $4\frac{1}{2}$ by $5\frac{1}{2}$.

Here, $4 \times 5 = 20$; $4 \times \frac{1}{2} = 2$; $5 \times \frac{1}{2} = 2\frac{1}{2}$; and $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$; whence $20 + 2 + 2\frac{1}{2} + \frac{1}{4} = 24\frac{3}{4}$, answer.

Otherwise, $4\frac{1}{2} = \frac{9}{2}$; and $5\frac{1}{2} = \frac{11}{2}$;

Whence, $\frac{9}{2} \times \frac{11}{2} = \frac{99}{4} = 24\frac{3}{4}$, answer, as before.

EXAMPLE 2.—Multiply 1680 by $200\frac{1}{2}$.

Here, $1680 \times 200 = 336000$; $1680 \times \frac{1}{2} = 840$;
 $200 \times \frac{1}{2} = 100$; and $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$;

Whence, $336000 + 840 + 100 + \frac{1}{4} = 337135\frac{1}{4}$, answer.

Otherwise, $1680 = \frac{1680}{1}$; and $200\frac{1}{2} = \frac{401}{2}$;

Whence, $\frac{1680}{1} \times \frac{401}{2} = \frac{673680}{2} = 337135\frac{1}{2}$, answer, as before.

Note.—When a series of three or more fractions or fractional quantities are to be multiplied together, the preceding rules must be applied to any two of them; then, to their product, and a third one; next to their product and a fourth one; and so on till the product of the whole of them be found. This process may be abridged, or rather avoided, by reducing all the given quantities to the fractional form, arranging them in a line for multiplication, and taking advantage of the method of cancelling factors, see p. 235, vol. ii.

EXERCISES.

Find the products indicated by the following expressions:

- (1.) $4\frac{1}{2} \times 5\frac{1}{2}$; (2.) $7\frac{1}{2} \times 8\frac{1}{2}$; (3.) $49\frac{1}{2} \times 68\frac{1}{2}$;
(4.) $225\frac{1}{2} \times 32\frac{1}{2}$; (5.) $1000\frac{1}{2} \times 111\frac{1}{2}$;
(6.) $4768\frac{1}{2} \times 376\frac{1}{2}$.

PROBLEM IX.

To divide one fractional quantity by another.

Rule 1.—When the divisor and dividend are both proper fractions, invert the divisor and multiply the dividend by this inverted fraction; the product will be the quotient.

The reason of this rule may be explained as follows: take for example, two proper fractions $\frac{1}{2}$ and $\frac{1}{3}$, and let it be required to find the quotient of $\frac{1}{2}$ by $\frac{1}{3}$. You will remember that the fraction $\frac{1}{2}$ may be considered as $\frac{1}{3}$ of 3 (No. 7, p. 133, vol. ii.); and that to divide the fraction $\frac{1}{2}$ by $\frac{1}{3}$, we must multiply the denominator (see Art. 11, Principle 3, p. 134); the quotient is therefore $\frac{3}{2}$; but we wish to have the quotient of $\frac{1}{2}$ by $\frac{1}{3}$ part of 3 only; we must therefore multiply the quotient of this fraction by 3, by the number 7, because its quotient by $\frac{1}{3}$ part of 3 will be seven times greater than its quotient by 3; for in proportion as we diminish the divisor we increase the quotient; performing this process, then, the quotient becomes $\frac{9}{2}$, which is the true answer to the question. The general process then is simply this; in order to divide one fraction by another, you first divide the multiplicand by the numerator of the divisor, and then multiply the quotient by its denominator (see Art. 12, Principle 3, p. 134); but this process is equivalent to the words expressed in the rule, for $\frac{1}{2} \div \frac{1}{3} = \frac{3}{2}$; whence $\frac{3}{2} = \frac{1}{2}$ is the quotient of $\frac{1}{2}$ divided by $\frac{1}{3}$.

Another view of the reason of this rule is sometimes given in the following manner: taking the two given fractions above, viz., $\frac{1}{2}$ and $\frac{1}{3}$, reduce them to a common denominator by Prob. II., and they become $\frac{1}{6}$ and $\frac{2}{6}$; now, these two fractions being brought to parts of the same value, viz., twenty eighths, we have only to divide the number of parts in the dividend $\frac{1}{6}$, by the number of parts in the divisor $\frac{2}{6}$, that is, to divide 21 by 20,

CORRESPONDENCE.

In order to get the true quotient for long, the parts that we are concerned with, but their number; and we wish to know how many times the one number is contained in the other number. We therefore divide 21 by 20, thus $\frac{21}{20} = 1\frac{1}{20}$, and we have the true quotient as before.

EXAMPLE 1.—Divide $\frac{1}{2}$ by $\frac{1}{3}$.

Here, $\frac{1}{2} \div \frac{1}{3} = \frac{3}{2}$, the answer required.

EXAMPLE 2.—Divide $\frac{1}{2}$ by $\frac{1}{3}$.

Here, $\frac{1}{2} \div \frac{1}{3} = \frac{3}{2} = 1\frac{1}{2}$, the answer.

The answer here is a whole number and considerably larger than either the dividend or divisor, but this can occasion no surprise, for 21 is only the number of times that one fraction contains a much smaller fraction.

EXERCISES.

Divide the following fractions by each other, according to the indicated expressions:—

- (1.) $\frac{1}{2} \div \frac{1}{3}$; (2.) $\frac{1}{3} \div \frac{1}{2}$; (3.) $\frac{1}{4} \div \frac{1}{3}$;
(4.) $\frac{1}{3} \div \frac{1}{4}$; (5.) $\frac{1}{5} \div \frac{1}{4}$; (6.) $\frac{1}{4} \div \frac{1}{5}$.

For the encouragement of our fractional students we insert the following problem sent to us by Antedigates, a self-taught student; and it will be an answer at the same time to some other correspondents—*J. F. (Norfolk)*, &c.

PROBLEM.

There is an island 140 miles in circumference, and three footmen all start together to travel the same way about it. A goes 5 miles a day, B goes 4, and C 10 miles. Required the time in which they will all come together again by the best and simplest method?

SOLUTION.

Rule.—The least common multiple of the times in which each makes one revolution, gives the time in which they will all come together again:—

miles day miles days
A 5 1 : 140 : 28
B 4 1 : 140 : 35
C 10 1 : 140 : 14
The times in which A, B, and C will each make one revolution, are 28, 35, and 14 days respectively.

Reducing these fractions to a common denominator, we have $\frac{140}{28}$, $\frac{140}{35}$, and $\frac{140}{14}$. Then finding the least common multiple of all the numerators, we get the following, thus:—

1400	11680	7360	5840
140	1168	736	584
14	116	73	58

Wherefore, $1400 \times 4 \times 2 \times 5 = 58400$, the least common multiple. Consequently $\frac{58400}{140} = 417\frac{1}{7}$ days, the time required.

CORRESPONDENCE.

Common-Sense Student, Bristol, speaking of multiplying money by money, says:—

"Can't it be done? of say it may."

For in commercial town or city.

It is performed every day.

By rich and poor, by dull and witty;

And when my reasons you have heard,

You'll own the question's not absurd.

When merchant-men, by mind or pen,

Do find the number to a question;

They get an answer, yes; but then

'Tis clear that answer needs suggestion;

It cannot mean so many nights,

It may be dollars, men, or groats.

To multiply is to increase,

And to increase to make addition;

For Johnson says this is the case,

And it is done by repetition;

I'll give a case, as it may be,

One you can judge most feelingly,

If equal numbers added be,

To those who now sit round your table;

Then twice that number you will see,

And their expense you'll find no fable;

But multiply these numbers too,

And their increase will frighten you.

Again, if two and sixpence be

Increased as much as it increases,

A unit of itself, we see,

That six and threepence it expresses;

But if we take it of a pound,

A different answer will be found.

Money of money, is the source,

And this in most cases is intended

To be the answer, but of course,

The proper name should be appended;

He thinks his time the other was broken

The speaker lies in what is spoken.

Our correspondent, in answer to H. Hayes (Preston), states that a book called "Smith's Compendium of Practical Inventions," which is an elaborate description of the method of grinding glasses or spectacles for telescopes, with drawings of instruments used for that purpose. We cannot decipher the words he has sent us from the old book.

ACTIVITY AND DEATH.

Be up, be up, and doing, boys;

No longer sit in ease;

But join the onward movement, boys,

With strong desire to please.

Whatever your work or trade may be,

Or, if you buy or sell,

From idleness beware to flee,

Endeavour to excel.

Spend not an hour in useless play,

But all its moments use;

Time's not your own—why waste away

An instant, precious?

Be not behind, march on or yield,

The standard of reform!

Defend with might the book of Truth,

And combat Error's storm!

Unite in friendly happy band,

And bid all discord cease;

Each give to each, an helping hand,

No more let Envy be.

Take not advantage, great or small,

Of a weak neighbour's fault;

But strive to profit one and all,

And guard against assault.

The powers that be, have not the might,

To make a nation rise;

But men united in the right,

Are strong because they rise. W. B. (amended).

EXHORTATION TO ALL.

Thou, heart, sad with fear, stung by notes and voices,

Ye eyes dim with tears, and in doubt, weep no more;

In the school of Reform, now truth be our choice—

The ages of ignorance, all have passed o'er.

Ye timid take courage and join in the van!

The powers of your tyrants are hastening to fall;

Each take up his armour, and fight like a man!

Success is the crown, fast preparing for all.

Ye humble behold from your cottage of clay,

The noble men who over intellect reign;

Now sanguine and diligent day after day,

The height of the wise most triumphantly gain.

In knowledge the peer and the poor peasant boy,

May stand on a level if once they decide

That nothing but labour their minds shall employ,

And all but the man put entirely aside.

Then up, young and old, be no longer at ease!

But work out some great and God-honouring plan!

Now, unfurl every sail, and catch every breeze,

Advancement is certain,—but strive like a man.

W. B. (amended).

Irak (the ancient *Helus*), through a course of about 500 miles, and falls into the Black Sea. The Caspian Sea requires the waters of the River Kour, after a course of about 500 miles. The Sea of Aral receives the waters of the Amoo or Jihon (the ancient *Oxus*), after a course of about 1,300 miles; and the Sir (the ancient *Jaxartes*), after a course of more than 1,500 miles. Such are the most striking physical peculiarities of the great continent of Asia.

In discussing the geography of the different continents, we ought to treat of the botany, the natural history, the mineralogy, and the geology of each; but it is manifest that this would lead us away from the subject of geography, strictly so called; we must, therefore, limit our present discussions as much as possible, leaving these subjects to be treated properly under their respective heads. As ethnography (*the description of nations*) has not yet, however, reached the rank of a popular science, we shall give its principal heads under the following observations on the different races of men:—A rigorous classification of the different groups of the human family, according to the character of each race, is in the present day impossible. The increasing tendency which mankind have to contract marriages with those of different nations, and even in the same nation with those of different races or families, renders the question every day more obscure, by obliterating the original characters of each. Nevertheless, by taking into consideration the differences of organisation, languages, and habits, drawn from historical and religious traditions, science has made out with tolerable accuracy the existence of five great races, which constitute, perhaps not with very determinate and rigorous distinctions, a classification both convenient and useful. To each of these great divisions, all the subdivisions which the progress of science has realised in the history of nations, may be easily referred. The names of the five different races of men are the following:—The Caucasian, the Mongolian, the Ethiopian, the Malayan, and the American.

1. The Caucasian race: The common characteristics assigned to this race are as follows:—A white skin, with a tone or blush of the colour of flesh; the tincture of the skin becoming more or less brown under the influence of heat and light; long waving hair, of a light or deep colour; an ample beard; a large skull compared with the size of the face; a facial angle from 80° to 85°; the form of the cranium spheroidal, and of the face oval; a narrow nose, more or less aquiline and prominent; vertical teeth; lips slightly projecting; chin prominent, narrow, and rounded. The beau ideal of this race is seen in the head of the Apollo Belvedere, fig. 1. The nations which are referred to this race occupy the whole of Europe (except Lapland, Finland, and a part of Russia), western Asia, Turkey, Arabia, Persia, Tartary, Afghanistan, and Hindustan, northern and eastern Africa, Barbary, Egypt, Nubia, and Abyssinia.

It is supposed that all these nations had for a common stock a tribe, or a number of tribes, which originally inhabited the Caucasian chain of mountains which form part of the boundary between Europe and Asia, and that from this region they spread themselves by successive migrations into Europe, Asia, and part of Africa. It is admitted, also, that the various influences of light, heat, diet, customs, and especially of climate, are sufficient to account for the differences which exist among these nations, and which have not entirely effaced the primitive type of the race. The consideration of these differences, especially of those which arise from languages, has led to the subdivision of this great family of nations into secondary groups, which are independent of their actual location (situation with regard to place).

In the parent languages, or mother-tongues of Europe and western Asia, the Sanscrit, the Zend, the Greek, the Slavonic, and the German, the analogies of grammatical construction, and the similarity of words, have induced the belief that they were all derived from one primitive language; and thus have been combined into the same group, under the name of the Indo-European family, the peoples which, speaking these languages original or derived, appear to be connected by an additional relationship, viz., that of language. This great family has been subdivided into several branches. In Asia, we find the Persian branch, of which the languages traced to the Zend, are those which included, in former times, the Persians, the Medes, and the Bagrians; and in later days, the Persians, the Afghans, the Koords, and the Armenians; next,

the Hindu branch, of which the languages traced to the Sanscrit are those which include the people who speak the following dialects: Cashmerian, the Macesha, the Telinga, the Tamil, the Malabar, and the Hindostani; and likewise the inhabitants of Sindh, and of the countries bordering the Ganges, which may be designated the Ganghistan, of the Deccan, and of the island of Ceylon. A third branch is formed of the European nations whose languages approach the Zend and the Sanscrit by affinities more or less distinct, and which include the Greek, the Latin, the Slavonic, the German, and the Scandinavian tongues. These nations form the principal part of the population of Europe, and inhabit Greece, Spain, France, Russia, Poland, Germany, the British Empire, the Netherlands, Sweden, Norway, and Denmark. Some ancient nations, whose languages differed from the Indo-European type, although they belonged to the Caucasian race, have contributed to the origin of the modern peoples, and to the formation of the living tongues of Europe. Thus we find that the Basque tribes at the foot of the Pyrenees have preserved a dialect of the ancient Iberian language; and the inhabitants of Ireland, Scotland, Wales, and Brittany have preserved some dialects of the ancient Celtic languages. Among the nations which at the present day inhabit the Caucasus Mountains, and which exhibit in their organisation the general characters assigned to the Caucasian race, there is only one, that of the Ossetians, which is connected by language with the Indo-European family. The rest speak some languages which have not hitherto been classified by any analogies; such as the Circassian, the Abkhaz, the Georgians, and the Mingrelians.

The Semitic languages, which have for their common character an abundance of guttural sounds, a rich vocabulary, a multiplicity of inflections in the verb, and a simplicity in other grammatical relations, comprehend the Syriac or Aramaic, the Chaldean, the Phœnician, the Hebrew, the Arabic, the Gheez, and the Amharic. To those nations of which the affinity of their tongues lead to their being combined in the same group, under the name of the Aramaic or Semitic family, belong those in ancient times known by the name of Assyrians, Chaldeans, Phœnicians, Hebrews, Arabians, Lybians, Numidians, Gemitans, and Ethiopians; and, in modern times, the tribes of Libanus which speak Syriac, the Arabs found in the west of Asia and the north of Africa, the Jews found in every region of the globe, and the Abyssinians who speak the Gheez and the Amharic.

The ancient Egyptians, separated from all others by their language and their institutions, and whose physical type is preserved in their monuments and in their mummies, appear to be connected with the Caucasian race in the form of the cranium and the lineaments of the visage. Skin of a dark colour, a large forehead, a round chin, a straight nose, large eyes, thick lips, high and projecting ears, and scarcity of beard, were the general characteristics of the ancient Egyptians, and they are still found among the Copts who speak the same language, and who are connected with several of the Nubian and Abyssinian tribes. The type of the ancient Egyptian race is seen in the head of Rhampses, fig. 2.

2. Mongolian race.—The common characteristics of this race are the following: a yellow skin; the hair straight, black and thin; a flat face, and high cheek bone; the nose short, broad and flat; the eyelids oblique, and a large space between the eyes; a low forehead, and a spherical or pyramidal cranium. The nations included under this race inhabit northern and eastern Asia, the north of Europe, and the north of America. These nations are supposed to have sprung from the nomadic (wandering) tribes, which, from the great plateau of central Asia, spread themselves to the north, the west, and the east at different periods, of which some historical accounts are still preserved. The considerations relating to language leads to the subdivision of these nations into three branches, which are also distinguished by some organic characteristics. The Scythico-Samarian tongues, the Finnish, the Lapponian, the Estonian, the Livonian, the Permian, and the Magyar, seem to connect into a distinct family, by the relationship of language, the peoples of the north of Europe which inhabit Finland, Lapland, Pechonia, Livonia, the Russian provinces in the neighbourhood of the Ural Mountains, and the River Volga, Transylvania, and

Hungary, and others connected by their physical characteristics, as the Voguls, the Ostiaks, the Kamoids, and Kamshatdales of the north of Asia, and the Esquimaux and Greenlanders of North America. The Turkish, Tartarian, Mongolian, and Mandchurian languages, connected in some respects with those of the Caucasian race by their grammatical structure, and especially by the existence of conjugations and declensions, separate the peoples of central Asia from the group of those nations noted for monosyllabic languages, among which the Mongols and the Kalmucks exhibit the organic type of the race; whilst the Turks, the Buckkarians, and the Tartars of Siberia, are perhaps more connected with the Caucasian race in physical characteristics. Indeed, we find in a very marked degree all the traces of the Mongolian race in the group of nations forming the same family, which employ the languages called monosyllabic (that is, who employ words chiefly of one syllable). These languages, which want generally the means of directly marking the cases and the genders of nouns, and the moods and tenses of verbs, include the Tibetan, the Chinese, the Birman, the Samese, and the Annamite, are spoken by the inhabitants of eastern Asia, Tibet, China, the Birman empire, Siam, Cambodia, Tonquin, Cochinchina, and Corea. The Japanese, by their language, which is of a more improved character, seem to be separated from this group, with which, however, they are connected in their physical organisation. The best type of the Mongolian race is seen in the Chinese head, fig. 3.

(To be continued in the Explanation of Maps.)

LESSONS IN ENGLISH.—No. XLIII.

By JOHN R. BEARD, D.D.

NAMES OF PERSONS.

Names of persons were originally descriptive; they had each a meaning, and that meaning set forth some individual peculiarity; something in the make, the form, the character, the history of the person to whom the name was given. Thus the first man was called *Adam* (in Hebrew, *red earth*) because he was formed out of the earth. And Adam called his wife *woman*, because she was the counterpart of man. In the Hebrew original the correspondence is well marked; woman is there called *isha* because she was taken out of *ish*, the former being the feminine form of the masculine noun *ish*, man. The derivation of woman has been disputed. Woman seems to be *womb* man; womb, denoting the feminine gender. Womb has been compared with the German *weib*, which is found in our *wife*. It is not unlikely that all these forms, namely the wife, *weib*, *womb*, *wo* (man) are traceable to the phuo, *fy* of the Greeks, which is found in the *fu* (*was*) of the Latins, and in their *fundus*, a female. This view makes woman equivalent to *wife*—their *fundus*, a female. This view makes woman equivalent to *wife*—man, and so brings the English into a near resemblance to the Hebrew. The *o* in woman is no obstacle. In the plural the *o* becomes *e* or *i* in pronunciation. So was it written of old, e. g.,

"And the number of men that eaten was fyve thousand of men, out taken wyemen and litel children."—*1 Kings*, Matthew xiv.

"And they that ate were in nombre aboute v. m. (five thousand) men, beryde wyemen and children."—*Bible*, 1551, 1b.

Richardson, however, in his "New English Dictionary," gives another view, which, though not approving it, I subjoin. "Woman, a. s. (Anglo-Saxon) *wife-man*; man is a general term to include each sex (this is right), and the specific name *wife-man* is given to the female from her employment at the *wof*; and *wapman* to the male from his occupation in *wapens* of war."

It is completely in unison with primeval custom, that Adam is represented as changing his wife's name from woman to Eve (life) when she became a mother (Gen. iii. 20.)

In Anglo-Saxon, also, names of person had in each case a suitable signification. Thus our word *Alfred* means *all-peace*. I add other Anglo-Saxon names together with their meanings;—*Alwin*, other Anglo-Saxon names together with their meanings;—*Alwin*, *victorious*; *Aldred*, *reverend*; *Jede*, *he that prayeth*; *Botolph*, *helpship*; sailors were called *bates carles*, that is, boat-servants; *Cuthbert*, *bright in knowledge*; *Edmund*, *truth-mouth*; *trith-speaker*; *Edward*, *truth-keeper*, *faithful*; *Frederic*, *rich-in-peace*; *Goddard*, *pious*; *Godwin*, *beloved of God*; *Hugest*, *horse-man*; *Leofwin*, *win-love*, *amiable*; *Osborn*, *house-bairn*, *house-child*.

Randolph (now *Randall*), *fair help*; *Richard*, *rich in heart*, *brave*; *Robert*, *bright*; *Raymond*, *quick*, *peace*; *Thurston*, *most trusty*.

With a little care you may see from these instances how closely the Anglo-Saxon resembles the English. Thus *Alwin* is simply our *all-win*; so *Aldred* is *all-dread*; and *Godwin*, is *God-win*; and *Leofwin*, is *love-win*. *Beede* too is found in *beedle*, that is, a rosary or string of prayers.

Originally persons had but one name each. The practice was very far removed from the modern absurdity presented in royal and noble families, in which single individuals have some four, some six, some eight or more names. Thus, besides what may be termed his orders and titles, the husband of Queen Victoria has at least five names, that is Francis Albert Augustus Charles Emmanuel. The Princess Royal also is called Victoria Adelaide Mary Louisa. In the Bible, which is the oldest book in the world, and presents the best pictures of primeval life, you find only one name given originally to each individual. I subjoin, with their meanings, a list of Biblical names in use among ourselves.

BIBLICAL NAMES.—HEBREW.

Masculine.	Feminine.
Abraham, the father of a multitude.	Adah, an assembly.
Barnabas, son of consolation.	Elizabeth, God hath sworn.
David, beloved.	Hannah, gracious.
Gabriel, God is my strength.	Jerama, handsome as the day.
Isaac, he that supplants.	Kecia, an angel.
James, another form of Jacob.	Leah, weary.
Jeremiah, grandeur of the Lord.	Mary, lady of the sea.
John, the mercy of the Lord.	Rachel, a sheep.
Jonas, a dove.	Rebekah, fet.
Joseph, increase.	Ruth, goeth forth.
Isaac, laughter.	Sarah, a princess.
Matthew, gift of God.	Tabitha, clear-sighted.
Nathan, a gift.	Tamar, a palm-tree.
Reuben, vision of the son.	Zebadiah, portion of the Lord.

Names also of Greek origin are found in our tongue. These have for the most part come to us through the medium of the Bible, at one time the only cyclopaedia of the English people.

BIBLICAL NAMES.—GREEK.

Masculine.	Feminine.
Alexander, a helper of men.	Chloe, green herb.
Alpheus, chief.	Claudia, lame.
Andrew, a strong man.	Julia, down, soft as down.
Dionysius, divinely touched.	Myra, flowing.
Herod, son of a hero.	Phoebe, shining.

In Augustus, *sacred*, Clement, *merciful*, Priscilla, *ancient*, &c., we have in English names of Latin origin which have come to us through the same medium.

In primitive times, and while population was small, the son was distinguished from his father by a different name. Thus, in the book of Genesis we find Terah, Abraham, Isaac, Jacob, Joseph. The same name, however, might in different families be given to different persons. How could they be distinguished the one from the other? The name of the father was employed sometimes with, sometimes without, the proper name of the son, as in these lines (Numbers, xxiii, 18):—

Rise up, Balak, and hear,
Harken unto me, thou son of Zipporah.

Thus David is called "the son of Jesse" (1 Sam. xxi. 10.) In genealogical tables the word *son* is omitted, its force being given by the genitive case, as in Luke iii. 24: "which was (the son) of Matthat, which was (the son) of Levi; which was (the son) of Melchior; which was (the son) of Jaana; which was (the son) of Joseph." Sometimes the Hebrew for son coalesced with the name of the father, as Benaiah, Benjamin, Ben-Hadad; Bar-Jesus;

* *Bede*, and *bead* Anglo-Saxon for prayer, is found in the German *beten*, to pray, and in the German nouns *befahrt*, a journey for prayer, that is pilgrimage; *betlaus*, prayer-house, &c. It is found too in the old signification of our verb *bid* (from *bitten*, *beten*) which meant to ask, *intreat*, *pray*. From *bede* or *bead*, *prayer*, comes *beadsman* and *beadie*. Here is seen the error of Richardson, who makes the sense of *bead* as a prayer to arise thus, "because *aus* (head) was dropped down a string every time a prayer was said; whereas the little globe was called a bead or prayer, because it reminded the worshipper of a prayer to be said, and so became the memento or symbol of a prayer. The rosary or chaplet ("Virgin's beads") was "150 Ave Marias and 15 Paters tacked together with little buttons upon a string."

1. Es giebt im menschlichen Leben zuweilen trübe Augenblicke. 2. Man muß zuweilen dem Griste ein Erholung gönnen. 3. Er ist schon manchmal hier gewesen. 4. Egen manchmal habe ich dieses gesagt. 5. Manchmal müßlingst es auch. 6. Es ist jetzt keine Zeit dazu, spazieren zu gehen. 7. Er hat vintänglich Zeit dazu diese Arbeit noch heute zu vollenden. 8. Er hat einen andern Tag mehr Zeit dazu, sich zu besuhen. 9. Dieses Haus ist tausend Thaler werth. 10. Mein Rock ist zehn Thaler werth. 11. Jener Mann ist fünf hundert Thaler reich. 12. Er ist zehn tausend Thaler reich. 13. Diese Familie hat ihr gutes Auskommen. 14. Dieser arme Tagelöhner hat nur ein nothdürftiges Auskommen. 15. Es kamen so viele religiöse Flüchtlinge an, daß sie nicht alle unterkommen konnten. 16. Die Soldaten fanden in den Scheunen und Ställen der Bauern ein Unterkommen. 17. Gestern habe ich dem Kaufmann eine Rechnung bezahlt. 18. Er hat dem Schneider noch nicht den Rock bezahlt. 19. Er verzagte dem Schuhmacher die Stiefeln zu bezahlen. 20. Der Kranke verlangte ein Glas Wasser. 21. Mich verlangt zu wissen, was an der Sache ist. 22. Mich verlangt eine hübsche Stunde im Kreis der lieben Mitmenschen zu verleben. 23. Ich verlange das Buch, das dort liegt. 24. Gins bitte

ich dich: sei vorsichtig in der Wahl deiner Freunde. 25. Der Mann hat am Oetels und Nachts. 26. Da er ihn um Verzeihung bat, so schonte er nicht länger seinen. 27. Ich bitte Sie um ein Glas Wein.

1. My house is worth a thousand francs, but that of my brother's fifteen-hundred. 2. That banker is worth a thousand pounds more than that sum. 3. Contentment is of greater value than all the riches of the world. 4. We could not anywhere find shelter on our arrival in America, as all the inns were full. 5. Every one who goes to Australia may find employment. 6. Those who have a scanty competency, are sometimes the tools of the greatest crimes. 7. My brother bids me to be patient and forbearing. 8. He seeks my forgiveness, and therefore I cannot longer be angry with him. 9. Necessity requires that we should sometimes grant our body relaxation. 10. As he forgot to pay for his coat, the tailor requested him to pay.

SECTION XXVII.

Bemühen—to trouble. Sich um Etwas, or für Jemand bemühen to give one's self trouble about, to take pains, strive about any thing, or for any one. Ex.: Darf ich Sie bemühen mit das Buch zu lesen? May I trouble you to read me that book? Du bemüht dich zu viel um eine so geringe Sache; you trouble yourself too much about so trifling a thing. Ein Freund sollte sich für einen Freund bemühen; a friend should take pains for a friend. Es giebt gewisse gütthätige Leute, die sich mehr für Andere, als für sich selbst bemühen; there are certain good-natured people, who take more pains for others than for themselves.

I. Zeitvertreib (from Zeit, time, and vertreiben, to drive or pass away,) signifies "a pastime;" as, was ihm Zeitvertreib ist, macht mir Vergnügen; what to him is pastime, makes me pleasure. Er vertritt, to spend, or pass one's time; as, wie vertritt er sich die Zeit? How does he pass his time? Er vertritt sich eingeht mit Jagen und Fischen; he spends it (the same) in hunting and fishing.

EXERCISE 100.

Aussehen, f. ab. Cima, about, nearly, Scherzen, to jest, joke, sence; perhaps; sport; Ausbruch, m. breaking forth, to fight; Verfolgen, to pursue, out, eruption; Grimm, m. fury, rage, persecute; Bemerkung, f. remark, wrath; Verfertigung, f. auc- notice; Gefühls, m. ginger- tion; Berühmt, famous, re- bread; Vermögen, to hazard, nowned, cele- Nuremberg, n. Nurem- venture (out); brated; berg; Verkleiden, to represent, Blatt, n. paper, leaf; Revolution, f. revolu- introduce, perso- Duelle, to read tion; over, peruse; Zeitvertreib, m. (See I.)

Zum Zeitvertreib begiebt sie ihre Blumen im Garten. For pastime she waters her flowers in the garden. Durch diese Mittheilungen machte er seinem geprüften Herzen Luft. Through these communications he gave his oppressed heart vent. Russland hat sich nicht vergeblich bemüht, die Bewegungen in Europa zu unterdrücken. Russia has not striven in vain to suppress the agitation in Europe. Die Leipziger Messe ist eine der be- The Leipzig fair is one of the deutlichsten in ganz Deutschland. most important in all Ger- many.

1. Bei dem Ausbruch der Revolution in Berlin wurde bis in die Nacht hinein gefeiert. 2. Er gab ihm das Buch mit der Bemerkung, es rein zu halten. 3. Es ist ihm gestern ein Brief zugeflogen. 4. Ich zeigte ihm die neuen Gemälde, die ich auf der Verfertigung gekauft hatte. 5. Mühs ist sein liebster Zeitvertreib. 6. Er singt, scherzt, und lacht zum Zeitvertreib, anstatt sich mit ernstlichen Dingen zu beschäftigen. 7. Der Morgen (Sect. 33. III.) Mittags und Abends gehe ich oft spazieren. 8. Sie verzeigten den Feind bis an (Sect. 58. Note.) die Grenzen des Landes. 9. Bis an diese Stelle hatte sie das Buch durchgelesen. 10. Wie an diesen Ort wagten sie sich vor, aber wackte nicht. 11. Er be- mühte sich vergebens die Frage zu lösen. 12. Sie bemühten sich um die Gesundheit ihres Herrn. 13. Er bemüht sich Mühsamkeit zu vermeiden. 14.

Ich bin etwa fünf Jahre hier (in dieser Stadt). 15. Ich bin seit einer halben Stunde hier (in dem Zimmer). 16. Ist Jemand während meiner Abwesenheit hier gewesen? 17. Herr N. war hier und wollte Sie sprechen. 18. Ein Berliner Blatt macht uns folgende interessante Mittheilung. 19. Die Nürnberger (§ 11. Note) Festen hat durch ganz Deutsch- land berühmt. 20. Das Heidelberger Bad ist wegen seiner Größe bekannt. 21. Ich empfehle mich Ihnen, mein Herr. 22. Empfehlen Sie auch Ihre Familie. 23. Er empfiehlt sich der Gesellschaft. 24. Da der alte Jäger seinem Grimm nicht anders Luft zu machen wusste, beschlug er seine Sante.

1. My friend sent me a book, with the list to peruse it. 2. I have perused your book as far as the second chapter. 3. A parcel was sent to me yesterday. 4. Study is my most agreeable pastime. 5. In the morning I study, and in the evening I teach my scholars. 6. We need not trouble ourselves on account of our friend; he does not need our assistance. 7. During the absence of our teacher we played instead of learning. 8. How long have you been in London? 9. I have been nearly three years here. 10. Was my brother here during my absence? 11. No, he was not here. 12. May I trouble you to write me this letter? 13. A diligent boy strives to acquire knowledge.

LESSONS IN FRENCH.—No. LIV.

By Professor LOUIS FASQUELLE, LL.D.

§ 44.—CONJUGATIONS.

(1.) The French verbs are divided into four large classes or conjugations.

1st. The first conjugation comprises all verbs of which the present of the infinitive ends in -ER; as parler, to speak; aimer, to love, &c. 2d. The second conjugation embraces all those of which the infinitive ends in -IR; as choisir, to choose; punir, to punish, &c. 3d. The third conjugation contains all the verbs which in the infinitive, end in -OIR; such as recevoir, to receive; pouvoir, to be able, &c. 4th. The fourth conjugation comprises all the verbs terminating with -RE in the infinitive; as rendre, to render; prendre, to take, &c.

(2.) The verbs are again divided into regular, irregular, and defective:—

1st. The regular verbs are those which, in all their tenses, are con- jugated like the model verb of the conjugation to which they belong. 2d. The irregular verbs are those which are not conjugated like the model verb. 3d. The defective verbs are those which want certain tenses or persons.

§ 45.—MODES AND TENSES.

(1.) There are six modes: the indicative, the conditional, the imperative, the subjunctive, the infinitive, and the participle:—

1st. The indicative, whatever may be the tense, indicates or declares in a positive, absolute manner: j'abandonne, I abandon; j'ai abandonné, I have abandoned; j'ai abandonnerai, I will abandon. 2d. The conditional indicates a condition or a supposition: j'aban- donnerais si . . . I would abandon if . . . 3d. The imperative is used to express a command, prayer, or exhortation: abandonnez cet enfant, abandon this child. 4th. The subjunctive is used after prepositions expressing doubt, contingency, or necessity: il est douteux que je l'abandonne; it is not certain that I may abandon him. 5th. The infinitive presents the signification of the verb, in an unli- mited manner: abandonner ses enfants, to abandon one's children. 6th. The participle, while retaining the power of the verb, at the same time partakes of the nature of an adjective: abandonnant ses parents, abandoning his relatives; abandonné de ses enfants, abandoned by his children.

(2.) The indicative has eight tenses:—

1st. The present: je parle, I speak; je donne, I give. 2d. The simultaneous past, or imperfect: je parlais, I was speaking. 3d. The past definite: je parlai, I spoke; I did speak. 4th. The past indefinite: j'ai parlé, I have spoken; j'ai donné, I have given. 5th. The past anterior, j'eus parlé, I had spoken.

LESSONS IN FRENCH.

6th. The pluperfect, j'avais parlé, I had been speaking. 7th. The future absolute, je parlerai, I shall, will speak. 8th. The future anterior, j'aurai parlé, I shall have spoken. (3.) The conditional has two tenses:— 1st. The present or future, je parlerais, I should, would speak. 2d. The past, j'aurais parlé, I should have spoken. (4.) The imperative has one tense:— The present, parle, speak. (5.) The subjunctive has four tenses:— 1st. The present or future, que je parle, that I may speak. 2d. The imperfect, que je parlasse, that I might speak. 3d. The past indefinite, que j'aie parlé, that I may have spoken. 4th. The pluperfect, que j'eusse parlé, that I might have spoken. (6.) The infinitive has two tenses:— 1st. The present relative, parler, to speak. 2d. The past, avoir parlé, to have spoken. (7.) The participle has three tenses:— 1st. The present relative, parlant, speaking. 2d. The past active, ayant parlé, having spoken. 3d. The past or passive, parlé, spoken.

(8.) Tenses are simple or compound. 1. Simple, when they are expressed in a single word: je parle, I speak.

2. Compound, when they require the assistance of the verb avoir or être: j'ai parlé, I have spoken; je suis arrivé, I am arrived.

§ 46.—USE OF THE AUXILIARY VERBS AVOIR AND ÊTRE.

(1.) The auxiliary avoir is used:—

1. In the conjugation of its own compound tenses: j'ai eu, I have had. 2. In the conjugation of the compound tenses of the verb être: j'ai été, I have been. 3. In the compound tenses of the active verbs: j'ai aimé, I have loved. 4. In the compound tenses of most neuter verbs expressing an action: j'ai marché, I have walked. [See exceptions to this rule (3) below.] 5. It is also used in the conjugation of verbs which are always unipersonal: il a plu, it has rained; il a gelé, it has hailed, &c.

(2.) The verb être is used in the conjugation of:—

1. All the tenses of passive verbs: je suis aimé, I am loved. 2. The compound tenses of all reflexive or pronominal verbs: je me suis flatté, I have flattered myself; je me suis promené, I have walked. 3. The compound tenses of the following neuter verbs, though the same, express action:—

aller,	to go	naître,	to be born
arriver,	to arrive	tomber,	to fall
choir,	to fall	venir,	to come
décider,	to decide	parvenir,	to succeed
mourir,	to die	devenir,	to become
revenir,	to return		

4. A few unipersonal verbs, which are not always but occasionally such: il lui est arrivé un malheur, a misfortune has happened to him.

(3.) A certain number of neuter verbs: as:—

accourir,	to run towards	entrer,	to enter
disparaître,	to disappear	sortir,	to go out
croître,	to grow	passer,	to pass
croquer,	to cease	partir,	to depart
perir,	to perish	vieillir,	to grow old
monter,	to mount, to ascend	grandir,	to grow
descendre,	to go down	rester,	to remain, to dwell

take sometimes avoir, and sometimes être.

1. They take avoir when we have in view the action expressed by the verb;—

2. And être when situation or condition is the principal idea which we wish to express:—

EXAMPLES.

With AVOIR.	With ÊTRE.
Elle a disparu subitement. She disappeared suddenly.	Elle est disparue depuis quinze jours. She has been gone a fortnight.
Le fièvre a cessé hier. The fever ceased yesterday.	La fièvre est cessée depuis quel- que temps. It is some time since the fever ceased.
Le baromètre a descendu de plusieurs degrés en peu d'heures. The barometer went down several degrees in a few hours.	Il est descendu depuis une heure. He has been down one hour.
Il a passé en Afrique en tel temps. He went to America at such a time.	Les chaleurs sont passées. The heat is past.
Le trait a pénétré l'impétuosité. The dart went with impetuosity.	Les troupes sont parties depuis six mil. The troops have been gone six months.
Le sang avait cessé de couler. The blood had ceased to flow.	Ce grand bruit est cessé. That great noise is over (has ceased).

(4.) Rescer and "denseur, meaning to dwell, to reside, take the auxiliary avoir; when they mean to remain, to be left, they take être:—

AVOIR.	ÊTRE.
J'ai resté plus d'un an en Italie. MONTESQUIEU.	Elle donnerait pour vous sa vie, le seul bien qui lui soit resté. MONTESQUIEU.

I resided more than a year in Italy She would give for you, her life, the only possession which remains to her. Deux cents hommes sont de- meurés sur le champ de bataille.
L'ACADEMIE.

He lived (died) two years in the country. Two hundred men remained on the field of battle.

(5.) Echapper, to escape, to pass unnoticed, to be forgotten, takes the auxiliary avoir. In the sense of, to say inadvertently, it takes être.

AVOIR.	ÊTRE.
Cette différence ne m'a pas échappé. ROUSSEAU.	Ce mot m'est échappé; pardonnez-ma franchise. VOLTAIRE.
J'ai retenu le chant, les vers m'ont échappés. VOLTAIRE.	Excusez les fautes qui pourront m'être échappées. BOILEAU.

I retained the tune, but the verses have escaped my memory. Excuse the faults which I may have committed inadvertently.

(6.) Convenir, to become, to suit, takes avoir. When it is used in the sense of agreeing, or settling upon a price for an article, it takes être.

Cette maison m'a convenu.	Nous sommes convenus du prix.
That house suited me.	We agreed upon the price.

LESSONS IN NATURAL HISTORY.—No. XVII.

THE SABLE—THE ICONEUMON.

(Order CARNIVORA.)

Our last two lessons on Natural History were on the principal animals of the *Wombat* tribe, but there remains another which must not be allowed to pass unnoticed,—it is the Sable. The chief residence of this animal is in Asia, beginning at the Uralian mountains, and becoming increasingly plentiful in the progress eastward. The sable is frequently found in Kamtschatka, and also in the Kurile isles. It prefers vast forests, especially those of fir-trees.

The head of the sable is small and oval, with long whiskers, and short round ears. The feet are large, each having five toes furnished with white claws, which are short, hooked, and very hard pointed. The tail is somewhat bushy; it is five inches long, but the hair extends it to eight inches. The body is nearly of equal diameter throughout, and in the proper season is thickly covered with hair, which extends to the extremity of the toes, and even under them. Its colour is black at top and underneath—that is Laying

the colour of wood-ashes—at the bottom; the fur is cinerous, sometimes white, yellow, or spotted, and the edges of the ears are yellowish.

Sometimes the sable forms nests in the trees, and ships, with great agility, from one to the other; but commonly it lives beneath their roots or in holes in the earth. It generally sleeps in the day, but if the weather be clear and fine, and only then indeed, it prowls abroad, seeking its prey. In summer, weasels, squirrels, and hares are its victims; but in winter, birds, and especially partridges. Fruit and berries form the principal part of its subsistence during autumn; but it will eat fruit at other times, preferring that of the service-tree. When pressed with hunger, the sable will follow the bear and the wolf, and regale itself on what those animals leave.

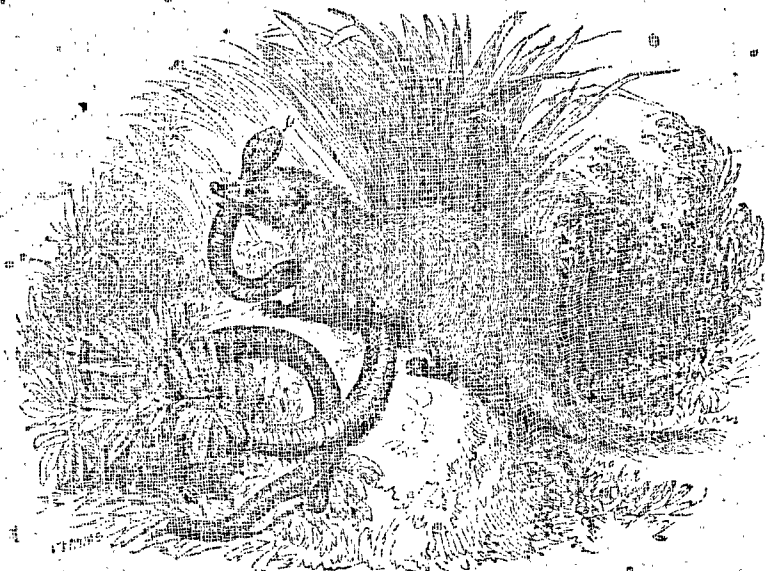
The fur of the sable is of special value. A skin varies in worth from one to ten pounds, according to the quality. The time of the year, and the age and state of the animal when killed, occasion this difference. A single skin is said to have been sometimes sold for fourteen or fifteen pounds. The fur is esteemed according to the darkness of the colour. From November to February the fur is darkest, and in the best condition.

The finer kinds of sable skins are sold without the under part, or that part next the ground, which has a fur of lighter hue than

of the rivers, drawing their boats up until they arrive in the hunting country, then stopping, building themselves huts, and remaining there until the rivers are frozen, and the season of confidence.

Now they press onwards over frozen plains where many a tempest sweeps into the bosom of mighty woods, and where they only of human kind animate the bleak and savage scene. Night and day they follow the tracks of the animals over the snow with enduring perseverance. Various are the means they use for capturing their prey. Some are caught in traps, some are pursued to their retreats, and nets are placed over the entrance, and some are shot with single ball. Sometimes recourse is had to the following practice. A piece of wood is placed horizontally from tree to tree, and near one end of it a bait is fixed. Over this piece of wood another is suspended obliquely, one end slightly resting on a post, and a rod extending from it to a noose, to which the bait is fastened. As soon as the bait is seized, the upper timber falls and kills the sable. Most perilous, however, is the chase of this animal. Fatigue and cold exhaust the hunter; a storm of snow overtakes him; the bearings or way-marks are lost or forgotten; provisions fail; and too often, unhappily, he whose speedy return is anticipated by his family, is seen by them no more.

The ichneumon, of which the following is an engraving, is another remarkable specimen of the carnivora. It is peculiar to



THE ICHNEUMON.

the rest of the body; but this part is allowed to remain in the coarser sorts. Tails are sold by the hundred. The very best skins must have the tails, but common ones are often cropped. The hair of the same skins differ in length and quality. The longer hair is silky, and the shorter or under hair is woolly. The more a skin has of the former, and the less of the latter, the colour being at the same time good, the more valuable it is. But the very best skins have scarcely any other than the long silky hair. Other things being equal, the furriers prefer the skins which are largest and have the best gloss. They describe the fresh ones as having a "blooming appearance," and the old ones as having "done blooming."

The chase of the sable is one of the most painful and arduous labours which can fall to the lot of man. Yet many engage in it. It is in winter that the pursuit takes place; for then, as we have seen, the fur is the finest and most valuable. The hunters form themselves into parties sometimes to the number of forty. These are subdivided into smaller parties, each of which has a leader; but one person directs and controls the whole. Each party is provided with a small covered boat, laden with provisions; they are also furnished with a vessel to bake their bread in; and there is a dog and a cat to every party. Every party sets out in the direction prescribed by the leader, going against the stream

of the rivers, drawing their boats up until they arrive in the hunting country, then stopping, building themselves huts, and remaining there until the rivers are frozen, and the season of confidence. Now they press onwards over frozen plains where many a tempest sweeps into the bosom of mighty woods, and where they only of human kind animate the bleak and savage scene. Night and day they follow the tracks of the animals over the snow with enduring perseverance. Various are the means they use for capturing their prey. Some are caught in traps, some are pursued to their retreats, and nets are placed over the entrance, and some are shot with single ball. Sometimes recourse is had to the following practice. A piece of wood is placed horizontally from tree to tree, and near one end of it a bait is fixed. Over this piece of wood another is suspended obliquely, one end slightly resting on a post, and a rod extending from it to a noose, to which the bait is fastened. As soon as the bait is seized, the upper timber falls and kills the sable. Most perilous, however, is the chase of this animal. Fatigue and cold exhaust the hunter; a storm of snow overtakes him; the bearings or way-marks are lost or forgotten; provisions fail; and too often, unhappily, he whose speedy return is anticipated by his family, is seen by them no more.

Lucan, in his poem of Pharsalia, written about the year 62 of the Christian era, thus describes its combat with the Egyptian asp, a serpent whose bite is deadly:—

"Thus oft the ichneumon, on the banks of Nile,
Invades the deadly asp by a wile;
While artfully its slender tail is played,
The serpent darts upon the dancing shade;
Then, turning on the foe, with swift surprise,
Full on the throat the nimble seizer lies;
The gasping snake expires beneath the wound,
His gushing jaws with poisonous floods abound,
And shed the fruitless mischief on the ground."

Nor is this the only way in which the ichneumon aids the Egyptian people; for it destroys the eggs of reptiles by thousands, the recently hatched young and all the smaller kinds literally by wholesale.

Setting out on its rambles in the evening, it steals silently along with the utmost vigilance and caution, examines every lurking place it can find, peeps into every crevice or recess, alike conscious of its own danger and intent on its prey.

The ichneumon is agile and graceful in all its movements. In size it is something larger than a cat. Its fur is of a uniform silvery grey, the tip of the tail being black; but each hair of the body, if separately examined, will be found ringed with white, dark, and fawn colour. Its eyes are small, red, and sparkling; it often sits up like a squirrel in feeding; and its voice is soft and murmuring. When irritated, or about to spring on its prey, its hair becomes erect, its eyes vivid, and its whole aspect is eager and ferocious.

The ichneumon is easily domesticated. One of these creatures was brought up by M^r d'Obsonville. He fed it at first with milk, and afterwards with baked meat mixed with rice. It was soon sadder than a cat; for it came when called, and followed its master, though at liberty, into the country. On a small water serpent being put to it alive, its first feeling appeared to be one of astonishment mixed with anger, for its hair became erect. The next instant, it slipped behind the reptile, and with remarkable swiftness and agility leaped on its head, seized it, and crushed it with its teeth. Its voracity, which had only slumbered, was now aroused. Several curious fowls had been about the house, and these it had suffered to go unmolested; but a few days after, when alone, it strangled every one of them, ate a little and drank the blood of two.

In India there is the grey ichneumon, a smaller species than the Egyptian, but very beautiful, and like that, it may become gentle and domesticated. It is said to use a plant as a remedy against the poisonous bite of serpents, which it is famed for encountering, and this antidote has become known in consequence.

Another species, called the Gurungan, abounds in the teak forests of Java. It is said to use a snake with remarkable address. As the reptile attacked involves the gurungan in its folds, the creature inflates its body to the utmost, but rapidly contracting when the snake is about to bite, it slips through the twining length of the reptile, seizes it by the neck, and effects its destruction.

LESSONS IN LATIN.—No. XLII.

By JOHN R. BEARD, D. D.

GOVERNMENT BY PREPOSITIONS.

GOVERNMENT may also take place by means of prepositions. The significations of Latin prepositions, and the cases which they require, have been generally spoken of in Lesson XIII.

The subject is here referred to in order that the student may have under his eye at once a complete view of what in Latin is involved in government. A few remarks and examples of a critical kind may be added here, if only to renew the reader's impression, and aid in presenting to his mind, government as a whole.

Prepositions, originally, have reference to place. Other references are derivative. Prepositions assist in making clearer the distinctions and definitions which in Latin are in a general way indicated by the oblique cases, that is, all the cases but the nominative. Thus, we may say, *versatur hoc loco*, he moves about in this place, but if we wish to mark the spot more particularly, we say, *versatur in hac urbe*, he moves about in this city.

The usages of prepositions in Latin are very various; they can scarcely be reduced to rule, nor can some of them be explained on general principles. There is no resource but to study separate instances, and, while imitating them, observe and apply the general doctrines already set forth.

The relation of a substantive to a substantive, which is expressed in English by the preposition of, as, *the head of the man*, the words of the book, is in Latin expressed not by a preposition, but by the genitive case, e. g., *hominis caput*; verbal force, and so disperses with the use of prepositions. Thus, we find in good authorities these examples:—

Mansio Formis, the stay at Formis; *refrigeratio aestate*, cooling in summer; *civili bello victor*, conqueror in the civil war. In other instances prepositions are used with verbal nouns, e. g., *reditus in coelum*, return to heaven; *adventus ad urbem*, approach to the city; *despectus in mare*, the look-down into the

sea; *excessus e vita*, departure from life; *ex Italia itinera* in Macedonia, the ways from Italy into Macedonia; *castra ad Bagdadum*, the camp near Bagdad; *Caesaris in Hispania res secundae*, Caesar's success in Spain; *omnes ante Socratem philosophi*, all the philosophers before Socrates; *ex India elephanti*, elephants from India.

Let the following examples of the use of prepositions be carefully observed and followed:—

Malus poeta de populo.
A bad poet from among the people.
De genere summo adulescens.
A youth of the highest promise.
Si per me levisset.
If I had allowed.
Per deos te oro.
I entreat thee by the gods.
Praeter consuetudinem.
Beyond what is usual.
Ab equitatu firmus.
Strong in cavalry.
Alterum de duobus.
One of two.
Ex adolescentia.
From (since) the period of youth.
Diem ex die.
From day to day.
Vir ex doctrina clarus.
A man renowned for learning.
Prae nobis beatus.
Happier than we.
Pro curia.
In front of the senate-house.
Pro dignitate laudare.
To praise conformably to dignity.
Verbo tenus.
So far as the word was concerned.
Signa ex aere.
Standards made of brass.
Mense Decembree e maribus.
Delphic tables of marble.
Bellum in Romanos.
War against the Romans.
Imperium in Hispaniam.
Command over Spain.
Soror ex matre.
A sister on the mother's side.
Ira ex hac clade.
Anger arising from that defeat.
Meiita Plancii erga me.
Plancius's merit toward me.
Metus de summi rerum.
Fear for the general safety.
Praeter spem mora.
Unexpected delay.
Mihi ad forum negotium est.
I have business in the market.
Ad verbum ediscere.
To learn word for word.
Coenam apud villam dat.
He gives a dinner party at his villa.
Ter in anno.
Thrice a year.
In aram confugit.
He fled to the altar.
Te invitavit in posterum diem.
He invited thee for the next day.
In dies singulos.
Every day.
Sub dio.
In the open air.
Sub exitu anni.
At the end of the year.
Vulnus super vulnus.
Wound upon wound.
Multa super Priamo rogitant.
Asking many questions respecting Priam.
Super vinum et epulas.
At the banquet.
Nocte super mediâ.
At midnight.

If you diligently study these instances, and the exercises which follow, you will readily see how conducive to a correct knowledge of Latin is an exact and familiar acquaintance with

55. From the foregoing principles we derive the following

GENERAL RULE FOR ADDITION.

Write down the quantities to be added without altering their signs, placing those that are alike under each other; and unite such terms as are similar.

Otherwise, Write the quantities to be added one after another, putting the sign + between them, and then simplify the expression by incorporating like quantities.

NOTE 1.—If any of the quantities be in brackets* and the sign + be before the brackets, the brackets may be removed without altering the result.

NOTE 2.—If the sign — be before the brackets, they cannot be removed without vitiating the result, until the signs of all the terms within the brackets be changed, viz. + into — and conversely.

Ex. 23. To $3bc - 6d + 2b - 3y$, Add $-3bc + x - 3d + 6y$, And $2d + y + 3x + b$.

These may be arranged thus

$$\begin{array}{r} 3bc - 6d + 2b - 3y \\ -3bc + 3d + 2b - 3y \\ 2d + b + y + 3x \\ \hline -7d + 3b - 2y + 4x + 6y \end{array}$$

And the sum will be

EXERCISES FOR PRACTICE.

1. Add $ab + 3$, to $cd - 3$, and $5ab - 4m + 2$.
2. Add $x + 3y - dx$, to $7 - x - 8 + km$.
3. Add $abm - 3x + km$, to $y - x + 7$, and $5x - 6y + 9$.
4. Add $3am + 6 - 7xy - 8$, to $10xy - 9 + 5am$.
5. Add $6aky + 7d - 1 + mzy$, to $3aky - 7d + 17 - mzy$.
6. Add $7ad - h + 3xy - ad$, to $5ad + h - 7xy$.
8. Add $2by - 3ax + 2a$, to $3bx - 4y + a$.
9. Add $ax + by - xy$, to $-by + 2xy + 5ax$.
10. Add $4icf - 10xy - 18b$, to $7xy + 24b + 3cdf$.
11. Add $3bx - 17xy + 18a$, to $4ax - 5bx + 63cx$.

* By brackets is meant the vinculum or parenthesis, already explained. This is one of the most important things in the study of Algebra; its use is unlimited. If quantities be included in any manner between brackets or parentheses, they must be treated as a single quantity, that is, the result of the operation of the signs within the brackets is to be used instead of the quantities themselves, as a general rule. If the signs of the quantities within the brackets be either plus or minus, or a combination of both, and if a factor be outside the bracket, each of the quantities within may be multiplied by that factor, preserving their signs, and the product will be the same as if the result were multiplied by that factor.

12. Add $8ab - 6bc + 4cd - 7x$, to $17mn + 18p - 2ax$.
13. Add $-12abc + 10abd$, to $5abc + 15abd + 3xyz$.
14. Add $ax - y + 3 - df + 44$, to $4df - 20 + 3ax + 75y$.
15. Add $45a - 10b + 4cdf$, to $82b - 4cdf + 10a - 4b$.
16. Add $12(a+b) - 3(a+b)$, to $2(a+b) - 10(a+b)$.
17. Add $xy(a+b) + 3xy(a+b)$, to $2xy(a+b) - 4xy(a+b)$.
18. Add $ax + ca$, to xxx , $4un + 2x + ax$, and $2xxx$.
19. Add $y - yy + xy$, $2xx + 10yy$, to $4xy + 5y - 8xx$.
20. Add $aaa + 4aaa$, to $10aaa - 14aaa + 8aaa$.
21. Add $12yyyy - 10xx$, to $20xx - 8yyyy + 2xx + 3yyyy$.
22. Add $4(x-y) - 13$, to $(a+b) - 16(x-y) - 7(a+b)$.
23. Add $a(x+y) - ty$, to $4(a-b) + 8a(x+y) - 35(a-b)$.
24. Add $10axy + 17bcd - axy$, to $6axy - 14bcd$.
25. Add $-x + y + 6(a-b) - 7x$, to $16y - 15x(a-b) + 25x$.
26. Add $-4(x+y) + 16(x+y)$, to $15abc - 10(x+y)$.
27. Add $5abc - 6xy + mn$, to $6abc + 14xy - 11a + 6mn$, to $15xy - 17abc - 15a - abc - xy - 3mn + abc$.
28. Add $a(x+y) - 3b(x+y) - 4a(x+y) - 4(x+y) - (x+y)$, to $4b(x+y) + 7a(x+y) + 5(x+y) + 6b(x+y)$.

ADDITIONAL EXERCISES.

Required the sums of the following quantities.

1. ax^2 , a^2x , y^2 , xy^2 , and $3y^2$.
2. $a^3 - 2a^2b - 3ab^2 + 2b^3$, $3x^2 - a^2b - 1ab^2 + 10b^3$, $2a^3 - 3a^2b - 6ab^2 + b^3$, and $5a^3 - 4a^2b - ab^2 + 3b^3$.
3. $x^3 - 5x^2 - 3x + 1$, $2x^3 + 6x^2 + 5x + 3$, $3x^3 - 2x^2 - x - 1$, and $4x^3 - x^2 + 2x - 5$.
4. $-a + b + c + d$, $a - b + c + d$, $a + b - c + d$, and $a + b + c - d$.
5. $a - 2b$, $3b - 3c$, $3c - 4d$, $4d - 5e$, and $5e - 6f$.
6. $y^3 + 2y^2x - 3yz^2$, $2y^3 + 2y^2x + 5yz^2$, and $3y^3 - 4y^2x - 2yz^2$.
7. $ax^2 + bx^2$, $bx^2 - cx^2$, and $cx^2 + dx^2$.
8. $mz^2 - nz$, $nz^2 - pz$, and $2z^2 - z$.

Thus, $x(a+b-c) = ax + bx - cx$; or, if $a+b-c = e$; then $x(a+b-c) = ex$. Conversely, if the result of the quantities within the brackets be multiplied by any factor, the result will be the same as if each of the quantities were multiplied by that factor. Thus, if $a+b-c = e$; then, $ex = (a+b-c)x = ax + bx - cx$. If several factors be employed, the same results will take place. Thus, $axy + bxy - cxy = xy(a+b-c) = (a+b-c)xy$. And $mcd - ncd + pcd = cd(m-n+p) = (m-n+p)cd$. Expressions of this kind may be varied indefinitely.

LESSONS IN MUSIC.—No. XVII.

By JOHN CURWEN.

(Continued from page 32.)

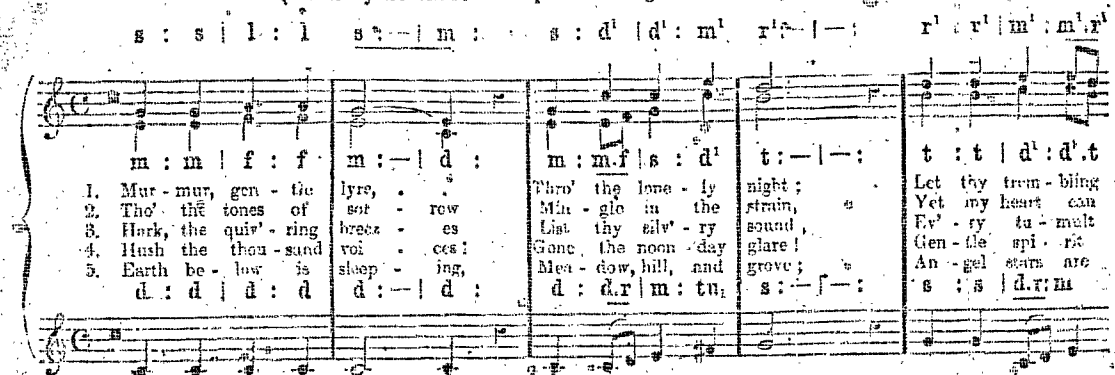
EXERCISE 36.

MURMUR, GENTLE LYRE,

KEY C. M. 0.

(Music by SILCHER. Adapted to English words by SOPER.)

$s : s | l : l | s : m : s : d^1 | d^1 : m^1 | r^1 : - | r^1 : r^1 | m^1 : m^1 | r^1$



LESSONS IN MUSIC.

MURMUR, GENTLE LYRE (Continued).

$d^1 : - | l : d^1 : d^1 | f^1 : m^1 | r^1 : - | - : m^1 : d^1 | d^1 : t | d^1 : - | - :$



NOTE.—This tune we insert, by the kind permission of Mr. F. L. Soper, from his "Melodies for Youth," published by J. A. Novello. It is arranged in "three parts" for what are called "equal voices," that is, for three male voices, or for three female or children's voices. More than one voice, however, may join in each "part."

EXERCISE 37.

HONEST FELLOW, SORE BESET.

KEY D. M. 80.

(Tune, Old English. Words from the last Edition of "Ballads for the Times," by M. F. TUPPER Esq.)

OLD NOTATION.



NEW NOTATION.

$d : m | m : f : s | l : s | l : - | s : m | m : r : d | r : - | d : -$

$d : d | d : r : m | f : m | f : - | m : d | d : t : d | d : t : d : -$

$m : d | d : d : d : d | f : - | d : m | s : s : s : s : - | d : -$

$d^1 : d^1 | t : l : s | l : l : s : m | d^1 : d^1 | t : d^1 : r^1 | l : l : s : -$

$m : m | s : f : m | f : f : m : d | m : s | s : s : s : tu : s : -$

$d : d | d : d : f : f : d : d | d : m | s : t : d | r : r : s : -$

$d^1 : d | t : l : s | l : l : s : m | f : s : l : s : f : m | r : - | d : -$

$m : m | s : f : m | f : f : m : d | d : d | d : t : d | d : t : d : -$

$d : d | d : d : f : f : d^1 : fi | l : s : f : m : r : d | s : - | d : -$

1. *Honest fellow, sore beset,
Vexed by troubles quick and keen,
Thankfully consider yet
"How much worse it might have been."*

Worthily thy faults deserve
More than all thine eyes have seen;
Think thou, then, with sterner nerve,
"How much worse it might have been."

2. *Though the night be dark and long,
Morning soon shall break serene;
And the burden of thy song,
"How much worse it might have been."*

God, the Good One, calls to us,
On His Providence to lean,
Shout, then, out, devoutly thus,
"How much worse it might have been."

NOTE.—We have here separated the established notation from its accompanying interpreter, thus offering a better exercise for the pupil. *De Cape* means "return to the beginning." [The dots between the lines of the staff mean the same thing. The students of the old notation will notice the "bass clef," now first introduced. But they must be guided by the place of the key-note

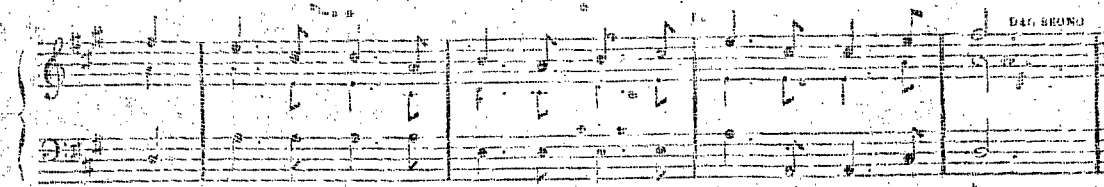
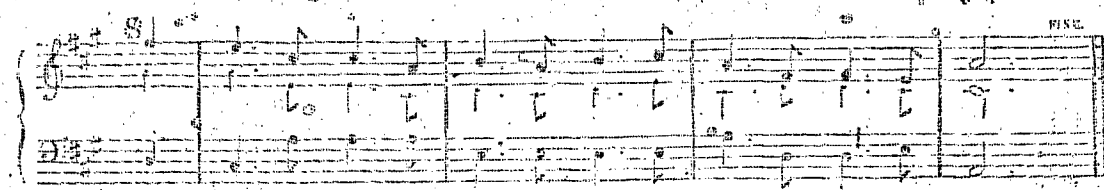
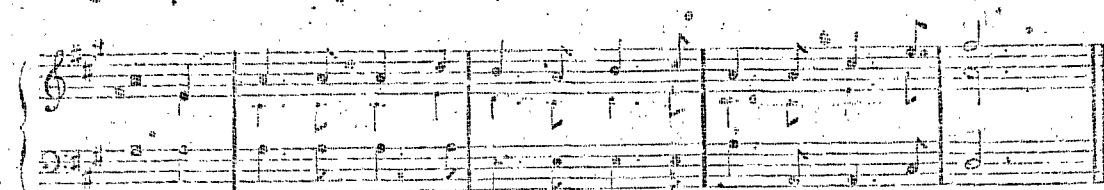
indicated by the square note, and neither clefs nor keys will be a difficulty to them.] This piece is arranged for three voices—two trebles and a bass or baritone. As compared with the "air" and "second treble," the "bass" is written an octave too high in the new notation, but this creates no confusion in practice, as the bass voice is *naturally* an octave lower than the treble.

EXERCISE 38.

AULD LANG SYNE.

KING A. M. 112.

OLD NOTATION.



THE SAME IN THE NEW NOTATION, BUT FOR TWO EQUAL VOICES.

{ s ₁ : -d	d : -d	d : m	r : -d	r : m	d : -d	m : -s
Should	old	ac-quant-ance	be	for - got, And	ne - ver	brought to
{ s ₁ : f ₁	m ₁ : -s ₁	d : d	s ₁ : -s ₁	s ₁ : -s ₁	m ₁ : -s ₁	d : -d

{ l : -	l : -	s : -m	m : -d	r : -d	r : m
mind?	Should	old	ac-quant-ance	be	for - got, And
{ f ₁ : -	f ₁ : -	m ₁ : -s ₁	d : d	s ₁ : -s ₁	s ₁ : -s ₁

{ d : -l ₁	l ₁ : -s ₁	d : -	l : -	s : -m	m : -d
days of	"long	syne?"	"For	OLD	LANG
{ l ₁ : -f ₁	f ₁ : -s ₁	d ₁ : -	d : -	d : -d	d : -d

* *Lang Syne*, long ago.

AULD LANG SYNE (Continued).

{ r : -d	r : -m	s : -m	m : -s	l : -	l : -
SYNE, MY	DEAR, FOR	OLD	LANG	SYNE,	WE'LL
{ s ₁ : -s ₁	t ₁ : -d	m : -d	d : -d	f ₁ : -	f ₁ : -

{ s ₁ : -m	m : -d	r : -d	r : m	d : -l ₁	l ₁ : -s ₁	d : -	l : -
TAKEN A	DEEP	OF	MIND	NESS	YET,	FOR	OLD
{ m ₁ : -s ₁	d : -d	s ₁ : -s ₁	s ₁ : -s ₁	f ₁ : -f ₁	f ₁ : -s ₁	SYNE,	d : -

2. We two have run about the braes,
And pulled the gowans[†] fine;
But we've wandered many a weary foot,
Since old "lang syne." For old, &c.

3. We two have paddled in the burn,[‡]
From morning sun till dine;
But seas between us broad have roared,
Since old "lang syne." For old, &c.

4. And here's a hand my trusty friend,
And gi' us a hand of thine;
And we'll take the cup of kindness yet,[§]
For old "lang syne." For old, &c.

NOTE.—To illustrate still further this subject of the different voices we give our present song—first (in the old notation), as it may be sung by two female voices and one male voice, and, again (in the new notation), as it should be sung by two female voices or by two male voices, without a third voice.

† Braes, hill sides.

‡ Gowans, daisies and other wild flowers.

§ Burn, brook.

¶ Let it be "the cup which cheers but not inebriates."

SOLUTIONS OF PROBLEMS AND QUERIES.

At the request of several members of the Mechanics' Institution of Halifax, we insert the solution of the following problem:—

"If 12 oxen eat up 3½ acres of pasture in 4 weeks, and 21 oxen eat up 10 acres of like pasture in 9 weeks; to find how many oxen will eat up 24 acres in 18 weeks."—*Newton's Universal Arithmetic, Prob. XI.*

In this question, our first inquiry is as follows: If 12 oxen eat up 3½ acres of pasture in 4 weeks, how many acres will 21 oxen eat up in 9 weeks?

By compound proportion (see Cassell's Arithmetic, p. 106), we have,

$$\frac{12 \text{ oxen} : 21 \text{ oxen}}{4 \text{ weeks} : 9 \text{ weeks}} :: 3\frac{1}{2} \text{ acres} : 13\frac{1}{2} \text{ acres.}$$

$$\text{For, } \frac{21 \times 9 \times 3\frac{1}{2}}{12 \times 4} = \frac{3 \times 7 \times 3 \times 3\frac{1}{2}}{2 \times 4 \times 4} = \frac{7 \times 3 \times 10}{4 \times 4} = 13\frac{1}{2}$$

But by the question, 21 oxen eat up only 10 acres in 9 weeks; whence it is plain, that these 10 acres are equivalent to 13½ acres of like pasture, and that the surplus 3½ acres is due to the growth of the pasture on the 10 acres in the additional 5 weeks; hence, our second inquiry will be as follows: If 10 acres be increased by 3½ acres in 5 weeks, owing to the growth of the pasture, in that time, how much will 21 acres be increased by in 14 weeks, (that is 18 weeks diminished by 4 weeks, these being necessary to make like pastures,) supposing the pasture to grow uniformly?

Here, we have, by compound proportion, as before,

$$\frac{10 \text{ acres} : 24 \text{ acres}}{5 \text{ weeks} : 14 \text{ weeks}} :: 3\frac{1}{2} \text{ acres} : 21 \text{ acres.}$$

$$\text{For, } \frac{24 \times 14 \times 3\frac{1}{2}}{10 \times 5} = \frac{3 \times 2 \times 2 \times 7 \times 7}{2 \times 5 \times 5} = \frac{3 \times 25 \times 7}{5 \times 5} = 21.$$

Whence it is evident that the 21 acres of pasture in the question, will be increased by 21 acres, that is, will become equivalent to 45 acres of like pasture in the additional 14 weeks' time. Hence, our third and last inquiry will be as follows: If 12 oxen eat up 3½ acres of grass in 4 weeks, how many oxen will eat up 45 acres of like pasture in 18 weeks?

Here we have, by compound proportion, as before,

$$\frac{3\frac{1}{2} \text{ acres} : 45 \text{ acres}}{18 \text{ weeks} : 4 \text{ weeks}} :: 12 \text{ oxen} : 36 \text{ oxen.}$$

$$\text{For, } \frac{45 \times 1 \times 12}{3\frac{1}{2} \times 18} = \frac{9 \times 5 \times 2 \times 6 \times 4}{3\frac{1}{2} \times 3 \times 8} = \frac{9 \times 10 \times 4}{10} = 36.$$

Thus, we find the answer to this curious question to be 36 oxen.

The same question was proposed in vol. I, p. 268, but there was a misprint in the fraction, which was 3½ instead of 3¼ acres. It was solved by several correspondents, one of whom was a little girl, who it seems boldly pronounced the fraction to be an error. Solutions similar to the preceding were sent to us by T. L. D. (Theapston); by S. H. J. R. (Tasley); and by H. Robinson (Sheerness), the latter of whom added the general solution in algebraic form as given by Sir Isaac Newton.

CORRESPONDENCE.

CO-INSTRUCTION SOCIETIES.

Sir,—I am happy to inform you, that we have recently got a "Young Man's Association for Mutual Instruction" set in operation here. Some of us had been for a long time desirous of establishing such a society, but we were prevented from making any exertions by the fear that it was impossible to form one where there were so few young men, and so little thirst for knowledge manifested. Having at last, however, resolved to make a spirited trial, we intimated as widely as possible that there would be a meeting on such an evening, at such a place, concerning the formation of a Mutual Instruction Society. What was our surprise when we found, at the close of the meeting, that twenty young men had enrolled themselves as members! The numerical attendance, and the ardour manifested by all in the proceedings, augur well of our young society's coming prosperity and permanence. I am convinced that every place, of any population, might soon be able to boast of a co-instruction society, if one or two of the citizens would only make an energetic attempt. I am, sir, &c.

Ochilree.

W. W.

L'homme s'ennuie du bien, cherche le mieux, trouve le mal, et s'y soumet crainte de pire.—*Levis.*
L'homme passe sa vie à raisonner sur le passé, à se plaindre du présent, à trembler pour l'avenir.—*Rabelais.*

ANSWERS TO CORRESPONDENTS.

Correct solutions of past queries have been received from J. LOYD (Astonbury); ANTONIO; and E. RUSSELL (Islington).

THE CONSTANT SUBSCRIBER who wants information as to averages, fractions, decimals, reals, reports, &c., must be more definite in his inquiries: he reminds us of a girl who went into a shop to buy a map, and who, when asked what map he wanted, answered that he just wanted a map, and showed himself indignant because the seller did not seem to understand what map he wanted!—W. E. B. (Goswell-road): Cassell's Arithmetic with Key.—X. Y. (Doncaster): "To divide £120 10s. 11d. among 5 men and 4 women, see that the men may have twice as much as the women" (which, by the bye, out of common politeness, ought to be the reverse), you must reckon the 4 women as 8 men, and add this number to the 5 men, which makes 13 men; then divide the money by 13, and you have a man's share; this gives £17 4s. 6d. for a man's share; whence, a woman's share is £8 12s. 2½d. Now, the former sum multiplied by 5, the number of men, and the latter by 4, the number of women, and the products added together, will give the proof.

J. RUSSELL (King's-croft): His demonstration of the Pythagorean theorem is good, and the remarks thereon better, but we have seen both before; his name, however, shall be mentioned with honour, when we have an opportunity of taking up the subject in the P. E.—I. HAY WORTH (Crawshawbooth): The name or title of the institution, as proposed in his note, is to say the least of it inelegant; it should be "The Crawshawbooth Mechanics' Literary Institution." If service be included in the studies, it should then be "The Crawshawbooth Mechanics' Literary and Scientific Institution."—JAMES BRANTON (Derby): Cassell's Arithmetic, previous shilling.—No. 6, LAWSON-ST. (Ardwick) was sent us a capital solution of the pole query in No. 37 of the P. E.

E. B. ROBINSON (Broughton-in-Furness): Italian as soon as ever we can.—A SUBSCRIBER (Barton-on-Trent): Knowles's Pronouncing Dictionary is a very good one.—NEW SUBSCRIBER: It will do him a great deal of good to go over all the lessons progressively from No. 1. We advise him, also, to study Mr. Cliven's Lessons in Music. To acquire fluency of speech, he should join some debating society which meets every week, and join in every debate pro and con, with whatever knowledge he possesses.—J. WATKINS (Manchester): Thanatopsis literally means death-sight, from thanatos, death, and opeia, sight.—J. COLVILLE (Methven): For his instruction, we copy the following passage from Johnson's Dictionary, Todd's edition, abridged by Chambers:—"TO LEAP, (verb) neuter. To jump, to move upwards or progressively without change of the feet, *Shakespeare*, 'To LEAP, (verb) active. To pass over, or into, by leaping. *Shakespeare*, 'To compass, as basis. *Dryden*, 'He leapt over a hill, is surely a very active proceeding, in which the hill is the object; and even without the *over*, we say, he leapt a ditch; here we have subject, verb, and object.—T. AFRICA is wrong.—G. G. Todd's Johnson's Dictionary is one of the best, though an old one; the abridgment of Webster is very good, and is a new one, published at 16s.

J. R. HEDDINGTON: For books in various languages apply to D. NUTT, bookseller, Strand.—A SUBSCRIBER (St. Askill): For telescopes and other astronomical instruments, apply to Watkins and Hill, Charing-cross, or to Frounchton and Simms, Fleet-street.—J. B. wants to know whether a phonograph in a plain deal case, say pine, will have as good a tone as one in a mahogany case.—R. H. (Vauxhall-road): See p. 89, vol. II., second paragraph.—PATRICKUS: There is no general rule for the pronunciation of proper names in English; hence the differences which appear in dictionaries and in practice; it is pedantry to attempt to be too precise in this matter; the practice of good speakers is the best rule. Walker is supposed to have followed this; but practice changes, and so must Walker. Fulton and Knight are of no authority on this side of the Tweed.—J. B. M.: See Literary Notices.—ALEX. informs W. P. S. (Durham) that Cowie's *Bookkeeper's Manual* is to be had of Allen, Warwick-lane, Paternoster-row, and that the 7th edition is just published.—H. (Birmingham) must explain to us more clearly what he means, before we can answer him.—W. HOBSON (Pulham-road): Received.—G. T. (Manchester): The shilling *Edwell* will be sent to him from this office by post, if he will transmit to Mr. Cassell 18 penny stamps with his order and address.

W. L. GILL (Colyton): Try Gosenius instead of Dr. Lee, but beware of his erroneous principles of interpretation; get Bugster's editions of his grammar and lexicon; in those the student is warned at every step.—EXERCISES: We do not know how to meet his wants except by publishing a dictionary and gazetteer ourselves; it is plain that we cannot convert the P. E. into either of these works; and even if we should give a page or two in every number, it would take years upon years to complete the plan. We advise our readers to beware of any provincial work pretending to give the pronunciation of words. The capital of the empire is the standard for this.—LUX points out the following erratum in p. 117, vol. I., col. 2, line 11 from bottom, for *useful* read *useless*.—A PUPIL (Lampeter): We do not know the height of *Hemlaw*, near *Narberth*; but we find that a person must be raised to the height of about 370 miles above Narberth, in order to see Corinth; supposing these places both at the level of the sea, and that there were no intervening mountains or other obstructions in the way, and that refraction is not taken into account.—J. S.—2 (Mossley) should make personal application if he can, and if testimonials be required, then give them. The words he mentions are pronounced as they are spelt; one of them *radix* is wrongly spelt; his penmanship is very good, but rather small for a mercantile situation; let him practise our court hand in vol. II. This is most easily learned. Arithmetic is wrongly spelt several times in his letter.—T. H. WILLIAMS: The question about Prop. 20 Book III. Euclid, was answered before.—T. D. LEWIS (Carmarthen): We stick to what we have said in regard to the letter *a*.—VICKERS: The single rule of three, as quoted by you from *Walkingame*, is absurd; see Cassell's Arithmetic, p. 103. The 21st question: "If a gentleman's income be £500 per annum, and he spends 19s. 4d. per day, how much does he lay by at the year's end," is erroneously stated and worked. It should be thus:—1 day: 365 days: 19s. 4d.: £552 10s. 8d.; whence, we see, that the gentleman spends £292 16s. 8d. in a year; and this sum subtracted from £500, leaves £147 3s. 4d. for the

answer, that is, the sum laid by at the year's end. In the 22nd question, first *Ans* how many yards can be bought for £153 17s. 6d. at the rate of 19 guineas for 11 yards, tons—£40 10s.: £233 17s. 6d.: 11 yards: 274 yards. Here, we see, that the money proposed will buy 274 yards or 151¼ quarters of a yard; now 3 quarters of a yard make a fathom; therefore dividing 151¼ by 3, we have 50 fathoms, 1 fathom, and 2 quarters of a yard over.

W. H. M. (Glasgow): The climbing plants for a bower depends materially on the situation where they are to grow. If for one already constructed of wood, the common sweet-scented clematis is very hardy and good, and may be combined with the jasmine, woodbine, and broad-leaved ivy; the latter and the clematis will co-separately. If a bower is to be constructed of the tree, and the clematis the best, and a weeping willow the next best. The American creeper and the hop are also very good climbing plants for the purpose.—H. P. (Bridport): See No. 41, vol. II., p. 213.—W. G. P.: See Literary Notices.—E. P. W. (Hull): 21, profit in the 61, is 50 per cent on the prime cost, or 83½ per cent of the selling price. To *met* is only one of the meanings of the verb *to divide*, see Johnson.—A SCOTSMAN FOR SCOTSMAN (Liverpool) should not be in a hurry. He does *Martin's* *Upper* injustice; the public are better judges than a single individual. With regard to Burns, except they be better English readers in general are to understand his songs, except they be translated into simple and corresponding English words as nearly as possible, Mr. Curwen does not wish his translations to pass for Burns' originals; on the contrary, he deprecates the idea, and anticipates the objections of his Scotch readers.—J. SPOESMITH (Bradford) cannot do better than study the lessons in English in the P. E., and do all the exercises prescribed.—A GREEK STUDENT will find the quantities of Greek words marked in Liddell and Scott's Lexicon as they are in Latin; *re-c* is right.—Mr. Me Gauran, Benbow's *Hand-book* of *Plurality* (p. 25, 6d.) and Law's *Dicto* (about 2s.) as the best and cheapest modern books on artificial memory; we have not examined these books ourselves.—R. D. SMITH (Cardiff): His solution of the question about multiplying money by money is admirably done and correct; but really this subject must be dropped.—T. HIGGINS (Salford) asks, what would a hundred ships cost at one farthing for the first, two farthings for the second, four farthings for the third, and so on, doubling every time? He has sent us the answer and wishes to know if it be correct.

GEHMAN.—W. W. (Ochiltree): Your exercise is well written. In No. 4, instead of *tw* *and* translate *four* *and*. In regard to the short *s* and the long *s*, the short *s* is used at the end of words or syllables, the long *s* is used at the beginning of words or syllables. Strive on, and you will succeed.

ERRATUM.

P. 355, Exercises to Prob V. for answer read 4.

LITERARY NOTICES.

SPLENDIDLY ILLUSTRATED WORK.—THE ALPS, SWITZERLAND, SAVOY, and LOMBARDY.—Just published, Part I., price 1s., a magnificent Work, to be completed in Twelve Monthly Parts, entitled, THE ALPS, SWITZERLAND, SAVOY, and LOMBARDY; with an Account of the most recent Ascents of Mont Blanc, &c. By the Rev. Charles Williams. This Work, when completed, will form a large, thick Volume in Imperial Octavo, containing upwards of Three Hundred beautiful Engravings, descriptive of the peculiar Scenery of those most interesting portions of Europe, the Occupations of the Inhabitants, &c.

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THE PATHWAY, a Religious Magazine. Vols. I. and II., price 2s. 3d. each. Vol. III., price 2s. 9d., nearly bound.

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LESSONS IN DRAWING.—No. X.

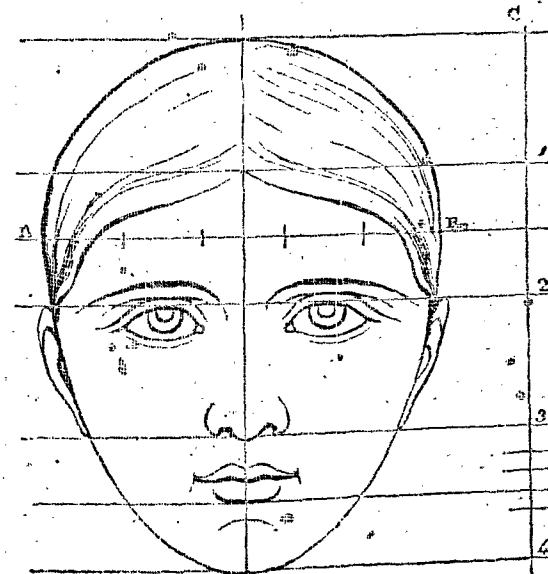
PROPORTIONS OF THE HUMAN HEAD AND FACE.

If the student of drawing has acquired a facility in drawing the lines and figures given in Lessons III. IV. and V., and has studied those on perspective, he will be somewhat prepared for the drawing of the human head and face—an early object of ambition with every one.

Moreover, if he has acquired a readiness in drawing and dividing straight lines, and in throwing circles and ellipses, unassisted by instruments, the following figures will afford him greater interest and information.

We must now, however, caution him against a practice which sometimes prevails among those who perform such exercises as these without the personal supervision of a teacher. It is generally observed that the hand has a natural tendency to draw lines in the same direction as the slope of the letters in ordinary hand-writing. This arises from its having had so much exercise in drawing lines of this slope, both in learning and in practising penmanship; therefore, when the student comes to practice drawing, he must be warned of this. If he finds that his hand possesses this tendency in drawing, he must endeavour to check it, and must choose exercises for this very purpose.

Fig. 89.



Proportions of the Face and Head.

In addition to this particular set of the hand, it is also observed that young students have a preference for drawing profiles looking towards the left, rather than to the right. We have known this to be so much indulged in, that while a student could draw very well if allowed to follow his favourite practice, his hand seemed nearly powerless in the opposite direction.

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should be avoided. The hand should be trained to move and to draw in all directions with equal facility.

A knowledge of the proportions of the human face is a necessary preliminary to its perfect delineation; and this the student will acquire by proceeding on the following plan.

Draw a vertical line of the length of the whole face and head, for the perpendicular diameter. Divide this line into four equal parts, and draw, as in fig. 89, horizontal lines through the points of division. Take a line *c* equal and parallel to the vertical line. On this line *a* as a diameter describe a semicircle for the outline of the head. This diameter gives the greatest breadth of the whole head, as seen in front. In ascertaining the proportions of the whole body, it is customary to speak of the head and face, taken together, as the head; but at present we shall make some distinction. The roots of the hair being at the point 1, from that point to the bottom of the chin is the face, which is in length equal to three out of the four parts of the vertical line. The breadth of the head is therefore equal to the length of the face. With this diameter of three parts for the minor axis, describe the half of an ellipse whose longest diameter, or major axis, shall be equal to five parts of the vertical—that is, the whole and one part more. The oval figure produced by these combined curves gives the general outline of the head and face as seen in front.

Draw horizontal lines through the points 1, 2, 3, and 4, and calling these lines No. 1, No. 2, No. 3, and No. 4, then the line No. 1 cuts the vertical opposite the point where the roots of the hair begin.

The line No. 2 cuts the vertical opposite the point where the nose joins the forehead—that is, gives the origin of the nose.

The distance from No. 2 to No. 3 is the length of the nose, being one-fourth part of the length of head and face together. The length of the nose is taken as the unit in measuring the different parts of the human face, as the head is in measuring the different parts of the body; and we say four noses or four parts, indiscriminately.

The distance from No. 3 to No. 4 is the length from the nose to the bottom of the chin.

Divide the length from No. 3 to No. 4 into two equal parts, as at No. 6, and this point marks the lower edge of the under lip. Divide the length from No. 3 to No. 6 into three parts, making the uppermost rather the longest, and the lower two will mark out the width of the lips. The hollow, or depression, where the lower lip meets the chin, is about the width of a lip.

Divide the diameter of the head, or the length of the face, into five equal parts, each of these is three-fifths of a nose. The space between the eyes is of this width; the length of an eye is also three-fifths of a nose.

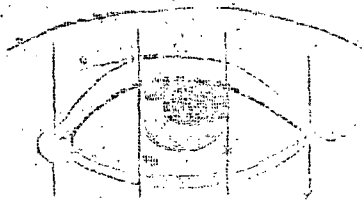
These divisions or fifths being measured on the diameter, and parallels to the vertical line drawn through them, give by intersections on the line No. 2 the length of the eyes, and

2. The ear is equal in length to the nose or between the lines No. 2 and No. 3.

No. 3, at the same distance. The inner corners of the nose (or wings of eye. Last! this

black, but the iris varies in colour in different individuals, and from this has received its name (*iris*, the rainbow). The vertical width of the fully opened eye is one-third of the length.

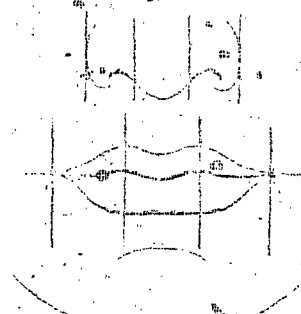
Fig. 90.



Front View of the Eye.

The corners of the eye are called respectively the inner *canthus* and the outer *canthus*, from the Greek *kantchos*, the corner of the eye. The line of the outer canthus meet in an angle, but those of the inner canthus are enlarged and rounded, to receive the small piece of flesh, the *caruncle*, Lat. *caruncula*, situated in that corner of the eye. It is to be observed that a line joining the angle of the outer canthus and the upper edge of the rounded inner canthus will be a horizontal line. It follows that if we take for the axis of the eye the line passing through the outer corner and the centre of the inner, such line will be slightly oblique. This obliquity varies in different races of mankind, and is particularly remarkable in the Malayana, the Chinese, and some other Eastern nations. See the lesson on Geography in the preceding number.

Fig. 91.



Outline of Nose, Mouth, &c.

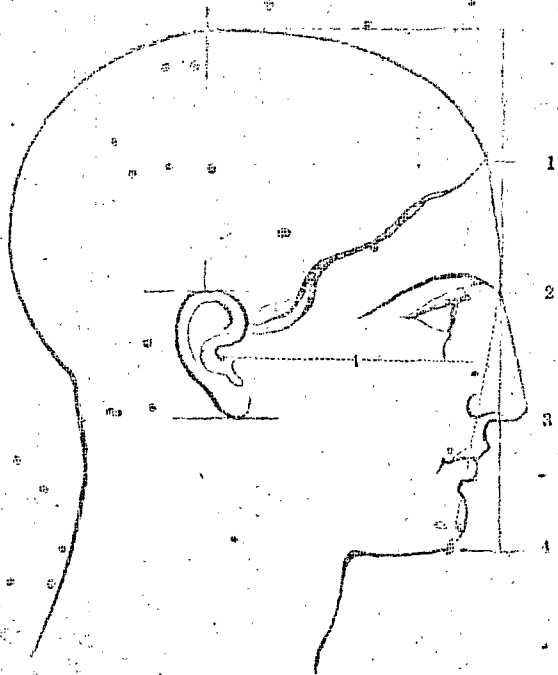
Fig. 91 is an outline of the nose, mouth, and chin. The divisions of the nose have been already spoken of, and dividing the width of the mouth into three parts, the points of greatest fulness in the lips are indicated by parallels drawn to the vertical through these divisions.

The proportions of the different parts of the head and face, laid down in the preceding observations, are seldom if ever seen to obtain exactly in any individual. They are derived mainly from the examples of ancient Greek art, existing in the sculptures executed by the eminent artists of that acute people, to whom we owe alike the elements of geometry, the orders of architecture, and the standard of beautiful forms. These rules of proportion were the result of a comparison of the most beautiful and regular features, from which the *standard* or average of the human face was ascertained. The Greeks indeed took, that their rules are applicable to all persons of individual faces, for that they were derived from the most perfect of the human face.

completely familiar with the rules, before he can be fully able to prove their utility. At the same time, these rules are not to be applied with the rigidity of linear measurement. The semi-circle and semi-ellipse form the outline only as a *scheme* or *plan*. The student must not suppose that the geometrical outline is a satisfactory *drawing*. The oval thus formed indicates in a determinate manner the *limit* of the outline; but *flexibility* is one great characteristic of the entire human form. In their most tranquil aspect, the living features indicate *mobility*; they are ever ready to move, and curves rigidly correct would look like wooden dolls, as being deficient in this characteristic. With this caution, we proceed to complete the details of the proportions of the head and face, by giving the rules applicable to the *profile* or *side view*.

As in fig. 92, draw a vertical line and divide it into four equal parts as before directed, in order to obtain the length of the forehead, the nose, and the ear, and the distance from the nose to the bottom of the chin. Draw horizontal lines as before, and on No. 4 set off a point distant half a nose from the vertical. The line joining this point and the point where No. 2 cuts the vertical is called the *facial line*; it makes an angle of about 80° with the line No. 4 or base line; when drawn as directed, it serves to mark the origin of the nose, and the depression below the lower lip.

Fig. 92.



Facial Angle.

Professor Camper, a German writer on Comparative Anatomy, drew much attention to this facial angle; he supposed that in it was to be found an obvious distinction between the races of mankind, and between man and brutes, the lower gradations of intellect having the smaller angle. However this may be, the facial line gives a fixed point in drawing the standard face; for taking a point in it halfway between lines 2 and 3, the *centre* of the ear lies in a horizontal line at a distance of rather more than two noses, or half a head.

The projection of the nose before the vertical is equal to the distance from the nose to the upper lip, and the wing of the nose extends in the other direction.

The distance from the tip of the nose to the chin is about half-way between the distance from the tip of the nose to the upper lip, and the distance from the tip of the nose to the ear. The distance from the tip of the nose to the ear is determined by the length of the neck.

LESSONS IN ENGLISH.—No. XLIV.

By JOHN E. DEARD, D.D.

NAMES OF PERSONS. (Continued.)

PROFESSIONAL names gave rise to a great multitude of family names. I can enumerate only a few: King, Prince, Duke, Lord, Pope, Bishop, Prior, Parsons, Priest, Monk, Stewart, Constable, Hunter, Falconer, Palmer (a pilgrim), Cook, Smith, Tailor. Originally, most of these names were descriptive, a kind of surname to distinguish individuals. Thus, in old documents, we read of "Colgrumy reeve," Bailiff (whence Bailey) or Steward; "Harding, the Smith;" "Lefstan, the Carpenter;" "Elstan, the Fisherman;" "Osmand, the Miller."

Signs are now very unusual in connexion with ordinary trades. The pulper-house keeper and the pawnbroker are almost the only business-men who retain signs. Even the barber's pole has almost vanished. In days of yore signs were very common, and, for the most part, they were symbolical, that is, they—on the ground of some resemblance—set forth the kind of business which each chapman conducted. Signs, as being distinctive, offered a means of denoting individuals. This fact is exemplified in the following lines, which were printed in 1612:—

First, there is maister Peter at the *Hell*,
A linnen-draper and a wealthy man;

I retain the antique spelling:—

Then maister Thomas that doth stockings sell;
And George, the grocer, at the *Frying-pan*;
And maister Timothie, the woollen-draper;
And maister Salamon, the leather-draper;
And maister Frankie, ye goldsmith at the *Rose*;
And maister Phillip with the fiery nose.

And maister Miles, the mercer, at the *Harrow*;
And maister Nicke, the silkmán, at the *Pinn*;
And maister Godes, the tailor, at the *Sparrow*;
And maister Wicke, the vintner, at the *Cow*;
And Harry Haberdasher at the *Horse*;
And Oliver, the dyer, at the *Thorne*;
And Bernard, barber-surgeon, at the *Needle*;
And Moses, merchant-tailor, at the *Needle*.

When these verses were written, the correspondence between the sign and the thing signified must have generally vanished, for there is little congruity between a plow and a silkmán, a cow and a vintner, or a fiddle and a barber-surgeon; though the needle would serve as well as "a goose" as an emblem for a merchant-tailor.

What are called Christian names were in England, at a very early period, the sole name borne by individuals. The Christian name is the name given at christening, that is, baptism. The name given at the solemnity was the name of some saint. The saint, whose name was thus taken, was thereby recognised as the patron saint of the individual. Here is the feeling that introduced into our language so many scriptural names. Very natural was it that, in a religious ceremony, a religious name should be given to the infant received by water into the fostering arms of the church. Accordingly, we have Anthony, Bartholomew, Boniface, Bernard, Cuthbert, Dunstan, Daniel, Godfrey, George, Gerard, Hilary, Leonard, Martin, &c.

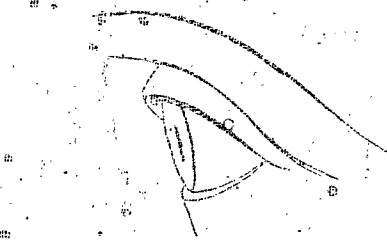
The Christian name alone is found in times anterior to the Norman conquest. Thus in old legal documents we have, together with the sign of the cross (made originally as a sanction, and afterwards as a substitute, kings, princes, and nobles being then unable to write even their own name), e. g., *Ego Edmundo confirmavi*, *Ego Edmundo corroboravi*, *Ego Edmundo confirmavi* (my act).

These Christian names passed into family names. For instance, Edward gave rise to Mr. Edward; more commonly, Mr. Edwards, that is, Edwardson. The transformation is sometimes attended by the abridgment or the addition of a syllable, so as to give rise to diminutives, as Batty, a diminutive of Watson. Thus, we say, Mr. John, or Johnny. From *little John* comes the name Mr. Littlejohn. Or and Kim, perhaps also Cock (or Cox), are syllables which have a diminutive force. Here follow instances of family names derived from Christian names:—

Adam gave birth to Adamson; Adams, Adye, Addison.
Abraham " Abraham, Abraham, Mabb, Mahbs, Mabbol.
Arthur " Atty, Atkins, Attingue, Atweek.
Bartholomew " Batty, Batts, Bates, Bateson, Bartlett, Batecock.
Christopher " Kister, Kitta, Kisson.

from the vertical may be taken as somewhat more than the length of the nose. Take a point halfway between the commencement of the throat and the tip of the chin, join this point and the middle of the forehead, and the line thus drawn gives the place and direction of the eye-ball. The upper eyelid being opposite the origin of the nose.

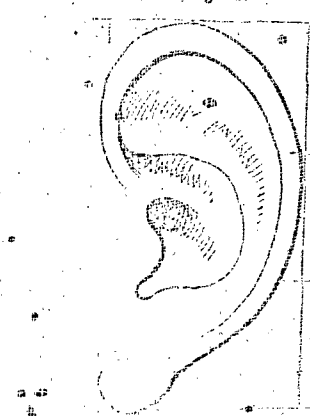
Fig. 93.



Profile Eye.

The profile eye, fig. 93, is half the length of the full eye, and, this being a perspective view, the iris and pupil are seen as ellipses. There is a transparent chamber called the cornea (Lat. *cornea*, hard or horny) in front of the iris; in a profile view this is seen across. The black of the eye therefore does not come close up to the outline of the ball. Beginners are apt to make it so, but for the reason above mentioned it is incorrect.

Fig. 94.



The Ear.

The ear, fig. 94, is set on the head at an inclination not much greater than the facial angle. It is one nose in length, and its greatest breadth is one half of the length; when divided into three parts, the middle division shows the extent of the central opening. As a feature it varies greatly in different individuals; but, as we have said before, all variations are understood when referred to the standard form. The highest part of the head is immediately over the ear.

Having made himself acquainted with these proportions, the student should procure a plaster cast of the head of the Apollo Belvedere (see fig. 60, p. 258, vol. II.) or of the Venus de Medici, or of the Townley Venus, or of the Antinous, or of the Niobe, for all are of authority admitting of no question among artists, and any one of them will do; the careful study of this cast, aided by what we have explained in this lesson, will enable the student to lay the soundest foundation for future excellence in drawing the human head and face.

L'homme que l'on peut véritablement appeler homme ne connaît aux marques qui suivent: Quelque accident qui lui arrive, il est infortuné. Il est humble dans les grandeurs. Il ne lâche pas le pied dans les occasions où il s'agit de faire voir qu'il a du cœur. Il n'a d'autre but que de se faire respecter, et s'il n'est sage, il n'a au moins le bon sens pour les sciences.—*Maximes des Orientaux*.

Edmund	Edmundson, Edmunds, Munn.
Hugh	Hewson, Hugget, Huggins, Hugginson.
John	Johnes, Jones, Johnson, Janson, Jennings, Jenkins, Jenkin, etc.
Peter	Peterson, Pierce, Pierson, Perkin, Perkins, Parkins, etc.

WILLIAM BELWARD, Lord of Malpas, in Cheshire, had two sons.

1. DAN DAVID of Malpas, called on account of his scholarship is Clarke, the clerk, that is, scholar.

2. RICHARD.

1. WILLIAM, called DE MALPAS, from his estate.	2. PHILIP, called "Gogh," that is, red. His descendants took the name of EGGERTON.	3. DAVID took the name of the name of EGGERTON.
1. THOMAS, called DE COUGRAVE, from his estate.	2. WILLIAM, DE OVERTON, from his estate.	3. RICHARD, surnamed LIT-TLE, from his diminutive stature.

A SON, who took the name of GOODMAN, or, rather, received it of others, from the excellence of his character.

1. A SON, called KEN - CLARKE, that is, knowing scholar.

There lies before me an ancient Tallyage Roll, a curious document, as exemplifying the origin and nature of local surnames. It is a list of the persons, who in 1336 were in the town of Leicester* taxed one-tenth of their assessed substance. A few illustrative specimens may be here produced of surnames from

Affinity.	Place.	Profession.
Alicia, formerly the wife of John Norman	John of Shirford	Thomas the Rider
The wife of Reginald of Eccleshall	William of Kayburg	Robert the Palmer
The son of Peter, the Wright	Roger of Claybrook	Jayn the Webster
John Hodings, Junior	Henry of Willoughby	Matilda the Waterman
The son of William of Lincoln, Mercer	Matilda of Thornton	Roger the Forester
Adam, the son of Edith	Robert Coventre	William the Saddler
Matilda, formerly Andrusayden	Richard of Eoworth	Nicholas the Skinner
Thomas, the son of Thomas Wynger	Marion of Coventry	Michael the Baxster
	John of Beverley	Henry the Pedlar
	William of Stanton	William the Gardiner
	Adam of Oke	Alicia the Fysshere
	John atte Hall	Robert the Taverner
	Roger of Blaby	Simon the Barber
	John o' the Waynhouse	Richard the Glover
	John atte Walshalle	Adam the Latcher

Place and Profession.	Abbreviated.	Various and Curious.
Ralph of Frisley, Tailor	Isabel Melemaker	John the Cat
Roger of Knighton, Mercer	Nicholas Porke	Roger Pestell
John Joyce, Mercer	John Lamb	Matilda Mikellaye
John of Thurmaston, Tailor	William Sharp	Walter Fish
John of Ayleston, Chaplin	John Tebold	Thomas Deth
Thomas of Beby, Mercer	John Sturdy	Richard the Large
William of Beby, Draper	William Goldsmith	Andrew Six - and - twenty
Robert of Beby, Draper	Henry Aldyeh	Roger the Bee
Robert o' the Waynhouse, Wheelwright	Matilda Meubray	William Hough
William of Stoke, Thakker (thatcher)	Richard Kypping	Richard Luffhard
William Horn of Melton	Johanna Pontrell	Adam Pestle
John, the Haywood Clerk	Roger Glyde	Robert Pyk
William of Ashby, Farmer	Walter Miles	Henry Underwode
	William Ace	John Sturdy
	William Fage	John Stole

The process of abbreviation is illustrated in the same names in different stages of formation. Thus we find Nicholas the friar and William Frereman (the friar's man or servant). Hence it is easy to see how "Alicia the mercer and John her son" would be

* Thompson's History of Leicester, p. 551.

I annex a pedigree of a family which lived in Cheshire not long after the Conquest. It is interesting, because it affords examples of several of the methods in which person names were formed before family names were fully established:—

shortened into Alicia Mercer and Johnson. Roger Pestell (or Pestle) is clearly Roger, Atte (at the sign of the) Pestle (and Mortar); Walter Miles is Walter the soldier. John o' the Waynhouse, is John of the weighbridge, abridged into John Weighbridge. The spelling is by no means correct, and in bad spelling both in spoken and written language is another source of proper names. "Stephen Bellzeter"—what is the derivation? Write Bellzeter correctly, and you have Stephen the bell-setter, or the bell-hanger, which when curtailed would be Stephen Bellsetter. So the "Hawis Bowmaker" of the list is obviously Alice Bowmaker. Our ancestors indulged themselves in variety of spelling. Accordingly we have "Alicia the fysshere," "Adam Fyssh" and "William the Fisher," also "Geoffrey Fish." "Robert the clerk," that is Robert the clergyman, came to be Robert Clerk. So "Richard Norman" was originally Richard the Norman. As in the above list one man is called a Cat, and another a Stoat, so in the roll we have a Bird, a Leveret, a Martin, and even a Boob. Some of the trades are singular. Of course we have cooks, coopers, sawyers (sawyers), saddlers, porters, smiths, tailors; but what are we to make of "Michael the Walker," "Power the Walker," "John the Bonwer," "Simon the Curreour," "Simon the Quarreour," "Geoffrey the Lorkmer," "John Kyng Sherman," "Henry the peyntour." Some of these difficulties are removed by an orthographical resource. Thus do we obtain Henry the painter; Simon the quarrier (or quarryman); also Simon the carrier, and John the bower (bowmaker). By referring to the German we convert "William the Walker" from a personage distinguished for celerity of foot into plain William the fuller, and "Geoffrey the Lorkmer" is by the aid of the French made to assume his proper shape as Geoffrey the white-smith.

Leicester in the fourteenth century, wears a very material aspect. Its inhabitants seem to have been pretty much employed in providing for the body. Among them there was not a single artist or a single schoolmaster, in our sense of the term. There were two chaplains and two clerks, whose position cannot have been very enviable, unless it depended on something better than this world's goods; for the four persons among them possessed not so much property as "Master John the Cook," with one exception, the only personage of consequence enough to receive the worshipful title of master. The *cylls* appear indeed to have been in great request, for while there were in the town three drapers, four tailors, two taverners (tavern keepers) two barbers, and eight mercers, there were not fewer than seven public cooks. And in possessions the cooks could venture a comparison even with the gentry; among tradesmen they were clearly the most respectable, for while the average amount of property held by the innkeepers was eighteen shillings, and the average of the clergyman was twelve shillings, the cooks possessed on an average each thirty-three shillings.

"Nick names" may serve to throw light on the formation of names generally. Nick (from the German necken, to banter, to tease) names are names given to persons in the way of amusement, derision, or contempt.

The age of Charles II. was an age of nicknames—the king himself was known as "Old Rowley." In allusion to an ill-favoured but famous horse in the royal mews. Nor was the cognomen at all disagreeable to him. Mrs. Holford, a young lady much admired by the king, was in her apartments singing a satirical ballad upon "Old Rowley the king," when he knocked at her door. Upon her asking who was there, he, with his usual good humour, replied, "Old Rowley himself, madam." Hobbes he called "The Bear," "Here comes the Bear to be baited," was his remark, as soon as he saw the great philosopher surrounded by the wits, who rejoiced in his conversation. A favourite yacht received from him the name of "Tubba," in honour of the Duchess of Portsmouth, who was plump and fell in her person. The queen he called "a bat," in allusion to her short, broad figure, her swarthy complexion, and the projection of her upper lip from a protuberant forehead.

LESSONS IN FRENCH—No. IV.

By Professor LOUIS FASQUELLE, LL.D.

§ 47.—PARADIGMS OF THE AUXILIARY VERBS.

To familiarize the student with the frequent use made by the French of the indefinite pronoun on (§ 41, (4.)), we have introduced it in our conjugation of the verbs.

(1.) AVOIR, TO HAVE.—AFFIRMATIVELY.

INDICATIVE MODE.		COMPOUND TENSES.	
SIMPLE TENSES.		COMPOUND TENSES.	
PRESENT.	PAST INDEFINITE.	PAST INDEFINITE.	PAST INDEFINITE.
J'ai, I have.	J'avais, I had.	J'ai eu, I have had.	J'avais eu, I had had.
Tu as, thou hast.	Tu avais, thou hadst.	Tu as eu, thou hast had.	Tu avais eu, thou hadst had.
Il a, he has.	Il avait, he had.	Il a eu, he has had.	Il avait eu, he had had.
On a, one has.	On avait, one had.	On a eu, one has had.	On avait eu, one had had.
Nous avons, we have.	Nous avions, we had.	Nous avons eu, we have had.	Nous avions eu, we had had.
Vous avez, you have.	Vous aviez, you had.	Vous avez eu, you have had.	Vous aviez eu, you had had.
Ils ont, they have.	Ils avaient, they had.	Ils ont eu, they have had.	Ils avaient eu, they had had.

IMPERFECT.		PLUPERFECT.	
J'avais, I had.	J'avais eu, I had had.	J'avais eu, I had had.	J'avais eu, I had had.
Tu avais, thou hadst.	Tu avais eu, thou hadst had.	Tu avais eu, thou hadst had.	Tu avais eu, thou hadst had.
Il avait, he had.	Il avait eu, he had had.	Il avait eu, he had had.	Il avait eu, he had had.
On avait, one had.	On avait eu, one had had.	On avait eu, one had had.	On avait eu, one had had.
Nous avions, we had.	Nous avions eu, we had had.	Nous avions eu, we had had.	Nous avions eu, we had had.
Vous aviez, you had.	Vous aviez eu, you had had.	Vous aviez eu, you had had.	Vous aviez eu, you had had.
Ils avaient, they had.	Ils avaient eu, they had had.	Ils avaient eu, they had had.	Ils avaient eu, they had had.

FUTURE DEFINITE.		FUTURE ANTERIOR.	
J'aurai, I shall have.	J'aurai eu, I shall have had.	J'aurai eu, I shall have had.	J'aurai eu, I shall have had.
Tu auras, thou shalt have.	Tu auras eu, thou shalt have had.	Tu auras eu, thou shalt have had.	Tu auras eu, thou shalt have had.
Il aura, he will have.	Il aura eu, he will have had.	Il aura eu, he will have had.	Il aura eu, he will have had.
On aura, one will have.	On aura eu, one will have had.	On aura eu, one will have had.	On aura eu, one will have had.
Nous aurons, we shall have.	Nous aurons eu, we shall have had.	Nous aurons eu, we shall have had.	Nous aurons eu, we shall have had.
Vous aurez, you shall have.	Vous aurez eu, you shall have had.	Vous aurez eu, you shall have had.	Vous aurez eu, you shall have had.
Ils auront, they shall have.	Ils auront eu, they shall have had.	Ils auront eu, they shall have had.	Ils auront eu, they shall have had.

FUTURE.		FUTURE ANTERIOR.	
J'aurai, I shall have.	J'aurai eu, I shall have had.	J'aurai eu, I shall have had.	J'aurai eu, I shall have had.
Tu auras, thou shalt have.	Tu auras eu, thou shalt have had.	Tu auras eu, thou shalt have had.	Tu auras eu, thou shalt have had.
Il aura, he will have.	Il aura eu, he will have had.	Il aura eu, he will have had.	Il aura eu, he will have had.
On aura, one will have.	On aura eu, one will have had.	On aura eu, one will have had.	On aura eu, one will have had.
Nous aurons, we shall have.	Nous aurons eu, we shall have had.	Nous aurons eu, we shall have had.	Nous aurons eu, we shall have had.
Vous aurez, you shall have.	Vous aurez eu, you shall have had.	Vous aurez eu, you shall have had.	Vous aurez eu, you shall have had.
Ils auront, they shall have.	Ils auront eu, they shall have had.	Ils auront eu, they shall have had.	Ils auront eu, they shall have had.

CONDITIONAL MODE.		CONDITIONAL MODE.	
J'aurais, I should have.	J'aurais eu, I should have had.	J'aurais eu, I should have had.	J'aurais eu, I should have had.
Tu aurais, thou shouldst have.	Tu aurais eu, thou shouldst have had.	Tu aurais eu, thou shouldst have had.	Tu aurais eu, thou shouldst have had.
Il aurait, he would have.	Il aurait eu, he would have had.	Il aurait eu, he would have had.	Il aurait eu, he would have had.
On aurait, one would have.	On aurait eu, one would have had.	On aurait eu, one would have had.	On aurait eu, one would have had.
Nous aurions, we should have.	Nous aurions eu, we should have had.	Nous aurions eu, we should have had.	Nous aurions eu, we should have had.
Vous auriez, you should have.	Vous auriez eu, you should have had.	Vous auriez eu, you should have had.	Vous auriez eu, you should have had.
Ils auraient, they should have.	Ils auraient eu, they should have had.	Ils auraient eu, they should have had.	Ils auraient eu, they should have had.

IMPERATIVE MODE.

Aie, Qu'il aie, Ayez, Qu'ils aient.	Have thou, let him have, let one, people, then, have, let us have, have ye or you, let them have.
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SUBJUNCTIVE MODE.

SIMPLE TENSES. COMPOUND TENSES.

PRESENT.		PAST.	
Que j'aie, Que tu aies, Qu'il ait, Qu'on ait, Que nous ayons, Que vous ayez, Qu'ils aient.	that I may, that thou mayest, that he may, that one may, that we may, that you may, that they may.	Que j'eusse, Que tu eusses, Qu'il eût, Qu'on eût, Que nous eussions, Que vous eussiez, Qu'ils eussent.	that I might, that thou mightest, that he might, that one might, that we might, that you might, that they might.

IMPERFECT.

PLUPERFECT.

Que j'eusse, Que tu eusses, Qu'il eût, Qu'on eût, Que nous eussions, Que vous eussiez, Qu'ils eussent.	that I might, that thou mightest, that he might, that one might, that we might, that you might, that they might.	Que j'eusse eu, Que tu eusses eu, Qu'il eût eu, Qu'on eût eu, Que nous eussions eu, Que vous eussiez eu, Qu'ils eussent eu.	that I might, that thou mightest, that he might, that one might, that we might, that you might, that they might.
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INFINITIVE MODE.

PRESENT.		PAST.	
Avoir, Ayant, Eu.	to have, having, had.	Avoir eu, Ayant eu, Eu.	to have had, having had, had.

(2.) AVOIR, TO HAVE.—CONJUGATED NEGATIVELY.

INDICATIVE MODE.		COMPOUND TENSES.	
SIMPLE TENSES.		COMPOUND TENSES.	
PRESENT.	PAST INDEFINITE.	PAST INDEFINITE.	PAST INDEFINITE.
Je n'ai pas, Tu n'as pas, Il n'a pas, On n'a pas, Nous n'avons pas, Vous n'avez pas, Ils n'ont pas.	Je n'avais pas, Tu n'avais pas, Il n'avait pas, On n'avait pas, Nous n'avions pas, Vous n'aviez pas, Ils n'avaient pas.	Je n'ai pas eu, Tu n'as pas eu, Il n'a pas eu, On n'a pas eu, Nous n'avons pas eu, Vous n'avez pas eu, Ils n'ont pas eu.	Je n'avais pas eu, Tu n'avais pas eu, Il n'avait pas eu, On n'avait pas eu, Nous n'avions pas eu, Vous n'aviez pas eu, Ils n'avaient pas eu.

IMPERFECT.		PLUPERFECT.	
Je n'avais pas, Tu n'avais pas, Il n'avait pas, On n'avait pas, Nous n'avions pas, Vous n'aviez pas, Ils n'avaient pas.	Je n'avais pas eu, Tu n'avais pas eu, Il n'avait pas eu, On n'avait pas eu, Nous n'avions pas eu, Vous n'aviez pas eu, Ils n'avaient pas eu.	Je n'avais pas eu, Tu n'avais pas eu, Il n'avait pas eu, On n'avait pas eu, Nous n'avions pas eu, Vous n'aviez pas eu, Ils n'avaient pas eu.	Je n'avais pas eu, Tu n'avais pas eu, Il n'avait pas eu, On n'avait pas eu, Nous n'avions pas eu, Vous n'aviez pas eu, Ils n'avaient pas eu.

FUTURE DEFINITE.		FUTURE ANTERIOR.	
Je n'aurai pas, Tu n'auras pas, Il n'aura pas, On n'aura pas, Nous n'aurons pas, Vous n'aurez pas, Ils n'auront pas.	Je n'aurai pas eu, Tu n'auras pas eu, Il n'aura pas eu, On n'aura pas eu, Nous n'aurons pas eu, Vous n'aurez pas eu, Ils n'auront pas eu.	Je n'aurai pas eu, Tu n'auras pas eu, Il n'aura pas eu, On n'aura pas eu, Nous n'aurons pas eu, Vous n'aurez pas eu, Ils n'auront pas eu.	Je n'aurai pas eu, Tu n'auras pas eu, Il n'aura pas eu, On n'aura pas eu, Nous n'aurons pas eu, Vous n'aurez pas eu, Ils n'auront pas eu.

FUTURE.		FUTURE ANTERIOR.	
Je n'aurai pas, Tu n'auras pas, Il n'aura pas, On n'aura pas, Nous n'aurons pas, Vous n'aurez pas, Ils n'auront pas.	Je n'aurai pas eu, Tu n'auras pas eu, Il n'aura pas eu, On n'aura pas eu, Nous n'aurons pas eu, Vous n'aurez pas eu, Ils n'auront pas eu.	Je n'aurai pas eu, Tu n'auras pas eu, Il n'aura pas eu, On n'aura pas eu, Nous n'aurons pas eu, Vous n'aurez pas eu, Ils n'auront pas eu.	Je n'aurai pas eu, Tu n'auras pas eu, Il n'aura pas eu, On n'aura pas eu, Nous n'aurons pas eu, Vous n'aurez pas eu, Ils n'auront pas eu.

CONDITIONAL MODE.

SIMPLE TENSES.

PRESENT.

Je n'aurais pas, I should
To n'aurais pas, thou wouldst
Il n'aurait pas, he would
On n'aurait pas, one would
Nous n'aurions pas, we would
Vous n'auriez pas, you would
Ils n'auraient pas, they would

IMPERATIVE MODE.

N'ie pas, Have not thou
Qu'il n'ait pas, let him not have
Qu'on n'ait pas, let one not have
N'ayez pas, let us not have
N'avez pas, let you not have
Qu'ils n'aient pas, let them not have

SUBJUNCTIVE MODE.

SIMPLE TENSES.

PRESENT.

Que je n'aie pas, that I may
Que tu n'aies pas, that thou mayest
Qu'il n'ait pas, that he may
Qu'on n'ait pas, that one may
Que nous n'ayons pas, that we may
Que vous n'ayez pas, that you may
Qu'ils n'aient pas, that they may

IMPERFECT.

Que je n'eusse pas, that I might
Que tu n'eusses pas, that thou mightest
Qu'il n'eût pas, that he might
Qu'on n'eût pas, that one might
Que nous n'eussions pas, that we might
Que vous n'eussiez pas, that you might
Qu'ils n'eussent pas, that they might

INFINITIVE MODE.

PRESENT.

Ne pas avoir, not to have

PARTICIPLE.

N'ayant pas, not having

PRESENT.

N'ayant pas, not having

PAST OR PASSIVE.

N'ayant pas, not having

PAST.

N'ayant pas, not having

PAST.

N'ayant pas, not having

PAST.

N'ayant pas, not having

PAST.

N'ayant pas, not having

PAST.

N'ayant pas, not having

PAST.

N'ayant pas, not having

PAST.

N'ayant pas, not having

PAST.

N'ayant pas, not having

PAST.

N'ayant pas, not having

PAST.

N'ayant pas, not having

PAST.

N'ayant pas, not having

PAST.

N'ayant pas, not having

LESSONS IN GERMAN.—No. XLV.

SECTION XXVIII.

Reisen = to rear, to rear, also, to draw, &c.; hence, an sich reisen, to draw towards, or to one, to usurp, seize upon; as, der Sturm riss ganze Bäume aus der Erde; the storm rent whole trees from the earth. Er hat das Vermögen seines Bruders an sich gerissen; he has usurped the fortune of his brother.

Sich um etwas streiten = to strive, contend for anything; as, die Kaiser streiten sich um die Krone; the robbers strove for the booty.

Einreden (literally, to speak in) = to inculcate by words, to influence by speaking. Einuath, Eröth, &c., anreden, to speak courage, consolation, &c., to one, i. e. to encourage, to console, &c.; as, der tapfere General besuchte täglich die Soldaten, um sie zu ermuntern; the valiant general visited the recruits daily, in order to encourage and console the soldiers.

11. Bei Besuchen einreden = to call on one, to give one a call; as, ich sprach auf einige Augenblicke bei dem Herrn Müller an; I called for a few moments on the pastor.

EXERCISE 101.

Remember, to call, call einreden (See I.); Kankanger, m. land-
away, recall; Kankanger, m. progress; Kankanger, m. place of
Kankanger, first, Kankanger, f. trans-
principles, radi- quillity; Kankanger, to tear, seize,
ments, elements; Kankanger, m. old man; (See above);
Kankanger, pleasing, Kankanger, n. house- Kankanger, unpleasant-
agreeable, com- hold-furniture; Kankanger, ant, comfortless;
fortable; Kankanger, m. domin- Kankanger, f. cradle;
Kankanger, particular- ion, mastery, do- Kankanger, n. inn,
ly, especially; mination; Kankanger, public-house.
Kankanger, f. cigar; Kankanger, f. bullet, ball;

12. Ein Verrecht hat, hat auch He who has one privilege seeks
after an sich zu verrecht. (to seize to himself) to usurp
others.

13. Willen Sie über Paris reisen? Will you go (travel) via Havre?
Ich habe nichts dagegen, wenn Sie I have nothing against it, if
es vorzieht. you prefer it.

14. Wir bleiben es vor zu Hause zu blei- We prefer to stay at home.
ben.

Der Industrie macht bessere Fort- The industrious (man) makes
schritte, als der Idole. better progress than the idle.
Rufman, Ostreich und Preussen. Russia, Austria, and Prussia
rissen sich um das unglückliche entended about (the) un-
Polen. happy Poland.

1. Tröb, der Dörfer, welche sich der Lehrer gab, wollten die Kinder keine
rechten Fortschritte machen. 2. Er machte bedeutende Fortschritte in der
Kunst der Sprache, nachdem er die ersten Anfangsgründe übernommen hatte.
3. Er antwortet der nachfolgenden Bücher. 4. Eine arme Familie entbehrt
oft der nöthigsten Hausgeräthe. 5. Die Gesellschaft zieht ihre Ein-
sätze aus dem Reichthum derer, die sie für sich behalten. 6. Der Capitän ergriffte uns gestern, daß sich der junge Hülse
eine Kugel durch den Kopf geschossen habe. 7. Er ließ den Vater eine
Kugel durch den Kopf. 8. Ich ziehe es vor, über Bremen eine Hamburg,
anstatt über Frankfurt zu reisen. 9. Ich ziehe das Leben im Feld, und
das Leben im Feld vor. 10. Es ist mir in einer heiligen Stunde
begegnet, als in einer solchen. 11. Es ist ihm am besten gefallen, wenn
er nach dem Tode seiner Gattin reisen kann. 12. Kater ist es am be-
stimmtesten, auch am glücklichsten, wenn sie nach dem Tode einer heiligen
Stunde reisen gehen. 13. Ich hatte den ganzen Morgen über ein un-
behagliches Gefühl. 14. Die Fürsten Deutschlands haben von Neuem die
Herrschaft an sich gerissen. 15. Der Oheim mußte nach und nach das
Verdauern seiner Neffen an sich zu reisen. 16. Es ist schon lange, daß
ich ihn gesehen habe. 17. Ist es lange, daß er krank ist? 18. Ja, es
ist schon mehr als drei Wochen. 19. Bleibe zu Hause, bis daß ich zu
dir komme; ich werde dich zu einem Spaziergange abholen. 20. Der
Tod riss nicht nur den Greis, sondern auch gar oft den Mann in seinen
besten Jahren, den Jüngling, und das Kind in der Wiege ab. 21. Da ich
wusste, daß mein Freund mit dem Dampfboote ankommen würde, so hatte
ich ihn an dem Landungsplatze ab. 22. Ich habe diesen Brief heute Mor-
gen von der Post abgeholt. 23. Ich sprach auf meiner Reise in verschie-
denen Wirthshäusern ein—aber ich kann keine derselben besonders loben.
24. Ich spreche gewöhnlich bei meinen Freunden ein, wenn ich in die Stadt
gehe.

1. I made better progress in the German language after I
had mastered the first rudiments. 2. The uncle seeks to usurp
the fortune of his cousins. 3. Is it long since your brother
was taken ill? 4. No, it is not more than a few days since.
5. Will you stop at home, till I call on you? 6. It is more
pleasant to me to take a walk in the country than to sit at
home. 7. When I go to town, I generally call on some of my
friends. 8. He prefers studying to all other employments.
9. I prefer walking to riding, and riding to driving. 10. During
the battle the general rode along the ranks to encourage his
soldiers. 11. It is healthful to children, when they can take

a walk after school. 12. The robbers strove for the booty
which they had taken from the citizens.

SECTION XXIX.

Ein Tag um den andern, literally, one day about the other,
i. e. every other day. 2. Er geht einen Tag um den andern in
die Stadt; he goes every other day into town. Ein Tag um
den andern habe ich Unterricht in der deutschen Sprache; every other day
I have instruction in the German language.

1. Vergleich = to equal, to compare to or with; as, Sie ist
der Diana zu vergleichen; in this there is no one to be com-
pared to her. 2. Die Welt, der Weltmenschen, können wir vergleichen.
getroffenen Menschen uns nicht vergleichen. We, weak and fragile
creatures, cannot compare ourselves with God, the all perfect.
3. Ich bin mit dem Herrn Gottes gleich, wie man sich oft zu vergleichen. 4. I have let my house for five years. 5. A diligent scholar
repents what he has heard at school. 6. In war time the price
of provisions rises considerably. 7. It surprises me that he does
not avoid the society of such people. 8. We should avoid the
society of those who are unjust in their principles. 9. I visit
my sister every other day. 10. He acts just as he did in his
youth. 11. All the goods have been taken from the merchant,
as he could not compound with his creditors. 12. Youth, arm
thyself, day by day, with more wisdom, as the flower of youth
decays.

EXERCISE 102.

Aufstehen, to rise; Aufstehen, m. creditor; Aufstehen, m. debtor;
Verdacht, consider- ditator; Verdacht, m. tower;
dile; Verdacht, pl. quarrel; Verdacht, to fade,
Gefühl, n. comfort, Gefühl, m. hero, Gefühl, n. decay;
Gefühl, n. champion; Gefühl, n. (See I.);
In kommen, to come Gefühl, f. heroine; Gefühl, n. imple-
ment, tool;
Gefühl, n. get Gefühl, n. bring
Gefühl, n. hotel; Gefühl, n. light; Gefühl, n. wonder,
Gefühl, n. light-minded; Gefühl, n. he surprised.
Gefühl, to command, Gefühl, m. desert;
Gefühl, to cry;

Der Kaufmann war nicht im Stand- The merchant was not able to
zu sich auf mehr als fünf und settle with his debtor at more
zwanzig Prozent; nicht fünf than twenty five per cent.

Es war mir nicht so leicht, das zu Es surprised me that he has come
out making (say) d. his.

Der Preis einer Waare steigt nach The price of wares is accustomed
to rise and fall according to
circumstances.

Einem Tag um den andern hatte ich Every other day I had to watch
with my sick brother.

Man muß sich wundern, daß so et- One must be surprised that
was nach im neunzehnten Jahr- such a thing can happen in
hundert geschehen ist. the nineteenth century.

Der Minister hielt eine lange Rede The minister delivered (held) a
long address to the assembly.

1. Die Studenten haben sich mit dem Schreiber auf fünfzig Prozent
verglichen. 2. Die beiden Konfessionen können sich wegen des Tristes nicht
verglichen. 3. Ich habe dieses Mal einander verglichen. 4. Er hat
sein Haus fünf Jahre vermietet. 5. Die junge Frau verlor
ihre sich als Nacht. 6. Man muß sich wundern, daß so etwas noch in
unsern Zeiten geschehen kann. 7. Es war mir nicht so leicht, das zu
machen und nicht geschehen ist. 8. Gierig hielt eine Rede gegen Gattina. 9.
Der Kaiser hielt auch ebenfalls einen über die Freundschaft, über das Ge-
heimnis und über die Freundschaft. 10. Was für eine Rede
hatte er eine Rede. 11. Der Schreiber war nicht so leicht, das zu
machen, was er in der Schule gelernt hatte, um sich daselbst nicht zu
verlegen zu lassen. 12. Wir haben ein wunderbares Ereignis. 13.
Der Preis einer Waare ist gewöhnlich ansteigend. 14. Die Rede hat
nach dem Krieg beträchtlich aufgehört. 15. Die Sprache ist nicht

wegten auch dem Schreiber. 16. Man, einen Freund, der Schreiber an ihre Seite zu
setzen. 17. Der reiche Mann hat seinen Namen verloren. 18. Der
Mann besuchte den Kranken einen Tag um den andern. 19. Einen Tag um
den andern geht er auf die Jagd. 20. Er konnte nicht als Mann in
Kriegszeiten, wie er als Jüngling behandelt hatte. 21. Bei der Ankunft
der ungarischen Heere Jagda und anderer ungarischen Heere in Rom.
Der Mann, als er in dem Hause, wo sie eingebracht waren, bei dem
Schreiber saßen, ein ausgedehnter Schreiber Thron mit freigelegten Be-
wegen, aus Gerechtigkeit, heringekommen, darauf in trauriger Sitze
die Worte sprach: „Es leben die ungarischen Heere und Heerinnen!“

1. The creditor has compounded with his debtors at twenty
percent. 2. I could not compound with my creditors res-
pecting the price. 3. Please to compare one with another.
4. I have let my house for five years. 5. A diligent scholar
repents what he has heard at school. 6. In war time the price
of provisions rises considerably. 7. It surprises me that he does
not avoid the society of such people. 8. We should avoid the
society of those who are unjust in their principles. 9. I visit
my sister every other day. 10. He acts just as he did in his
youth. 11. All the goods have been taken from the merchant,
as he could not compound with his creditors. 12. Youth, arm
thyself, day by day, with more wisdom, as the flower of youth
decays.

SECTION C.

EXAMPLES ILLUSTRATING THE VARIOUS CASES OF THE CON-
JUNCTIONS.

1. Aber, allein, sondern. It is soon said, but done with
difficulty.
2. Es ist bald gesprochen, aber schwer. He is not yet there, but he will
certainly come.
3. Ich bin nicht da, aber ich werde. This sign is given, that the
festival is over; but neither
die Zeichen werden gegeben, daß the carriages, nor monks, nor
das Fest geendet ist; allein weder spectators leave their places.
Wagen, noch Mönche, noch Zu-
schauer werden aus der Stelle.
(Schiller.)
4. Nicht die Sprache an sich ist die No. the language itself is
correct, powerful and elegant;
richtig, stark und elegant; aber the spirit is embodied
durchgängig. throughout.

5. Louise ist mein Liebling, denn sie hat Louise is my favourite, for she
has a mind more noble, and
ein edler Gemüth als einen a character more firm than
fehlern Charakter. als viele many young ladies; nothing
junge Tamen; nichts als Sanft- but gentleness speaks from
muth spricht aus ihren Augen. her eyes.

6. Gieb alle dein Vertrauen. To you then shall I trust; not
you to me?
Nicht mir? (Schiller) He has done it himself, and,
Er hat es selbst gethan und, consequently, can blame no
als ich selbst that.

7. Auch. They are off to-night, and the
mangers also.
8. Sie sind davon heute Nacht, die How good soever (Sert. 63.) he
may be, I shall never become
so gut er auch ist, so kann ich intimate with him.

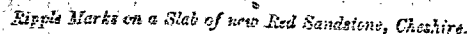
9. Außerdem. All these princes grew up with
no higher expectation than
10. Alle diese Fürsten wuchsen in einer that of governing a republic,
höheren Erwartung auf, als aber and none of their states could
eine Republik zu werden, und afford them any other ex-
keine ihrer Länder konnte ihnen perience; besides, these prin-
eine höhere Erziehung geben. ces possessed nothing, but
auf eine höhere Erziehung. what the Netherlands gave
ihnen geben. (Schiller.) them.

CHAPTER II.
ON THE ACTION OF WATER ON THE EARTH'S CRUST.
SECTION XIX.

ON THE PRODUCTION OF RIFLE MARKS.

• In the wyalds of Kent and Sussex, slabs with these ripple mark, digged from the grits of Tilgate Forest, are turned to useful economical purposes. • On account of the roughness of their surface, this kind of stone is employed in paving stable-yards, where an uneven floor is required to prevent the feet of animals from slipping when they pass over it. •

The furrowed surface of the sandstones, or shales, has not only a resemblance to the sea-shore ripples, which are occasioned by the receding waves, but it is the very thing itself. You can trace to a considerable distance every bend and curvature in the undulations of the surface, with every cross hollow and counter ridge of the corresponding phenomena. Upon such a spot, an intelligent quarryman would be struck with the conviction that, as the waving surface exposed itself to view, he was standing on the sand of some ancient Delta, or on the argillaceous or clayey strand of some ancient sea—a strand now turned into hard sandstone or slate.



If you have ever taken a walk, on the dried banks of a tidal river, where there is a curve in the bed of the stream, or if you have sauntered on the sands of the sea-shore, when the tide is out, you must have observed that when the water of the sea has been greatly agitated, either by heavy gales, or by strong currents, the forsaken surface of the sand or mud is undulated and ridged by the rippling of the waves. The direction and the height of these ridges are always according to the strength and the course of the winds and currents. This is precisely the case with very extensive surfaces of rocks which have been laid bare in the quattries of Cheshire, see fig. 37.

When a large extent of alluvial matter, or of overlying be-
have been removed by the quarrymen, the upper surface of the
rock, in these sandstone quarries, appears to be covered by
longitudinal ridge of sand, rising very gently, and disposed
a half-moon shape, or crescent-like manner. These have be-
occasioned by the curves or the meanderings of the small ri-
which flowed back to the tidal river at low water, or to the s-
when the tide had ebbed. If you ever roamed along a sand-
shore and by the edge of the sea at low water, you have found
your course frequently interrupted by these kinds of ridges
the sand.

One of the most striking illustrations of these phenomena was found about twenty years ago, in a new red sandstone quarry in Corneockle Muir in Dumfriesshire, south of Scotland. The beds of this sandstone rock, in that neighbourhood, rest on one another like bricks in one side of an arch. The quarry men had long worked this rock, down to the depth of forty feet from the top. As they continued to dislodge one series of slabs after another, they found that every lamina or layer exhibited similar markings, some having even traces of drops from a shower of rain upon their surface. They found also that the lower surface of an upper slab dislodged, corresponded with the upper surface of the new rock that was underneath.

These facts are of great importance to the geologist, for the show that the process of rippling and of rain-marking was repeated. The process was this. The tide left the sand rippled and moist: a shower of rain pitted the soft mud; wind filled the rain-marks with dry sand; and thus the impression was preserved until the quarrymen exposed it to view. In a few hours, the next tide came and covered the strand, and deposited a new layer of sediment, which, in its turn, formed a new surface for fresh ripple marks or rain prints. When these impressions had been once produced, the only condition essential to their preservation is, that they should have become covered with some fresh deposit of earthy matter before they were obliterated by any succeeding agitations of the waves.

When these ripple marks are covered by thick layers of slabs, their thickness is an index to the very quiet condition of the sea, and to the gentle action of the waters which brought the materials that covered them over without disturbing their form. The succession also of these marks on the surface of thick layers in the entire series, prove that, in the age of their deposition, there was an alternation of intervals of repose with periods of violence—of violence in the destruction and denudation of earlier rocks, and of comparative repose in the formation of the fresh sandstones.

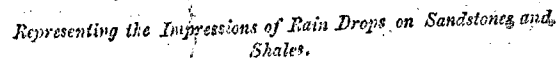
In the structure of these rippled surfaces, it is curious to find that the deepest furrows between the ridges have generally a slight coating of bluish clay, charged with very minute portions of lignite and other vegetable matter. This is probably owing to a heavy shower, which occasioned a flooding in the rills or streamlets that traversed the shore. This overflow of water, by spreading over the rippled sand, covered the ridges with a thin lamina of clay, and deposited a thicker layer of it in the furrows, because more mud would settle at the bottom than on the sides of such curves.

Sometimes the quarrymen discover that the surface of a newly exposed rock is marked not by ripple marks only, but also by angular ridges which cross each other in all directions, exactly like the edges of cracks at the bottom of a pool that a hot summer has made quite dry. This has been precisely the case with the surface of these ancient beds, for those angular ridges are the results of shrinkage in the strand. These tell us that, at this spot, the muddy strand dried up after a high tide—that, before the next high tide, it dried up and cracked, through the great heat of the season—and that, while these cracks were still open, the wind drove sands into them, which then became hardened in the rock. Being thus hardened, they formed these angular ridges.

Though, generally speaking, these ripple marks designate a sandy beach near the edge of the sea, this is not invariably

It is not in sandstones of the new red formation only that these ripple marks are exhibited. They are found in sedimentary rocks of almost all geological epochs and in strata of various lithological character, such as grits, clays, shales, and limestone. They are seen on the slabs of calcareous grit in the wealds of Kent and Sussex, in the new red sandstone of Cheshire and Scotland, in the forest marble beds north of Bath, and in the shales of the coal measures at Cape Breton, Nova Scotia.

Fig. 68.



The phenomena of these ripple marks reveal to us facts and principles of deep and awakening interest. They are clear illustrations of the perfect similarity of nature's agencies and processes myriads of ages ago, to those which are known in the present day. They tell us of subterranean powers which first upheaved these rippled shores to an enormous elevation above the reach of the waves, and which again, at an immense interval of time, became diminished in force, and caused these very rocks to subside again and become the bottom of the ocean. What a wonderful chapter in the history of our earth is every such rippled surface in a series of rocks! What a tale it tells of repeated elevations and depressions of the land on a vast scale! The examination of these processes and agencies tend to ennoble the intellect and enlarge its resources, while they lead us to admire the grandeur of their Author, who is one in counsel, and who, in geological agencies as well as in the laws of his providence, is "the same yesterday, to-day, and for ever."

The charm of this theme tempts me to take up a subject to which I made a passing reference at the commencement of this lesson. In speaking of ripple marks on the surface of rocks.

About twenty years ago, some slabs of new red sandstone from Cheshire, which had their surfaces dotted with indentations and ruffled by inequalities rising in relief, were submitted to the inspection of Dr. Buckland. That sagacious geologist at once conjectured that such holes and inequalities had been produced by the peltng of a shower of rain on the surface of a soft argillaceous or clayey sand. What was then a ridiculed conjecture is now a fact of induction; for similar impressions of rain drops may be seen formed at the present day on a deposit of red soil at the mouth of the river Patapsco near Baltimore, in North America, and also on the shore of the Bay of Fundy, Nova Scotia. See fig. 68.

These impressions or holes in the sandstone or strata are sometimes perfect hemispheres. In other cases the rain marks are of an oval shape, and appear elongated in a given direction, as if the drops had struck the moist surface of the sand or clay obliquely, as if to give us an idea of the direction in which the wind blew during the shower. Very frequently tracks of small annelids, and footprints of birds and quadrupeds, and ripple marks, accompany these rain impressions.

All these impressions on the surface of rocks, whether they be ripple marks of the sea, rain prints of showers, or traces of worms, birds, or saurians, are of thrilling interest to a geological student. They clearly prove the existence and the influence of a tide upon a sandy beach—a tide subject to the same laws of ebb and flow which operated then, and which continue to operate to this day. The ripple-marked grits of the wold in Sussex and Kent, of the forest marble near Bath, of the red sandstones of Shropshire, Scotland, and North America, and of the shales of the coal measures at Cape Breton, Nova Scotia, deliver the same lecture. Their ridges exhibit to us the phenomenon of the flux and the reflux of the tide, in the advancing and retreating wave. The intersections or cross markings of these ridges show the direction in which the winds of ancient epochs acted upon the waves. In the deep furrow between these ridges we learn how the ocean billow was agitated by a heavy gale or storm; and in the gentle swell and undulation, we seem to see the sweep of an unrudded wave bathing the sand in the clear sunshine of a great calm.

After the tide has ebbd away, and perhaps never again to return to wash the sands of this solitude, the pattering shower "takes up the wondrous tale" to illustrate ocean's last homily on the early laws of nature. These pittings in the sandstones and shales, these round and oval prints of the pelting shower, falling perpendicularly on a calm day, or driven by a strong wind in a given direction, tell us that the atmosphere of our globe, in some of the remotest ages known to geology, corresponded in density with that which we breathe to-day. In those early ages, as now, the atmosphere had its winds and tempests; it had also its different currents of air, currents which varied in temperature, so as by their mixture to give rise to the condensation of aqueous vapour into drops called rain.

In concluding this lesson, you will allow me for once to moralise upon ripple marks and rain prints, which have been "written in the rock for ever." Think what millions of men, what hundreds of tribes and nations, have striven hard to transmit some trace of their existence to future generations and have failed. While their works have sunk into utter oblivion, the simple traces of a wave of "unstable water" that rippled some thousands or myriads of ages ago, remain as well defined and as fresh as if they had been impressed by the retreating wave of the morning's ebb tide. It is still more wonderful that even the paterings and the pittings of a falling shower, at that distant epoch, should have left marks equally distinct, and should also have registered, with infallible certainty, the direction in which the wind of that day blew.

This thought is beautifully worked out in a profound and magnificent essay of Dr. Hitchcock, on "The telegraphic system of the universe," forming the twelfth chapter of his "Religion of Geology." "Here we have" he says "the ripple marks, which present us with a faithful register of the slightest movement of the waters, and also of the motions of the atmosphere or of the currents in it that agitated the waters. In the almost imper-

LESSONS IN GEOMETRY.—No. XVIII.

LECTURES ON EUCLID.

PROPOSITION VI.—THEOREM.

If two angles of a triangle be equal to one another, the sides which subtend (or are opposite to) the equal angles, are also equal to one another.

Let $\triangle ABC$, Fig. 6, be a triangle, having the angle $\angle A$ equal to the angle $\angle C$; then, the side AB is also equal to the side AC . For, if the side AB be not equal to the side AC , one of them is greater than the other. Let the side AB be the greater of the two; and, from the side AB , measuring from the point A , cut off the part AD equal to the less side AC (by the 3rd Prop. of this book). Then join the points C and D .



Now, because in the two triangles $\triangle DAC$ and $\triangle ABC$, the side DA is equal to the side AC , by construction, and the side DC is common to both, therefore the two sides DA and AC of the one, are equal to the two sides AC and CB of the other, each to each; and the angle $\angle DAC$ is equal to the angle $\angle ACB$, by hypothesis; therefore, the base, or third side DC is equal to the base, or third side AB ; and the triangle $\triangle DAC$ is equal to the triangle $\triangle ABC$ (by the 4th Prop. of this book); that is, the less is equal to the greater, which is absurd. Therefore the side AB is not greater than the side AC ; in the same manner it may be shown, that the side AC is not less than the side AB . Wherefore, the side AB is equal to the side AC . Therefore, if two angles, &c. Q. E. D.

SCHOLIUM.—We have here given Euclid's demonstration of the preceding proposition, somewhat improved. We say somewhat improved, as we have observed that students who have carefully read and studied this proposition, have not appeared fully satisfied in their own minds that all was right, although they could not detect the omission, or tell exactly where they thought it was faulty. The method of proof here employed is called *indirect*, because it does not show at once that a thing must be exactly as it is, but it shows that a thing could not be otherwise than it is, by the absurdity which would arise by supposing the contrary. Now, the apparent defect lies in this, that, for the sake of this argument, it is supposed that AB is the greater of the two, while equally for the sake of argument, it is not supposed that AC is the less of the two. Whereas, it is evident that we can only be driven to the conclusion that AB is equal to AC , between the proof of the absurdity of both suppositions. It may be argued, however, that the supposition of AB being less than AC , would be met by supposing that AC was the greater of the two, and that the argument or proof would be the same were this hypothesis assumed, and would be equally conclusive. But this is too refined an argument for ordinary minds, and cannot be supposed at first to present itself to the mind of a learner. It is on this account that we have made the small addition to the preceding demonstration, to which we refer.

Dr. Thomson, in his edition of the Elements, has made some useful observations in his notes on this proposition; but notwithstanding their utility, and his wonderful acuteness, we think he has not met exactly the difficulty of the case. The following observations on this proposition, taken from the Gower-street edition, will be found of some use; we quote them, however, in order to correct the notion which they convey in the fourth paragraph, by Dr. Thomson's remarks on the same proposition.

In the construction for this proposition it is necessary that the part of the greater side which is cut off equal to the less, should be measured upon the greater side *from* vertex (A) of the equal angle, for otherwise the fourth proposition could not be applied to prove the equality of the part with the whole.

"It may be observed generally, that when a part of one line is cut off equal to another, it should be distinctly specified from which extremity the part is to be cut.

"This proposition is what is called by logicians the *converse* of the fifth. It cannot however be inferred from it by the logical operation called *conversion*; because, by the established principles of the Aristotelian logic, an *universal affirmative admits no simple converse*. This observation applies generally to the 6 propositions in the Elements which are converses of preceding ones.

"The demonstration of the sixth is the first instance of indirect proof which occurs in the Elements. The force of this species of demonstration consists in showing that a principle is true, because some manifest absurdity would follow from supposing it to be false.

"This kind of proof is considered inferior to *direct* demonstration, because it only proves that a thing *must* be so, but fails in showing *why* it must be so; whereas *direct* proof not only shows that the thing *is* so, but *why* it is so. Consequently, indirect demonstration is never used, except where no direct proof can be had. It is used generally in proving principles which are nearly self-evident, and in the Elements is of great use in establishing the *converse* propositions. Examples will be seen in the 15th, 19th, 25th, and 40th propositions of this book."

"It is often stated," says Dr. Thomson, "that this proposition affords the first instance in which the indirect method of proof is employed. This, however, is incorrect, as it is on this principle that the bases [of the triangles], and the triangles themselves, are proved to coincide in the fourth proposition, by showing that their failing to coincide would be contrary to the corollaries to the 3rd and 5th definitions." The corollaries here referred to, are these: "Cor. Hence two straight lines cannot inclose a space. Neither can two straight lines have a common segment; that is, they cannot coincide in part without coinciding altogether;" and "Cor. Hence two plane surfaces cannot inclose a space. Neither can two plane surfaces have a common segment." With regard to these two corollaries, the students of Cassell's Euclid are well aware that the first contains the *tenth* axiom of Euclid; and the corollary to the *eighth* proposition of the first Book. As to the second both parts of it seem to require demonstration, or else to be assumed as axioms themselves and not as corollaries to axioms. We suggest, however, that the coincidence of two plane surfaces, which is taken for granted in the fourth proposition of Book I., may be proved by taking any point in the base of the one triangle at a certain distance from one of the angles at the base, and another point in the base of the other triangle, at an equal distance from the equal angle at its base; then, drawing straight lines from the vertices of the triangles to these points, each to each, it may be proved, as in the fourth proposition itself, that these straight lines are equal and coincide with one another, when the triangles are placed in superposition; and as the same may be proved of all the corresponding lines that may be drawn in the same manner, in the two triangles, it is plain that their areas coincide and are therefore equal in every respect. This demonstration is, in fact, necessary to complete that of the fourth proposition of Euclid's Book I.; and from it may be at once deduced the important corollaries above referred to by Dr. Thomson, viz., that two plane surfaces cannot inclose space; neither can they have a common segment, that is, they cannot coincide in part without coinciding altogether.

With this direct mode of demonstration before our eyes, we cannot assent, therefore, to the dictum of Thomson that the sixth proposition of the first book does not contain the first instance of indirect demonstration, as generally stated by the editors of the Elements.

COROLLARY 1.—Hence every equiangular triangle is also equilateral; for any side being made the base, it can be shown that the sides opposite the two angles at the base are equal; therefore all the three sides are equal.

COROLLARY 2.—If about two centres there be described two circles, which cut one another, their circumferences cannot coincide or intersect in more than one point on each side of the straight line that joins their centres. For if they coincided or intersected in more than one point, then upon the given straight line, which is between the centres, and on the same side of it, there might be two triangles having their sides which are terminated in one extremity of it equal to another; and also those which are terminated in the other extremity, which by the proposition, cannot be. This corollary is demonstrated by F. Paysonnet Thomson, before he gives the first proposition of Book I. in his "Geometry without Axioms."

EXERCISE.—In the figure of Prop. V., Book I., let a straight line be drawn from the point A to the point of intersection of the two straight lines BC and ED . It is required to prove that this straight line will bisect the angle $\angle A$.

In figure (6), let the straight line AO be drawn; then it is required to prove that the angle $\angle BAO$ is equal to the angle $\angle EAO$. In figure (6), let the straight line AO be drawn; then it is required to prove that the angle $\angle BAO$ is equal to the angle $\angle EAO$.

Fig. 6.



In Euclid's demonstration of the fifth proposition it is shown that in the two triangles $\triangle ABC$ and $\triangle AED$, the angle $\angle BAC$ is equal to the angle $\angle EAD$; but, in the triangle $\triangle ABC$, the angle $\angle BAC$ is equal to the angle $\angle BAO$; therefore, the side AB is equal to the side AE . Again, in the two triangles $\triangle ABC$ and $\triangle AED$, the side AB is equal to the side AE , by hypothesis, and the side BC has been proved equal to the side ED ; therefore, the two sides AB and BC are equal to the two sides AE and ED ; and the angle $\angle BAC$ is equal to the angle $\angle EAD$, in Euclid's demonstration of the fifth proposition; therefore, the two triangles $\triangle ABC$ and $\triangle AED$ are equal to each other, by the fourth proposition, and the remaining angles of the one are equal to the remaining angles of the other, each to each, viz., those to which the equal sides are opposite; therefore, the angle $\angle BAO$ is equal to the angle $\angle EAO$, and the angle $\angle BAO$ is bisected by the straight line AO . Q. E. D.

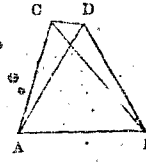
SCHOLIUM.—This suggests a readier mode of bisecting an angle than that contained in Prop. IV. of this first Book. For the construction will be as follows: Let $\angle BAC$ be the angle which it is required to bisect, or divide into two equal parts. In the leg AB take any two points B and E , and from the leg AC , cut off AC equal to AB , and AD equal to AE , by the third proposition of this book. Join BC and ED and let them intersect each other in the point O . Then, the angle $\angle BAO$ is bisected by the straight line AO , that is, it cut into two equal parts, $\angle BAO$ and $\angle EAO$. The proof of this, of course, is exactly what we have given above.

PROPOSITION VII.—THEOREM.

Upon the same base, and on the same side of it, there cannot be two triangles having their sides terminated in one extremity of the base, equal to one another, and likewise those terminated in the other extremity.

In fig. 7, if it be possible, let there be upon the same base AB , and upon the same side of it, two triangles $\triangle ABC$ and $\triangle ADE$, having their sides CA and DA terminated in the extremity A of the base, equal to one another, and likewise their sides, CB and DE , terminated in the extremity B , equal to one another.

Fig. 7, No. 1.



Join CD . First, in No. 1, let the vertex of each triangle be without the other triangle. Because the side AC is equal (*Hyp.*) to the side AD in the triangle $\triangle ABC$, the angle $\angle ACB$ is equal (*I. 5*) to the angle $\angle ADE$. But the angle $\angle ACB$ is greater (*Ar. 9*) than the angle $\angle ADE$.

* In Cassell's Euclid, p. 10, line 4 from bottom, for BC , ED , read BC , ED .

† The preceding exercise was rightly demonstrated by F. H. Williams, Salisbury; F. H. Brightwell; J. H. Eastwood, Middleton; E. J. Bremner, Carlisle; E. C. Hughes, Islington; J. Jenkins, Pembroke; T. Bulmer; T. Denck, Great Warley; and others.

Therefore the angle $\angle ACB$ is also greater than the angle $\angle ADE$. Much more then is the angle $\angle ACB$ greater than the angle $\angle ADE$. Again, because the side CB is equal (*Hyp.*) to the side DE , the angle $\angle ABC$ is equal (*I. 5*) to the angle $\angle AED$. But it has been demonstrated that the angle $\angle ACB$ is greater than the angle $\angle ADE$. Therefore, the angle $\angle ABC$ is both equal to, and greater than, the angle $\angle AED$; which is impossible.

Secondly, in No. 2, let the vertex of one of the triangles be within the other triangle.

Produce the sides AC and AD to F and G . Because the side AC is equal (*Hyp.*) to the side AD in the triangle $\triangle ABC$, the angles $\angle ACB$ and $\angle FCB$ are equal (*I. 5*) to one another. But the angle $\angle FCB$ is greater (*Ar. 9*) than the angle $\angle ADE$. Therefore the angle $\angle FCB$ is likewise greater than $\angle ADE$. Much more then is the angle $\angle ACB$ greater than the angle $\angle ADE$. Again, because the side CB is equal (*Hyp.*) to the side DE , the angle $\angle ABC$ is equal (*I. 5*) to the angle $\angle AED$. But it has been proved that the angle $\angle ACB$ is greater than the angle $\angle ADE$. Therefore, the angle $\angle ABC$ is both equal to, and greater than, the angle $\angle AED$, which is impossible. Therefore, in either of the preceding cases, if AC and AD be equal to one another, then BC and DE cannot be equal to one another; and it might be shown in the same manner that if BC and DE be equal to one another, then AC and AD cannot be equal to one another.

The third case, in which the vertex of one triangle is upon a side of the other, needs no demonstration.

Therefore, upon the same base, and on the same side of it, &c. Q. E. D.

SCHOLIUM.—The third case needs no demonstration, because when the vertex of the one triangle is upon a side of the other, that is, on a point between A and C , in the triangle $\triangle ABC$, the sides which terminate in one extremity of the base are already unequal, which is contrary to the hypothesis.

In the demonstration, fig. No. 1, it is said "much more then is the angle $\angle ACB$ greater than the angle $\angle ADE$;" the reason of the words "much more then," arises from this circumstance, that, by Axiom 9, the angle $\angle ACB$ is greater than the angle $\angle ADE$; and as it has been proved that the latter angle is greater than the angle $\angle ADE$, it therefore follows, *a fortiori* (that is, from the stronger reason), that the former angle is also greater than the angle $\angle ADE$. In like manner, may be explained the same words in the demonstration, fig. No. 2.

Dr. Simson, in his edition of the Elements, says in reference to Prop. VII. just demonstrated, "there are two cases of this proposition, one of which is not in the Greek text, but is as necessary as the other; and that the case left out has been formerly in the text appears plainly from this, that the second part of Prop. V. clearly follows from the first part, and Prop. XIII. Book I. This part must therefore have been added to Prop. V. on account of some proposition betwixt the fifth and the thirteenth; but none of these stand in need of it, except the seventh proposition, on account of which it has been added; besides, the translation from the Arabic [edition of Euclid] has this case explicitly demonstrated. And Proclus [an ancient commentator on Euclid] acknowledges that the second part of Prop. V. was added on account of Prop. VII."

The following observations from the Gower-street edition, will be useful to some of our readers.

"This proposition seems to have been introduced into the Elements merely for the purpose of establishing that which follows it. The demonstration is that form of argument which logicians call a *dilemma*, and is the only case in which this species of argument occurs in the Elements. If two triangles, whose conterminous sides are equal could stand on the same side of the same base, the vertex of the one must necessarily either fall within the other or without it, or on one of the sides of it; accordingly, it is successively proved in the demonstration, that to suppose it in any of these positions would lead to a contradiction in terms. It is not supposed that the vertex of the one could fall on the vertex of the other; for that would be supposing the two triangles to be one and the same, whereas they are, by hypothesis, different.

"In the Greek text there is but one (the first) of the cases of this proposition given. It is, however, conjectured, that the

second case must have been formerly in the text, because it is the only instance in which Euclid uses that part of the fifth proposition which proves the equality of the angles below the base. It is argued, that there must have been some reason for introducing into the fifth a principle which follows at once from the thirteenth; and that none can be assigned except the necessity of the principle in the second case of the seventh. The third case required to be mentioned only to preserve the complete logical form of the argument.

Mr. Thomson says, "this proposition is merely a Lemma to the eighth, and may be omitted, if the second method of demonstrating that proposition be adopted." The method here alluded to was first given by Pappus, another commentator on Euclid, and we have embodied the principle of the method of Pappus in the exercise appended to this proposition in Cassell's edition. It will be demonstrated in our next lesson.

BIOGRAPHY—No. X.

JOHN BUTTERWORTH.

THE LANCASHIRE MATHEMATICIAN.

BY T. T. WILKINSON, F.R.S.

JOHN BUTTERWORTH was born at Haggate, more commonly called Royton-lane, near Oldham, in Lancashire, on the 16th of February, 1774. He was the son of John and Ann Butterworth, of the same place, and was the eldest of a numerous family. His father being a weaver of fustians, and in very humble circumstances, was consequently unable to procure much instruction for his family; young Butterworth, however, was sent to a dame's school when three or four years of age, and subsequently a month or two to a free school in the neighbourhood. Before he had learned to read, the necessities of the family became urgent, and he was sent at six years of age to work at a Dutch wheel, in the neighbouring village of Royton, by which he was able to earn about 1s. 4d. per week. He was afterwards employed in winding bobbins for the use of the weavers, and at ten years of age he commenced his father's employment of weaving, at which he continued the greater part of his life. About this time he had the misfortune, by some accident, to set fire to a collier's wooden cot, which is usually erected at the mouth of a coal-mine, to protect the banksmen from the weather; he was so alarmed that he "ran away" towards Colne, where he wandered about for a couple of days, but without finding any friendly roof to give him shelter. This was the only time he was ever absent from home, even for so short a period; on another occasion he is said to have spent an evening in Saddleworth; and these are the only instances of Mr. Butterworth's "absentism" which can be remembered. So great indeed was his love of home, that he resided fifty-five years in the same house, and it was frequently his boast that he had "never slept a night out of Royton-lane in his life."—even the modern "rail" had no attraction for him, and he died without ever having seen any one of King Hudson's "iron belts." It was not until the age of twenty that he became able to read and write tolerably, he and some of his companions having instructed themselves after the conclusion of their usual employment.

A stray copy of one of the *Ladies' Diaries* first turned his attention to mathematics, and having associated with some persons in the neighbourhood who were fond of geometry, Butterworth soon began to give evidence of his rapid progress in his ever afterwards favourite study. Dr. Hutton's "Miscellaneous Mathematica" now fell into his hands, being the first work he ever purchased on the subject of mathematics; this publication inspired him with a desire to become a contributor to such works, and having joined a mathematical club which was then in existence at Oldham, and of which the late Mr. Wolfenden was also a member, he so far profited by the advantages of the society, as soon to be enabled to answer most of the geometrical questions proposed in the periodicals of the time. In most parts of the northern counties, the works of Sir Isaac Newton are looked up to with a species of reverence and ambition not easily described, and a copy is generally purchased with the greatest eagerness. The "Principia" was not only procured, but carefully studied by Mr. Butterworth;

with some of the profounder parts he was known to be well acquainted, and a glance at his numerous and elegant solutions in various periodicals will show that he was deeply versed in the writings of most of the ancient geometers. But though the geometry of the Greeks may be said to have been his principal delight, and though the imperishable writings of the Glasgow and Woolwich professors, the translations of Lawson, and other similar works, were the objects of his greatest esteem, the ancient geometry was by no means the only subject in which he excelled. The pages of the "Mathematical Companion," in particular, will abundantly prove that he was well read in the Fluxional Calculus and its applications. With spherical geometry, too, he was intimately acquainted, and frequently shared the honours of demonstration with Lowry and Howard. Some of his earliest productions appear in the "Student," to which work he was a constant contributor from its commencement, in 1797, to its close. He also furnished three of the last propositions in the editor's well-known "Modern Geometry." His name is also of frequent occurrence in the "Mathematical Repository," the "Enquirer," the "Leeds Correspondent," and more recently in the "Northumbrian Mirror," and "York Courier." He appears in the "Ladies' Diary" for 1810, and in the "Gentleman's Diary" for 1819-20; but for some reason or other his contributions to these periodicals were discontinued till the year 1837.

Mr. Butterworth's favourite publication was the "Gentleman's Mathematical Companion." To this work he devoted the greatest portion of his leisure for upwards of twenty years. His first contribution was printed in the number for 1801, and already proved him a geometer of no mean abilities. His subsequent correspondence exhibits a course of profound and elegant research; many valuable theorems have resulted from his labours, and so much were his papers valued by the conductors of that work, that the copy has frequently been detained from the press in order to give time for Mr. Butterworth to complete the writing out of his investigations. Many well-earned prizes served as a stimulus to still greater exertions, and altogether his mathematical career, for brilliancy, originality, and extent, can only be compared with those of Lowry, Cunliffe, Whitby, and Swale. Besides the solutions which appear under his real name, he furnished numerous others to less gifted aspirers, who were frequently unscrupulous enough to pass them off for their own. Indeed, in some publications "questions and answers" can be pointed out by the dozen, which, while they serve in some degree to elevate certain names now altogether "unknown to science," belong in reality to Mr. Butterworth; and he often regretted that his necessities sometimes compelled him thus to "enable others in some measure to deceive the public, by claiming for themselves a knowledge which they did not possess."

As Mr. Butterworth was never married, he followed the occupation of hand-loom weaving, and continued to reside with his mother until her death in 1837, his father having died some years previously. About this time steam power, had almost superseded the hand-loom, and in consequence of indifferent health and the very low wages paid for this kind of labour, he relinquished the use of the shuttle and commenced a small day school, in his own house, but, as might be expected, with no great success. Mr. Binney, of Manchester, paid him a visit in December, 1843. His school then consisted of twelve scholars, whose wages amounted to 2s. 10d. weekly; he also sold sweatmeats, and several other trifling articles, and this, with now and then a trifle for private lessons to mechanics and others, together with occasional assistance from his friends, constituted the total income of "this nobleman of nature." Being of very simple habits, his wants were consequently few; yet even these were not always promptly supplied. For some years previously to his death, he was obliged to return all letters addressed to him, on account of the extra expense for delivery, and on one occasion, "stern necessity" compelled him to dispose of a portion of his tools for the small sum of £2;—this, to him, would have been a severe privation had not the purchaser kindly allowed him to peruse them whenever he had occasion. In 1842-3 his health rapidly declined, a disease of the lungs almost continually harassed him with distressing fits of coughing; and being now near seventy years of age, it was impossible for him to endeavour to support himself. His case was considered so deserving, that three of his most intimate

friends, Mrs. Buckley, of Delph; Mr. Heap, of Royton; and Mr. Ogden, of Shaw, determined to bring it before the public, and for this purpose addressed a memorial on his behalf to Eaton Hodgkinson, Esq., of Manchester. This worthy gentleman took the subject up with his usual liberal spirit;—the Council of the Literary and Philosophical Society of Manchester voted Mr. Butterworth a donation of £10 from their funds; Mr. Binney visited Mr. Butterworth in December, 1843, and received from his own lips a narrative of his life, which confirmed the preceding sketch in almost every particular.

This worthy man resided at Haggate, a small hamlet situated between Royton and Chadderton, and was known in that neighbourhood by the name "Jack o' Ben's." The writer of this on going to visit him, soon after made many inquiries in the neighbourhood for John Butterworth, and was directed to one of that name who was a shopkeeper, and another a beer-seller, and a third a schoolmaster, but not to the right one. On stating that the person he wanted was a mathematician, a woman said, "Oh! it's owd Jack o' Ben's you want," and immediately showed the house. On entering the cottage, Mr. Butterworth was found in a small narrow room, about two yards in width, where he taught the few children by means of which he chiefly supported himself. He was a fine, stout old man, having an extraordinary massive head, covered with snow white hair, and a countenance beaming with intelligence and good nature. Mr. Eaton Hodgkinson, who had been intimately acquainted with him for between twenty and thirty years, and who is so competent an authority, considered that, as a mathematician, he was scarcely excelled by any other man in the kingdom. In private life, whether we consider his duties to his parents or to his neighbours, during his long life, there is but one opinion,—that he was a most worthy, sober, and upright man.

Mr. Binney stated that "Mr. Butterworth's manners were very pleasing, and showed more thorough natural gentility than he ever had previously met with. On his return from seeing him, he felt that many of the best and greatest men who had appeared on the earth were left to sink down unknown and forgotten. Such a pure lover of truth for its own sake has probably very rarely been met with. He saw him several times afterwards, and always with increased admiration."

During the last two years of his life, Mr. Butterworth received from the society the sum of five shillings weekly; and this, with frugality and care, enabled him to live comfortably. He died on the 3rd of December, 1845, in the 71st year of his age, leaving the whole of his furniture to his surviving sister, and his books to his nephew Joseph. His remains were interred in Royton Churchyard; Mr. Hodgkinson, Mr. Fairbairn, Mr. Binney, and many others, following them to the grave. The funeral, which took place on the first Sunday in December, 1845, showed how much the deceased was respected. Nearly 200 humbly but respectably dressed persons, with the clergyman of the place, walked before the coffin all the way from deceased's house to the church. After the funeral service had been read, the body was deposited in its last resting-place by the light of the moon.

The spot where he rests is marked by a plain stone, bearing the following inscription:—

"In memory of John Butterworth, of Haggate, Royton, who died December 3rd, 1845, aged 71 years."

"Though in humble life, he by self-instruction obtained a profound acquaintance with the mathematics."

"His numerous contributions to the leading mathematical journals during half a century, on the various branches of the ancient geometry, gained him a high reputation, and increased in this neighbourhood an ardent love of that sublime study; whilst his unaffected simplicity of manners and his blameless life commanded the esteem of all who knew him."

"This simple tribute of respect is inscribed at the instance of a few members of the Literary and Philosophical Society of Manchester, and others, in the hope that future votaries to the sciences may be stimulated and encouraged by his honourable example."

Several sketches of Mr. Butterworth's features were taken after his death, one of which, in the possession of Mr. Buckley, is said to be a striking likeness. The following lines finely concentrate the history of this poor but eminent man:—

ELEGY.

To the Memory of John Butterworth, the celebrated Mathematician.

Though poor through life, and oft by want oppress'd,
Yet with bright talents Butterworth was bless'd,
And in chill poverty those talents shone,
Like radiant star beams in the frigid zone.
He was a genius bright, whose leisure time
Was hallow'd by pursuits the most sublime;
He soared to abstruse science, and was there
A thing of glory, radiant, rich, and rare.
There, in deep musings, he, by reason's light,
With judgment's aid, sought precious truths and bright;
And in his skilful search full'd not to find
These everlasting diamonds of the mind;
With them he graced the mathematic page,
And with geometry surprised the age.
Though bright in science, yet not there alone—
He glow'd in virtue, in religion shone;
Felt for his fellow-men as all men should,
And rank'd himself amongst the wise and good.
Though scanty were his means, yet he was free,
In soul the very source of charity:
His bounty came not like a summer flower
To grace with flagrant sweets the sunny bower;
But like the Christmas rose, whose humble form
Gives its sweet glories to the gloom and storm,
With cautious step the hallow'd path he trod
That leads the Christian safely to his God:
Cheer'd on by virtue, well his course he ran,
And gain'd the prize high Heaven holds out to men.
'Tis finish'd now, the pilgrim's gone to rest;
But, as the sun leaves glory in the west,
A scene of grandeur he has left behind—
The bright effluence of his radiant mind.

JAMES TAYLOR.

Burnley, Lancashire, May 11th, 1852.

A CRY FROM OUR PRISONS, SAYING, "EDUCATE! EDUCATE! EDUCATE!"

Do you never hear that cry, reader? Did you not hear its thrilling tones the last time you passed by that huge, dark, lowering building, which rises near the centre or in the outskirts of your city, as if foreboding woe and terror, unless the evil it represents be checked? You are a man and a Christian, and have, therefore, heard the appeal. But the hearing was faint; the appeal passed unheeded; in the bustle and turmoil of the world you have lost from view the terrors of the prison—the number of souls there lost; the amount of power there wasted; the fine faculties there perverted; the capability of happiness there destroyed, the good there squandered, the sufferings there endured. These terrible plagues you have forgotten, and therefore do you go about with a smiling face, and enjoy the blessings of a happy home. Your complacency is ill-founded. Unless you hear reason in the case, and act as reason dictates, your complacency is unnatural. Probably you think you have heard reason, and now acquiesce in an evil you fancy you cannot cure. "Crime is inevitable." Say not so rashly. And if some crime is inevitable, do not affirm that crime in general is inevitable. Crime, like other evils, has its causes. It has also its remedies. Ignorance is one cause of crime. Lessen ignorance, you lessen crime. A well-instructed mind is a preventive of crime. Make education co-extensive with population, you diminish crime. Hence is it that every prison, to the intelligent mind, exclaims aloud—"Educate, Educate, Educate!" The school or the prison? That practically is the option? In another view the option is this—The school or social peril? Yes, society cannot safely go on in its present course. Rapidly is the population of these kingdoms growing and multiplying. Rapidly is crime augmenting in our borders. Prisons increase more rapidly than schools. Prison-discipline receives more attention than school-discipline. Our convicts, refused admission into our colonies, are cast back as vile human refuse on the mother country. New nests of wickedness, new centres of social peril, are even now building in or near our towns, already reeking with foul miasms of ignorance and crime. Up! Up! we say, and Educate! At least keep the young from these festering wens of a corrupt civilisation. The school or the prison—which? The school or social peril—which?

A KEY TO THE EXERCISES IN THE LATIN LESSONS.

(Continued from page 375, Vol. II.)

By JOHN R. BARN, D.D.

Page 100, col. 1, vol. II.—LATIN-ENGLISH.

After I have dined, I shall take a walk; we will dine to-morrow in the garden; did you not hear that we shall dine in the garden to-morrow? as long as any hope remained in my mind, I fought for my country's liberty; now during three months have the enemies besieged our city; I am not so iron-hearted as not to be moved (I am not that iron-hearted one who is not moved) by the tears of all these with whom you see me surrounded; many think that they will appear kind to their friends, if they enrich them in any way whatever; take care lest you decide concerning any matter, before you have carefully investigated it; your letters grieved me greatly; if any one has been bitten by a mad dog, madness seizes him; as long as you were speaking, the boy listened most attentively (hung upon your lips); have you become liable for a friend? I have become liable; many things, both in the senate and in the forum, were either prudently foreseen, or acutely replied to by Laelius; Cicero related that Demetrius, in order that he might not entrust his neck to a barber, bought his daughters to shave him; and so (he narrated) that in this filthy and menial office the royal virgins, as barber-girls, clipped the beard and hair of their father; so great is the power of goodness, that we love it either in those whom we have never seen, or, what is more, even in an enemy; Alexander not only killed Callisthenes, but even tortured him; the size and importance of the Roman republic was wonderfully (in a wonderful manner) increased by wars carried on with foreign tribes and nations; the dagger has been wrested from the hands of the assassin; (by how much) the more you yield to grief, (by so much) the more intolerable will it be; all excellent men greatly bewailed the downfall and ruin of the Roman republic.

Page 100, col. 1, vol. II.—ENGLISH-LATIN.

Prælit; ambulant; audire me in horto pransurum esse? audi vi te a vestreula tonsurum esse; non est verum, tonsor me totendit; da mihi illam sciam; extorque scario sciam de manibus; miter paterque adolescentis interitum iugebunt; extorci sicam servo de manibus; quid vides? vides urbem effrenatam; patria nostra sapientia industriaque valde aucta est; bello industria sapientiaque potiores sunt.

Page 100, col. 2, vol. II.—LATIN-ENGLISH.

The leader soothed the excited minds of the soldiers with gentle words; my mind was wonderfully delighted and soothed by reading the poems of Virgil; so agreeable to me was the making of this book that it removed all the irksomeness of old age; I will not come to you before I have wiped away all my grief; has the table been wiped yet? they burned 40,000 books at Alexandria; I do not doubt that, in a short time, the whole of Germany will burn with war; who is there on whom fortune has always smiled? I know not why I have been laughed at by you; thus have I persuaded myself, thus do I feel that our minds are not mortal; who believes that the citizens will object to peace? who is always confident that that which is frail and perishing will remain steadfast and firm? the glory of the Romans has remained till our time; Lycurgus commanded that all citizens should eat in common; not he, who when commanded, does anything is miserable; but he who does it unwillingly; I am persuaded that the recollection of this most frightful war will not only always cling to this people, but also to the common talk of all nations; when the enemies were overcome, a fresh hope of safety shone upon the state; the soldiers, in their journeyings, underwent many hardships; they sweated, and they were cold; my father urged me in the letter, that on every opportunity I should send a letter to him; how shall the spark of intellect, which has now shone forth in the boy, be hidden in the man? you loaded me with kindnesses so great, that I never dared to wish for them; I rejoiced greatly at the politeness of your friend; at Athens, it generally fell to the lot of every excellent man to be driven into exile (at Athens, it was accustomed to happen to each excellent man that he should be driven into exile).

Page 100, col. 2, vol. II.—ENGLISH-LATIN.

Soleo de amicorum meorum fortuna fructuere; gavisus sum; gaudebant; sorores meae gavisae sunt; fortuna fortibus hominibus ardet; putasne fortunam fortibus arisuram esse? nego fortunam fortibus semper aridere; desistat philosophum; cur philosophus a pueris deridetur; non est dubium quia philosophi a stultissimis

derisi sint; oratores student excitos civium animos permulcere; persuasum est mihi oratores excitos hominum animos permulcere desistat; Napoleone regnante, tota Europa bello arsit; quis scit fortunam ipsi sibi unquam arisuram esse? non pacem dissuasit, et confido mihi ne nunquam pacem dissuasurum esse; boni bona student; aut sunt bellum suaderi; gavisus sum te loqui austum esse; Cicero sapientia in orationibus suis eluxit; quanta venustas verborum in floratio elucet (shines)! belli semina remanent; quousque belli semina in mundo remanebunt? nescio quandiu amici mei in urbe remansuri sint; frater puerque uris ut ad te literas darem; pater meus iussit mihi ut in se hucrerem.

THE KID AND THE WOLF.

A fable, by Aesop.

A kid, standing under cover of a house, abused a wolf who was passing by. To whom the wolf said:—"Not you, but your fathering boy abused me." Place and opportunity often render good men bold.

THE CRANE AND THE PEACOCK.

A fable, by Aesop.

A peacock, spreading out his feathers in the presence of a crane, said:—"How great is my beauty and your ugliness." But the crane, flying forth, said:—"And how great is my swiftness and your slowness." This fable warns us not, on account of any good which nature has allotted to us, to despise others, or whom nature has bestowed other advantages and perhaps greater ones.

Page 123, col. 2, vol. II.—LATIN-ENGLISH.

The temple of Janus has been closed twice since the reign of Numa; if it is allowable to laugh, yet immoderate laughter is blamed; if you have allowed that God is, you must confess that the world is governed by his counsel; on the minds of all, God himself has impressed an idea of God; the power of conscience is great, so that those who have sinned always (semper) think that punishment is before their eyes; virtues have been so coupled and joined together, that even one partakes of all; Caesar, besides ten bushels of corn, and the same number of pounds of oil, also allotted to the people three hundred sesterces to each man; he who distrusts the durability of his advantages must fearlest, having lost them, he should sometimes be miserable; Plato separated the two parts of the mind, emotion and desire; he placed emotion in the breast, desire beneath the diaphragm; the whole of Gaul has been divided into three parts; if any one has injured you without intending it, you ought not to be angry with him; if you have given up yourself to a voluptuous and effeminate life, in a short time all the sinews of virtue will be weakened; why have you insulted me? know you not that I have been deceived by a faithless friend; all the spectators applauded the actors who performed their parts well yesterday; the opinion respecting the happy life of Epicurus has been rejected by all the more acute philosophers; there are many who think that the happiness of life has been placed in money scraped together.

Page 123, col. 2, vol. II.—ENGLISH-LATIN.

Domus mea heri clausa est; tuam domum claudam; templum clauditur; templum clausum erit; puer a schola clausus est; concordat esse Deum; confidendum est illis Deum esse in omnium animis ipsius notionem impressit Deus ipse; virtutis dividam contemnerunt; virtutes nonne virtutes copulatae sunt? qui diffidit Deo, et timendum est, ne atquando sit miser; diffidit Deo? boni concedunt Dei voluntati; mus plagas corripit; spectatores bonis histrionibus applaudunt; naves evadunt emanibus hostium; nescimus Galliam in tres partes divisam esse?

Page 123, col. 2, vol. II.—LATIN-ENGLISH.

I am greatly grieved that you have been reduced to such grief and distress; why have you thrust that person from the house? I hope that my sick friend will escape from the disease; if the mind has escaped from the body, then for the first time will it live and thrive; the sun having risen, darkness was scattered; the courage and penetration of the leader drove away all dangers which hung over the city; Marius hid his aged body plunged into the marshes; the heavenly minds depressed from its most lofty dwelling-place, was let down, as it were, to the earth; the laws, for a long time buried by the power of the enemies, at length emerged; the eternal God has sown minds in human bodies; all things which are now enclosed by arts were formerly scattered and spread abroad; Epaminondas fell with a severe wound at the battle of Mantinea; Epaminondas overcame the Lacedaemonians; Epaminondas asked whether his shield was safe; Epaminondas, when he had overcome the Lacedaemonians at the battle of Mantinea, and saw that he was dying from a severe wound, as soon as he opened his eyes asked whether his shield was safe; when he had heard from his weeping friends that it was safe, he asked whether the enemies had been put to flight; when he had heard that, also, he commanded that the spear by

which he had been pierced should be pulled out; all other things are more frail, than, and more easily, virtue alone is preserved by the deepest virtue; Cicero fixed all his cares and reflections in the safety of the republic; he who has once departed from the truth is not generally believed even when he is speaking the truth; I do not believe that you will ever turn aside from the path of virtue; tell me for whom you have tained this garden; a great multitude of men flock to the city to see the public games.

Page 123, col. 2, vol. II.—ENGLISH-LATIN.

Ubi Marius seculi ulabit? Marius pabulo se occultavit; milites corpora pulide occultabant; hominum animi a coelo demersi sunt in terram; qui demersi sunt, emerant; miles co vulvere gravi expulser; deo homines hastis transfixos vidi mortuos in praetio; miles motibus dissepit et togatis hostes ne fugati essent; omnia aut, eadem sunt, Deus unus permanet, et nunquam permouebit, defusus in vitis vitae sui ipsius iudicibus; adolescens de virtutis via defecit; patens discipulos tuos de sapientia deflexuros esse? nulli in miseris demersi sunt; soror mea poetico coronam exuit; tibi, carissima mater, coronam noctam; hominum multitudo in urbem confluit; valent regiam visum et ludis publicis spectatum; usualae dispersae sunt; sol eluxit; aeg, inambulans et aves cantu dulcia carmina audistis; in omnium animis Deus virtutis semina sparsit.

THE PEACOCK.

A fable, by Aesop.

The peacock bitterly complained before Juno, his mistress, because sweetness of voice had been denied him, while the nightingale, a bird with so little beauty, excels in singing. To whom Juno said:—"And properly so, too, for it was not proper that all advantages should be bestowed upon one."

THE GEESE AND THE CRANES.

The geese and the cranes formerly fell in the same meadow. When the owner of the meadow came, the cranes easily flew away, but the geese, hindered by the weight of their body, were caught and slaughtered. Thus, when the poor are caught in the same crime with the more powerful, only those suffer punishment, while these escape unharmed.

Page 124, col. 1, vol. II.—LATIN-ENGLISH.

The just father inflicts punishment on his sons; the judge fined the accused citizen a very heavy fine; the consul severely punished his grandfather (who was) entebled by years; Cicero was not able to inflict (for suspected real capere) the punishment due to his (for suspected) wickedness; the conquered Carthaginians may suffer punishment from you; I am severely punished for my rashness; I shall be punished to-day for your bad words; you will pay the penalty in your hot blood; the judges inflicted very severe punishment on wicked men.

Page 124, col. 1, vol. II.—ENGLISH-LATIN.

Poenas reputam malis pueris; mali pueri poenas dabant; mali pueri poenas dignas suo scelere poeant; iudex poenas gravis sinas ex secleratis hominibus sumit; victi vos victoribus poenas auferebat; soliti poenam, sumas ex illis poenas.

POEMS COMPOSED BY JOSEPH BLACKMAN,

OF MEE, (WHO WAS BORN BLIND).

ODE TO SPRING.

Hail, lovely season! time of birth,
An emblem thou of nature's birth,
When birds are seen on every spray,
While chanting forth their simple lay.

The trees are now with verdure crown'd
And Spring's green mantle cloth's the ground,
Now herbs and flowers deck the field,
And their sweet balmy odours yield.

The dewy mead and wood-crested height,
Now seem rejoicing in the light;
While gentle zephyrs fan the air,
And every object looks so fair.

How sweet at such a time to rove
In lonely wood or shady grove;
And while we tread the verdant sod
To meditate on nature's God.

O Lord! thy works are manifold,
Thy wondrous power can never be told;
Be Thou adored by great and small,
Thy goodness reacheth unto all.

HYMN ON THE SABBATH.

Hail, sacred day! supremely blest,
A boon to mortals given;
From all our earthly toil to rest,
And fit our souls for heaven.

When in the house of God we meet
And celebrate his praise,
Then all in humble strains unite
To heaven their voice to raise.

Thrice happy he who entrance gains
Within that blissful place,
Where the eternal Sabbath reigns,
And all is joy and peace.

There we shall join in songs of praise
With all the saints above;
And celebrate in endless lays
Our great Redeemer's love.

ON THE STUDY OF NATURE.

What is all the rich man's treasure
To the pure unalloyed pleasure
Nature's contemplation yields,
When we view the woods and fields?

Oh! what wonders meet our eye,
On the earth and in the sky!
Every star and every flower
Speaks the great Creator's power.

See the shining orb above!
How in majesty they move,
As their office they fulfil,
Doing their Creator's will.

See the sun in bright array!
When he ushers in the day,
At whose presence mother Earth
Seems rejoicing with new birth.

See when night's dim shadows fall
Covering this terrestrial ball,
Moon and stars in glory shine,
Tell their Maker's power divine.

ON THE BLIND BEING ABLE TO READ THE BIBLE.

Why should I murmur or repine
At Providence that I am blind?
Since I the word of God can read,
This is a blessing great indeed.

Oh! may I read and understand,
And meditate on God's command;
That glorious day, oh! may I see,
Which lasts throughout eternity.

CORRESPONDENCE.

SELF-EDUCATION BRIEFLY CONSIDERED.

Sir,—It frequently occurs to my mind, as we live in an age of progressive discoveries, wherein the powers of the human faculties wonderfully develop themselves, and an age in which reading is become so general, that it is a duty which every man owes both to himself and to society, (if he has learned to read, though he may not have been greatly instructed therein), to make all the efforts he can towards his own improvement. It is my firm opinion, that there are many who, being initiated into the alphabet, and able to spell and express the sounds of a few words when spelled, *even by the help of the proper books of instruction* so far improve themselves in the sciences, and in morality too, if they attempt so to do, that they ultimately may attain to a great proficiency, and bring the cultivation of their minds to such a high degree as would have utterly astonished the men of past ages, and even some of those who moved in an elevated sphere of life. I hereby bear

* Bibles are now printed in Alto Relievo, for the use of the blind. This noble invention affords them the inexpressible advantage of reading and studying the sacred scriptures.

teach, that if a person has been successfully assisted in making but a few steps in the art of reading, he may by personal study, and research, in books of education, so improve his ideas, strengthen his mental faculties, enlarge his understanding, and from time to time pressing additions to his knowledge, as to enable him to make any statement in mathematical and philosophical problems. Indeed, a diligent inquirer can thus make satisfactory progress in any science. I myself am an instance; for I was in childhood, as well as through all the following years of my life, an invalid, and of course disabled from going abroad to any profession, or gaining any remuneration whatever for labour; and being sometimes even expected long to survive, I seemed to be accounted not worth either the pains or the expense of education, except that of instilling into my mind the basis of good moral and religious precepts. The early seeds thus sown, however, did, in after years, assist my inclination to choose the good and hate the evil principles; and to such admonitions, my affectionate and pious mother was always ready to attend, greatly to the future guidance and happiness of her offspring. Between my mother, brothers, sisters, and some others, I was at length brought to an acquaintance with the English alphabet, then having learned those words which were easy, and less adapted to my juvenile comprehension, I undertook to manage the progress of my own education, and happily succeeded. The acquisition of knowledge has ever been to me such a source of pleasure, as to amply reward me for all my toils and studies in acquiring it. Let necessity of the requisite assistance and right discrimination guide you in the choice of the proper books for self-improvement. At the first, a good spelling-book, with the words accented, is a great help in learning to read; then copy-books for writing, containing letters, sentences, and instructions should follow; to these let a book of English grammar and works on English literature succeed; then other books for each science that you wish to acquire may be obtained. But let youth be diligent and persevere; otherwise progress will be uncertain and slow, and disappointment will be the sure parent of ignorance. I am, sir, &c.

West Road, near Brighton.
March 25th, 1863.

HENRY HALLETT.

ANSWERS TO CORRESPONDENTS.

J. F. (Norwich) and J. YECROUX (Oxford-street): In the example given in the solution to query 2, there is a misprint of 13 instead of 12; this must be obvious to every one.—BROWN (Maiden) informs our Preston correspondent that there is a rather expensive work called *Francis's Magazine of Science and Art*, in 5 vols., at 8s. each, where he will find the information he wants on the grinding of glasses for telescopes; the numbers which contain this information are 16, 41, 68, 151, 180, 181, 240, and 252. The best way to study Euclid is to master the demonstrations in the understanding, and then apply them to the solution of exercises, such as are given in Cassell's Euclid; also to study the solution of these exercises in the P. E. Every branch of the mathematics, and many of natural philosophy, are necessary for the complete study of astronomy. This science, though justly reckoned the most perfect of all the natural sciences, consists of a series of perpetual corrections on observations and calculations.—CHRISTY HAY: Learn Latin by all means. Ecclesiastically will be one of the branches in the P. E.—C. CAYE (New Cross): It is really out of our power to afford time for the examination of MSS.

Solutions of geometrical and arithmetical exercises, received from: MASON (Berth); O. H. JENKS (Thatcham); T. BULMAN (Durham); E. RUM (Tolington); G. STURGEON (Newbury); and P. C. HIGGINS (Lillingstone)—AUTOPROACTOS (Weybridge): His communications are received and will be noticed soon. If 300 men can throw up a rampart in a ditch in 16 days of 8 hours each, the rampart being 400 feet long, 30 wide, and 20 deep, how many men would throw up another 500 feet long, 30 wide, and 20 deep in 16 days of 10 hours each. In stating this question as directed in Cassell's Arithmetic we have:—

$$\begin{array}{r} 400 \times 30 \times 20 \\ 16 \times 8 \\ \hline 192000 \end{array} \quad \begin{array}{r} 500 \times 30 \times 20 \\ 16 \times 10 \\ \hline 187500 \end{array} \quad \begin{array}{r} 192000 \\ 187500 \\ \hline 479500 \end{array} \quad \begin{array}{r} 479500 \\ 192000 \\ \hline 287500 \end{array} \quad \begin{array}{r} 287500 \\ 187500 \\ \hline 100000 \end{array}$$

In this statement, the 50 days are put for second term, because in the required number of days 45, it will require more men than 1000, to do the same work; again, the 8 hours are put for second term, because in the required time per day 10 hours, it will require fewer men than 1000 per day, to do the same work. The other terms of the statement are obvious.

EDMUND B. wishes to know the value of a full-length portrait of Admiral Lord Nelson (1758), beautifully painted in oil. His explanation is satisfactory. The oil in which each has no connexion in our opinion with the meaning, then to this termination in the summary of success. It comes from the French word *bonne* (good), and *bonne* from the Latin *bonus* (good), and the latter from the German *gut* (good), signifying *well*, *that* or *which*. In like manner *schon* comes from the German *schon*, and is connected with the Gothic *schon*, (i. e. *good*, *well*, and *like*), but still more with the

German *schon*, or *schon*, *schon*, *schon*, all meaning *well*. In both words the *sch* seems to have been united for *schon*, and the *sch* sound of *sch* preserved in the first word. The *sch* sound of *sch* is preserved in the second word. Thanks for his exertions on our behalf, to the Great Exhibition Catalogue are to be found the names and places of residence of several ingenious inventors of artificial legs; by making enquiry at these inventors, his friend may get his want cheaply and well supplied; some of them live in Yorkshire.

FREDERICK (Glasgow) should study the 1st part of French Lessons before the 2nd part, referring only to the 2nd, whence reference is made to it.—GUTHRIE (Guthrie): *Labovitz's cat* *cat*, you will find in *Alphabetic*, *Alphabetic*, *Alphabetic*, whence the infinitive *cat*, to speak, and the meaning of the passage: To speak is to labour; or, speaking is a trouble.—ANNE'S INQUIRY (Oxford-street) is informed that *cat* is in p. 220, vol. 1, col. 1, line 25 from bottom, should be *cat*.—GUTHRIE'S SCHOOL: The suggestion as to accentuation of proper names shall be kept in view.—A. Z.: The French letter is passable as an exercise. He should now study the *second part* of the French lessons in the P. E. in connection with the *first part*. He should attend to the lessons in music, and instructions will be given.—A. T. Z. (Wulworth): We cannot give the legal information requested.—STUDENT should, at once apply to the person named for instructions in music. His friend, A. SUBSCRIBER, is in a grievous error; the *title-page* and *index* to the 1st vol. of the P. E. have been given long ago, in No. XXVI.—A. SUBSCRIBER (Hamilton) possesses too much information; he should become more magnanimous, more of a cosmopolite, and more a member of the great human family of Adam. Only let him look at the noble proceedings of the merchants of London when reference is made to the Emperor of Russia.

PETER SIMPSON (Elect-st.): We are very fond of the family of the *Simpsons*, and, for their sake, we add a *simpler* solution of the clock or watch query:—The rates of the minute and hour hands are to one another as 12 to 1, therefore the difference of their rates is to that of the slower as 11 to 1; but the spaces passed over in the time of one revolution must be in proportion to these rates; and the difference of these spaces to that of the slower in the same proportion; therefore 11 : 1 :: 1 hour : $\frac{1}{11}$ hour = 5 $\frac{5}{11}$ minutes, the space passed over by the slower.

RECAP.

Vol. II., p. 100, col. 2, line 7 from top, for *saudere* read *saudere*
do. do. 20 " for *popetior* read *perpetior*
Vol. II., p. 123, col. 2, line 49, for *of Mantincum* read *of Mantinea*.
Vol. II., p. 124, col. 1, line 24 from bottom, for *suscipere* read *capere*.

LITERARY NOTICES.

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LESSONS IN GEOGRAPHY.—No. XXIII.

MAP OF AFRICA



Fig. 1.—Negro Race.

Lat. 34° 51' S. and Long. 19° 57' E. It extends also from west to east, about 4,600 miles; the most western point being Cape Verde in Lat. 14° 45' N. and Long. 17° 32' W.; and the most eastern point, Cape Guardafui, in Lat. 11° 41' N. and Long. 51° 12' E. The equator or burning line passing over the Gulf of Guinea, crosses this continent over Lower Guinea on the west, near the island of St. Thomas, and over Zanguebar on the east, near the mouth of the river Juba; it thus cuts off about one-third of this continent to the south in the form of a peninsula; the tropic of Capricorn cuts off from this peninsula, in like manner, a smaller one containing the Cape colonies and Caffaria. The tropic of Cancer cuts off northern Africa, crossing Sahara, or the Great Desert, and the Libyan Desert, and dividing Egypt from Nubia. Between the two tropics, and between the meridians of 10° and 30° east, that is, nearly those of Tunis and Alexandria, there is a vast tract of unexplored country, especially south of the equator, which is little less than one-half of the continent: the only part of this vast region which has been partially explored being the countries that lie around Lake Chad. The surface of the whole continent is reckoned to contain rather less than 12 millions of square miles, and rather more than 70 millions of inhabitants; which gives, on an average, about 6 inhabitants to every square mile.

Africa is bounded on the north, by



Fig. 6.—American Race.

AFRICA, the mystery of ancient and modern times, is the south-western part of the old world. This continent is situated chiefly in the torrid zone, the exceptions being Egypt, Barbary, and the Cape colonies; it was considered as almost wholly uninhabitable by the ancients; and it has not greatly improved in character, in this respect, judging by the accounts of all the recent exploring expeditions into its interior. Africa extends from north to south about 5,000 miles; the most northern point being Cape Blanco in Lat. 37° 20' N. and Long. 9° 48' E.; and the most southern point, Cape Lagulafas in

the Mediterranean Sea; on the south, by the great Southern Ocean; on the east, by the Atlantic Ocean; and on the west, by the Indian Ocean. The Red Sea and the Gulf of Aden lie to the north-east of this continent; and the Mozambique Channel, 250 miles in width, to the east, between the south-east coast and Madagascar. The South Atlantic and the Indian

Oceans commingle their waters south of the Cape of Good Hope; the Atlantic washes the shores of upper and lower Guinea, in the Gulf of Guinea, and the Bights or Bays of Benin and Biafra. The Strait of Gibraltar separates the Pillars of Hercules, or the rocky coasts of Barbary and Spain. In the Mediterranean, are the Gulfs of Sidra and Cades, on the north of Barbary; and the Delta of the Nile, north of Egypt. South of the Cape colonies, are St. Helena Bay, Table Bay, False Bay, Algoa Bay, &c.; and on the east coast, are Delagoa Bay, Sofala Bay, and others of less name and importance.

The following is a list exactly similar to those lists which we have given under Europe and Asia, of the countries, kingdoms, empires, and states of Africa, as far as they are at present known; but what future discoveries may reveal we can only conjecture. Some races and tribes of men have disappeared from the old world, among which may be reckoned the ten tribes of Israel.



Fig. 5.—Malayan Race.

COUNTRIES, KINGDOMS, EMPIRES, AND STATES OF AFRICA.

Countries.	Capitals.	Latitude.	Longitude.	Present Ruler.	Form of Government.
Egypt	Alexandria	31° 13' N.	29° 53' E.	Abbas Pasha (nom. sub. to Turkey)	Viceroyalty
Nubia	Grand Cairo	30 3	31 18		
Abyssinia	Silot	27 13	31 14		
Algeria	Khartoum	15 30	32 40		
Morocco	Gondar	12 10	37 50	Native Princes	Monarchy
Tunis	Algiers	36 49	3 5	Napoleon III.	Absolute Monarchy
Tripoli	Morocco	32 7	8 5 W.	Native Prince	Monarchy
Morocco	Tunis	36 47	10 6 E.	Native Bey	Bejaship
Barbary States	Tripoli	32 54	13 11	Native Pasha	Pashalic
Western Sudan	Morocco	25 58	14 8		
Eastern Sudan	Morocco	17 25	2 40		
Unexplored Territory	Saccato	13 0	4 34	Native Princes	Monarchy
Senegambia	Fort Goree	14 40	17 25 W.	Napoleon III.	Absolute Monarchy
Liberia	Monrovia	6 23	10 45	President Roberts	Republic
Ashantee	Coomassie	6 45	1 24	Native Princes	Monarchy
Dahomey	Abomey	7 20	2 30 E.		
Sierra Leone	Freetown	8 30	13 14 W.	Victoria I.	Limited Monarchy
British Guinea	Cape Coast Castle	5 6	1 13	William III.	Limited Monarchy
Dutch Guinea	El Mina	5 5	1 22	Maria II.	Limited Monarchy
Angola	St. Paul de Luendo	8 48 S.	13 8 E.		
Bengalia	St. Philip de Benguela	12 31	13 20		
Cape of Good Hope	Cape Town	34 22	19 24	Victoria I.	Limited Monarchy
Natal Colony	Pietermaritzburg	23 10	30 50		
South Africa	King William's Town	26 50	24 10	Native Chiefs	Chieftainship
Belchuanaland	Lattakoo	20 11	34 41	Maria II.	Limited Monarchy
Eastern Africa	Sofala	15 1	40 42		
Mozambique	Mozambique	2 2 N.	45 20	Sultan of Muscat	Monarchy
Zangbar	Mragadoma	10 5	44 20		
Ajax and Semouli	Herber	32 38	16 56 W.	Maria II.	Limited Monarchy
The Madeiras	Funchal	16 56	25 6		
The Cape Verde	Mindello	28 43	17 47	Isabella II.	Limited Monarchy
The Canaries	Santa Cruz	7 30 S.	14 24	Victoria I.	Limited Monarchy
Ascension	George Town	15 55	6 45	Native Prince	Absolute Monarchy
St. Helena	James Town	19 10	46 10 E.	Napoleon III.	Absolute Monarchy
Madagascar	Tanaharivo	20 53	55 27	Victoria I.	Limited Monarchy
Bourbon	St. Denis	20 10	57 29		
Mauritius, Seychelles, &c.	Port Louis	12 11	44 22	Native Prince	Monarchy
The Comoros	Johanna				

The African islands are so particularly noticed in the preceding list, that of them little more need be said in a general view. Madeira and Porto Santo lie off the west coast of Barbary. So do the Canaries, of which the chief are Tenerife and Grand Canary; the former remarkable for its high mountain called the Peak of Tenerife, which rises to the altitude of 12,233 feet above the level of the sea, or nearly 2½ miles of perpendicular height. Of the Cape Verde Islands, the chief are Santiago and St. Vincent; the chief town of the former being Porto Praya, formerly the seat of government, which has been transferred to Mindello, the chief town in the latter. Among the tropical islands should be reckoned Fernando Po, Prince's, St. Thomas, and Annabon, all in the Gulf of Guinea. Madagascar, in the Indian Ocean, is about 1,000 miles long, and about 250 miles of average breadth; it is reckoned to contain about 200 thousand square miles. The population is reckoned to be between 4 and 5 millions. Bourbon lies about 100 miles eastward of Madagascar, contains about 900 square miles, and has a population of upwards of 100,000. Mauritius is about 115 miles north-east of Bourbon, contains about 675 square miles, and has a population of about 180,000. Attached to it in government are the Seychelles and Amiante Islands to the north of Madagascar, and Rodriguez about 300 miles east of the Mauritius; and connected with these, also, are the Chagos Islands, upwards of 1,000 miles south of Cape Comorin in Hindostan. The Comoro Islands are situated in the Mozambique Channel; and the Island of Socotra is situated about 130 miles east of Cape Guardafui, being about 80 miles long, and having a surface of nearly 1500 square miles.

The capes, headlands, and promontories of Africa form some of its most remarkable features. On the north, is Cape Ceuta (the ancient *Abys*), a high promontory, jutting out into the sea, and terminating in perpendicular rocks; this promontory lies directly opposite the rock of Gibraltar (the ancient *Calpe*), in the strait of Gibraltar; and these two rocky promontories, as has been formerly remarked, were denominated by the ancients

the Pillars of Hercules. In the Mediterranean, eastward from these, are Cape Blanco, Cape Cephaga, and Cape Bon; and westward and southward in the Atlantic, are Cape Spartel, Cape Cantin, Cape Nun, Cape Bojador, Cape Blanco, Cape Verde, Cape Roxo, Cape Sierra Leone, Cape Palmas, Cape Three Points, Cape Formosa, all north of the equator; south of this line, are Cape Lopez, Cape Negro, Cape Rio, and Cape Voltas; while doubling the Cape of Good Hope, are to be seen False Cape, Cape Lagullas, Cape Natal, and others in the colony of the Cape. Ascending the east coast, towards the equator, occur Cape Corrientes, Cape St. Sebastian, Cape Delgado, and a variety of other capes called by the common name of *Ras*, which signifies *head* (originally from the Hebrew), just as *cave* signifies *head*, from the Latin *caput*. In the Red Sea, the entrance to which is by the strait of Bah-el-mandeb, there are a variety of capes known by the same appellation, *Ras*, but they are too minute for a general view; and of the Isthmus of Suez, common to Africa and Asia, we have formerly had occasion to speak.

The mountains of Africa, as far as the interior is concerned, are scarcely known. In the northern part of this continent are the celebrated mountains, long known by the name of Atlas, and as having originated the name Atlantic still applied to the surrounding ocean. These mountains run through the Barbary states, and separate them from the Great Desert; they vary in elevation from 3,000 or 4,000 feet to 11,400 feet, the latter being among the highest points, and situated near the city of Morocco. Another range is the mountains of Abyssinia, of which the most elevated rise to the height of 15,000 feet above the level of the sea; these though within the tropics are covered with perpetual snow, and in these are found the sources of the Nile. In western Africa are to be found the Kong Mountains; and in eastern Africa, the mountains Kilimandjaro and Kenta, each of which is about 20,000 feet high, appear to be connected with vast interior mountain ranges, called the Jebel-el-Kumri, or Mountains of the Moon. Within

the limits of the Cape colony there is a range of mountains called the Nieuvelde, of which the highest are above 10,000 feet in elevation, and being also covered with perpetual snow, have received the name of Sneeuw-berg or snowy. The Table Mountain, near the Cape itself, is 3,582 feet above the level of the sea. The table-lands, plains, and deserts, in this continent are immense and unexplored, perhaps unexplorable! Sahara, or the Great Desert, is a vast plateau, varying in elevation from 1,000 to 2,000 feet in height, with valleys and oases (fertile tracts of land) intervening at distant intervals to relieve the general monotony and sterility. Its length is about 3,000 miles, and its breadth in some places exceeds a thousand miles; it stretches from the shores of the Atlantic to the hills which border the valley of the Nile on the west. Eastward of that river, and stretching to the shores of the Red Sea, are the Deserts of Egypt and Nubia; high plateaus traversed by ranges of mountains, in which are formed the torrent beds which create the annual inundations, and fertilize the valleys of those countries. In central Africa lies the great basin of Lake Tchad, covering thousand square miles in surface, varying with the seasons, and receiving some small tributary streams. The principal river in Africa, is the celebrated Nile; it consists at first of two great arms called the Bahr-el-Azrek and the Bahr-el-Abiad, that is, the Blue Nile and the White Nile. The whole length by the former branch is about 2,500 miles, and of the latter, as far as hitherto explored, about 3,500 miles; below the junction of the Atbara above Berber, it has a course of 1,400 miles to the Mediterranean. On the west coast of Africa are the following rivers of considerable note, and of small value in this dreary continent: the Senegal of 900 miles, and the Gambia of 650 miles in extent; both water the district known by their united name; the Quorra (or Niger), about 2,300 miles in length, rising in Negritia, and falling into the Bight of Benin; the Orange River, in South Africa, of about 1,000 miles in length and various others of smaller extent; and the Zambesi, on the Eastern coast, of about 900 miles in length.

Of the different races of men which inhabit the continent of Africa, some were described in our last lesson, and we proceed now to complete the general view which we then commenced, taking in those races that belong to all the continents of the world.

3. *The Ethiopian Race.*—The characteristics of this race are, a black skin, or a brown one bordering on black; hair black, short, curled, and woolly; a narrow cranium, elongated from front to back; low forehead; projecting jaws, oblique teeth, thick lips, and retreating chin; and the facial angle varying from 75° to 78°. The type of this race is exhibited in all its exactitude among the Negroes or Blacks, properly so called, who, designated by the ancients by the common name of Ethiopians, inhabit Senegambia, Guinea, Soudan or Negroland, and Congo. Notwithstanding very considerable differences, the Hottentots and Caffres (Kaffirs) are connected with the inhabitants of these regions, in so much that we may collect into this single group all the Negroes of Africa. To the Ethiopian race are also referred the Negroes of Oceania, who are distinguished from the African race by the greater length of their hair and a less woolly beard, by the disproportion between their long and thin extremities and their short and squat body, and who, under the name of Papuans, are the native inhabitants of Australia, New Caledonia, Van Diemen's Land, New Guinea, &c., and who under other names are found mixed with other races in the islands of Sunda, the Philippines, and the Moluccas. A multiplicity of idioms without any apparent connection with each other, or with the languages of the other races, is the common characteristic of the language of the African and Oceanian Negroes. As a superior specimen of the Ethiopian race, we insert the head of a Negro belonging to Mozambique in Africa, fig. 4.

4. *The Malayan Race.*—At first all the natives of Oceania were considered to belong to the same race. The distinguishing characteristics which belong to the Oceanic nations are not so marked but that they might have been ranked either under the Caucasian race or under the Mongolian race, according as they were found to have a resemblance either to the Indians or to the Chinese; and they might even have been ranked, on account of some affinities, with the Ethiopian race, if the Malayan race had not already been separated from the Negroes of Oceania. Even after this separation, the common

characteristics which have been assigned to the Malayan race possess no absolute distinction over the latter, but are marked only by shades of difference. These characteristics are the following: a brown skin; hair abundant, black, curled, and thick; a cranium rather narrow, low in front, and projecting behind; a large flat nose; jaws slightly inclined; lips rather thick; and the face slightly projecting from the cranium, without high cheek bones. The relationship which arises from language connects by a more direct tie those nations which speak the Malays, and the dialects that are derived from it, or that possess kindred analogies with it. According to the affinities of this language, the Malayan race has been subdivided into 1°, the Indo-Malayan branch, comprehending the natives of the Malayan peninsula, and of the islands of Sumatra, Java, and Celebes, east of the Moluccas, the Philippines, and the Caroline Islands; and 2°, the Polynesian branch comprehending the natives of the Friendly Isles, the Society Isles, and the Sandwich Isles; and 3°, into the Madagashy, comprehending the natives of Madagascar. As a specimen of the Malayan race, we insert the head of a native of Tahiti, see fig. 5.

5. *The American Race.*—To one and the same race, have been referred all the nations of America; for, although these nations, which are very considerable in number, exhibit great differences among themselves, yet the physical characteristics which are common to each have no peculiarities so striking as to justify their separation into different races. A coppery or brownish tincture of the skin; hair long and straight; a scarcity of beard; a prominent nose; a triangular visage arising from the size of the cheek-bones and the projection of the chin; elongation of the cranium; and depression of the occipital region or lowness in the back part of the head, are the most general characteristics of the American race. It has been attempted to explain the origin of the American peoples by the emigration of the nations of the old continent; indeed, certain analogies in the form of their body and structure of their language, have led to the idea that the native Americans are connected with the peoples of the North of Europe and of Asia. These analogies are such, that the Greenlanders and the Esquimaux have been ranked among the Mongolian race as connected with the other members of the Finnish family; but the nature of the languages spoken by the American nations, which shows a relationship common to them all, precludes the notion that they are connected with any of the languages of the old continent, and induces the conclusion that all these nations are properly united under one and the same aboriginal race. The natural separation of the continent of America into two very distinct parts, has led to the subdivision of the American race, according to their location, into 1°, the North American nations, of which the chief are the Toultees and the Aztecs, the ancient stock of the Mexican tribes; the Algonquins, the Iroquois, the Cherokees, the Sioux, the Columbians, and the Californians; and 2°, the South American nations, of which the chief are the Quichuas or Peruvians, the Araucians, the Patagonians, the Chiquitos, the Guaranis, and the Caribbees. As a specimen of the American race, we insert the head of a Patagonian, see fig. 6.

LESSONS IN ENGLISH.—No. XLV.

By JOHN R. BEARD, D.D.

THE ARTICLES.

THE word article, coming from the Latin *artus*, a joint, is in form a diminutive (*articulo*), and according to its etymology or derivation signifies a little joint. The articles may have been called "little joints" because of their smallness as articulations, or because, being small, they, as limiting the application of nouns, are the points or pivots on which discourse turns.

The article *the* does not essentially differ from what is called the demonstrative pronoun *this*, for "the man" and "this man" are phrases of kindred import. Indeed, it appears to be an abbreviated form of *this* (from the Saxon, *thes*, as in these) being softened down from *this* into *the* (this is still common among the peasantry of the south), and *thes* Scotch into *the*. In the Anglo-Saxon, the article *the* is connected in origin as well as signification with *this* and *that* (that).

The article *a* (a before a consonant) the same with the German

in, the Greek *en*, the Latin *in*, the French *en*, and the Scotch *ane* (or *an*), in all of which the *n* is a radical letter, denotes unity.

From these etymological statements we are led to the exact import of the articles. In English there are two articles. Of these the one, namely *the*, is called the definite article, the other, namely *a*, is called the indefinite article. The indefinite article points out one object, as *an apple*, *a man*, thus limiting the noun to a single object of its kind. Such a limitation at first sight seems very definite; but *an* or *a*, while it indicates one, leaves it uncertain, that is, undetermined (or indefinite), what one is meant. The office of determining what object is meant belongs to the definite or determining article *the*, e. g. "I saw *a* man." "What man?" "The man whom you and I met yesterday."

A has the same origin as *one*. *One* differs from *one*, "a man" and "one man" do not signify exactly the same. *A* man is one man as contrasted with *the* man, that is some particular man; and *one* man is a man as contrasted with *many* men. *A* simply indicates one of a class of objects, e. g., *a* book, *a* horse, *a* needle; *one* indicates a single object as the opposite of several. These statements may be illustrated in an example: "I bought *a* book." "Yes, but not *the* book you wanted." "I bought *one* book." "Indeed! I thought you had bought *many*." "No, I bought but *one*."

The differs from *this* as being less demonstrative without being less definite. *The* declares, *this* points out; *the* is the declaration of the tongue, *this* is the declaration of the finger. "I have sold *the* table." "The table! what table?" "The table you mentioned." "What! *this* table?" "Yes."

The undergoes no change by inflection, remaining the same whether the noun is singular or plural, masculine or feminine, the subject or the object.

An, for the sake of euphony, drops the *n* before a consonant, or consonantal sound; thus we say *an* empire and *a* kingdom.

By "a consonantal sound" I mean a sound which has more or less the force of a consonant. Thus *h* when aspirated as in *horse*, is a consonantal sound. *U* (pronounced *you*) as in *university*, is a consonantal sound. Consequently we say "a horse," "a university," as well as "a tiger," "a school." I give a list of

Words the initial letter of which has a consonantal sound.

A European,	A use,
A ewer,	A useful (instrument),
A uniform,	A usual (hour),
A union,	A usurer,
A unit,	A usurper,
A unitarian,	A utilitarian,
A united (company),	A utopian (theory),
A universal (custom),	A humorous (story),
A university,	A humorist,
A usage,	A horseman

So we also say "such a one" and "a once beloved friend." *An* is required before what is called a silent *h*, that is *h* which is not aspirated; e. g.

An before words beginning with a silent *h*.

An heir,	An hour,
An herb?	An honest (man),
An honour,	An humble (friend),
An hospital?	An honourable (man),
An hostler,	An honorary (member)?

In regard to some of these words usage is not strict or uniform. In those that I have marked with a note of interrogation, the initial *h* is aspirated by some authorities; whose practice in this particular seems to be increasing in prevalence. When the *h* is aspirated, of course not the full form *an*, but the shortened form *a*, is required.

The adjectives formed from some nouns in which the *h* is aspirated, drop the aspirate and so take *an* instead of *a*; thus we say, "a history" but "an historical narrative;" "a heretic" but "an heretical book."

A common noun, when taken in its widest sense, admits no article; e. g.

"The proper study of mankind is man"—*Pope*.

A noun is also without the article when it is used in a general sense, and in cases when the word *some* may be supplied, e. g.,

"To buy food are thy servants come."—*Genesis*.

A, may denote a class, and *the* may denote the particular class; e. g.

"A bird which I saw in America sang the sweetest of all the

songs I have ever heard." "What bird?" "The yet unnamed species described in my new work."

A, though denoting a single object, may stand before a noun of multitude, provided the idea of unity predominates; thus we say "a hundred men," that is, "a band of a hundred men," a hundred men considered as a total. So "a few days" means a certain indefinite period. There is a difference between "few people" and "a few people;" "few people" says that the people in question were not numerous; "a few people" declares that there was present a company, in opposition to their being present no persons at all; e. g., "few people were at the play." "Few? None." "O, I beg your pardon, there was a few."

A, prefixed to the name of an eminent personage, denotes one of a class; thus, "a Nero" is a person as cruel as the emperor so called. *The*, is also used before such names in the plural number, e. g., "The Neros, thank God, are not numerous."

The is put before a noun in the singular when a particular species is intended; e. g., "The horse is a noble animal." The meaning would be wholly changed by converting the singular noun into a plural one; e. g., "The horses are noble animals," that is, the horses in question.

A, the article, must not be confounded with *a*, the old preposition or particle, e. g.,

"They go *a* begging to a bankrupt's door."—*Dryden*.

Nor must *an*, the other form of *a*, be confounded with *an*, the old conjunction, e. g.,

"Nay *an* thou'lt monthe, I'll rant as well as thou."—*Shakespeare*.

In such phrases as "four miles *an* hour," "twenty leagues *a* day," a doubt has been expressed whether the *an* and the *a* are the article or the preposition. I incline to the opinion that *an*, *a*, in such cases is the article. This seems probable from the fact that *an*, not *a*, stands before a noun beginning with a vowel or an *h*, not pronounced; for the preposition *a* is invariable; e. g.,

"Every one cut off a piece and fell *a* eating."

The meaning of "four miles *an* hour" is not "four miles *an* or *in* hour," which has no sense, but four miles *in* an hour, that is, four miles in one hour, four miles each or every hour, the article being used distributively, as in the phrase "a guinea *a* head," that is, a guinea to every head or person.

The form "a many" is found in Shakespeare:

"A care-craz'd mother of a many children."

"A many" is still very common in the north of England in instances where it is now more usual to say "a great many." "Many *a*," as in

"Full many a gem of purest ray serene;"

is customary and good.

Some have denied to *an* and *the*, the honour of being a separate part of speech, alleging that the article is merely an adjective. Thus they say that in *the* chair and *the* mahogany chair, the and mahogany perform the same functions, namely, they qualify chair. But the two words qualify chair with a difference, the one indicating what the chair is made of, the other denoting some particular chair of whatever material it may consist. Surely there is a material difference of meaning between these three forms of words: green chair, a green chair, the green chair. At least the article qualifies the qualifier as well as the object qualified, inasmuch as it tells us that a single green chair is meant, or the particular green chair in which some one sat. There is consequently solid ground for studying the article apart from the adjective, and if only for that purpose, there is a good reason for giving the article a specific name.

EXERCISES.—COMPLETE.

In an epic poem, or a poem upon an elevated subject, a writer ought to avoid raising a simile on a low image. In the ode which was composed on the Queen's marriage, the poet laureat employed the most suitable images that his imagination could supply.

"A Daniel come to judgment! Yes, a Daniel."—*Shakespeare*.

He who would write heroic poems should live an heroic life. An historical introduction has generally a happy effect to rouse attention. Those who contend for four per cent, have set men's mouths a watering for money.

"And when he thinks, good easy man, full surely
His greatness is a ripening—hips his root."—*Shakespeare*.

"He sent them to Lebanon, ten thousand a month, by courses." (1 Kings v. 14.)

"For harbour, harbour, at a thousand doors they knock'd;
Not one of all the thousand but was lock'd."—*Dryden*.

The praise of the judicious few is an ample compensation for the neglect of the illiterate many.

EXERCISES.—INCOMPLETE.

—English are rich.—Irish are poor.—Father and mother of this child are dead.—Sun, moon, and stars are very beautiful. The spirit of man will sustain his infirmity.

Have you ever seen such a knife? Yes, I have seen such one.—European differs in hue from an Asiatic. In London there is—University. Every family has—master; a ship has—master; when—house is built, there is—master; when—highways are repairing, there is—master. In the English language, the same sound and appearance—same word is employed both as—noun and as—verb; nay,—same word may be employed as—adjective and even as—preposition, and—adverb as well as—verb and—noun.

The old oak bucket,—iron bound bucket,
—moss covered bucket arose from the well."—*Wordsworth*.

PARSING.

The task of a schoolmaster laboriously prompting and urging an indolent class, is worse than his who drives lazy horses along a sandy road.

The, the definite article qualifying *task*.

Task, a common noun made to refer to a particular task by the use of the limiting or definite article *the*; *task* is a noun neuter, in the singular number; the subject to the verb is.

Of, a preposition forming with *schoolmaster*, the Norman French, or false Genitive.

A, from *an*, the indefinite article qualifying *schoolmaster*.

Laboriously, an adverb qualifying *prompting*.

Prompting, a present participle, known by its ending in *ing*, and agreeing with *schoolmaster*.

And, a conjunction, connecting together *prompting* and *urging*.

Urging, a present participle from the transitive verb *to urge*, agreeing with *schoolmaster*.

An, the indefinite article, which before a consonant becomes *a*.

Indolent, an adjective qualifying *class*; indolent is made up of two Latin terms, *in*, not, and *doleo*, I am in pain, so that indolence is taking no pains.

Is, a part of the verb *to be*, present time, having for its subject, *task*, or in full, "the task of a schoolmaster," &c.

Worse, an adjective qualifying *task*.

Thou, an adverb of comparison.

His, a possessive pronoun, or the possessive case of the personal pronoun *he*; if regarded in the former light, his agrees with *task* understood; if in the latter, it is governed by *task* understood.

Who, a relative pronoun, the subject of the verb *drives*.

Drives, a transitive verb, present time, having for its subject or nominative case the pronoun *who*.

Lazy, an adjective qualifying *horses*.

Horses, a common noun, in the plural number, the object to the verb *drives*.

Along, a preposition, made up of *a* and *long*.

A, the indefinite article from *an*, employed before a singular noun beginning with a consonant.

Sandy, an adjective qualifying *road*.

Road, a common noun, of the neuter gender, singular number, dependent on the preposition *along*.

If viewed etymologically, the sentence yields these results. Of Saxon or Teutonic origin are these words, namely, *the*, *of*, *a*, *is*, *worse*, *than*, *he*, *who*, *drives*, *lazy*, *horses*, *along*, *sandy*, *road*; of Celtic origin is *task* (*task*, a land, a job); and of Latin origin are *laboriously*, *prompting*, *urging*, *indolent*. *Schoolmaster* is a hybrid, being made up of the Greek *skolē*, leisure, school, and the Latin *magister*, a master. The student should ascertain the signification of the words of Latin origin from the lists already given of Latin stems.

Words with their proper Prepositions.
F. R.

Eager in, for, after	L. acer, sharp, vigorous
Embark in, for	em, en French form of in, and bark, F. barque, a boat
Embellished with	em and bellus, beautiful, F. belle
Emerge from	L. emergo, I dip up
Employ in, on, about	F. employer, L. plico, a fold
Emulous of	L. aemulus, a rival
Enamoured of	en (em, in) amor, love
Encounter with	en (in, against) and contra, against
Encouragement to	F. coeur, L. cor, heart
Encroach on	connected with our <i>crook</i> , in Welsh <i>crog</i>
Endeared to	en and dear
Endeavour after	en and deo, F. duty
Endowed with	L. dos, dote, a gift, dowry
Endued with	L. induo, I put on or in
Engage in, with, for	F. engager, en and gage, a pledge

LESSONS IN PHONETIC SHORT-HAND.—No. VI.

By ALEX. MELVILLE RELL, F.R.S.S.A.

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87. The ten common words *true*, *full*, *holy*, *strong*, *scripture*, *glory*, *speak*, *street*, *square*, *esquire*, though not belonging to the subordinate classes, may be represented in the same way—without full-sized characters, and by a simplification of the alphabetic form; and all derivatives from them, such as *truly*, *strongly*, *strengthen*, *scriptural*, &c., will be indicated by alphabetic additions to the radical symbol.

88. These words, too, may often be united into phraseological combinations, like the subordinate words.

true	t r*	glory	g l
full	f l*	speak	s* p
holy	h l*	street	s* t
strong	s* t r*	square	s* k
scripture	s* k r*	esquire	dot above s

89. EXERCISE.—Write the following derivative words by adding the letters in italics—written as small as possible—to the symbols of the radical words.

[NOTE.—The syllables within brackets are contracted affixes, for which see lesson IV.: the negative *in* or *un* is expressed by crossing the end of the contraction.]

Truly, *truism*, *veritue*, *truthfully*; *truth*, *truthful*, *truthful-ly* (dot); *truthful[ness]*, *truthfulness*; *untruthful*, *untruthful-ly* (dot); *fully*, *full[ness]*; *holily*, *holiness*, *wholly*; *strongly*, *stronger*, *strongest*, *strength*, *strengthen*, *strengthening*, *strengthened*, *strengtheners*; *scriptures*, *scriptural-ly* (dot); *unscriptural*, *glories*, *glorious*, *gloriously*, *glorying*, *glorification*; *speaks*, *speaker*, *speaking*, *speakebly* (dot), *unspeakable*; *spoke* (dot before "speak"), *spoken*, *outspoken*; *speech* (*s* psh*), *speeches*, *speechless*, *speechless[ness]*, *speechify*, *speechifies*, *speeches-er-ing*; *streets*, *squares*, *squared*, *squaring*, *squarely*, *square[ness]*; *esquires*.

ABBREVIATED LOGOGRAPHS, FOR REPORTING.

90. To fit a system of short-hand for verbatim reporting—that is, for being written as fast as a speaker pronounces—many contractions must be made use of. The hand could not trace a line for every syllable with the rapidity of ordinary articulation. All words of very common occurrence or difficult outline, and phrases of regular construction that are frequently made use of, must be contracted in reporting, as prefixes, affixes, and subordinate words are, by this system, in ordinary notation.

91. Contractions, to be readily available, should be simple, suggestive, and as little arbitrary as possible; and they should be so distinctive in form that the reader may recognise them at a glance, and never confound them with fully written words. These qualities have been attained in the abbreviations given in our former lessons, by an almost uniform adherence to the alphabet, and by the principle of writing the subordinate words without full-sized characters, which not only distinguishes contracted from uncontracted words, but enables the writer to join the "subordinate symbols" in any

phasesiological order that chance may present, without danger of any cluster being confounded with an uncontracted word.

92. We now introduce a principle by which reporting logograms may be simply constructed, and extensively used, with as much freedom from ambiguity as the contractions for subordinate words.

93. This system of shorthand not being written on a continuous line, and the characters having no variable value dependent on their position above, below, or upon any line, ruling is not necessary; the words, subordinate and principal, that is, contracted and fully written—fall into grammatical or accentual groups, which have a common line of coincidence, but not of termination. All the words that belong to one group should be written closely together, and a means of distinguishing logograms from other words will then be available, by throwing the logograms below the general line of coincidence, or apart from the other words of the group.

94. The reporting logograms, like the subordinate words, are written without full-sized characters; and, as contracted letters can never, in this system, have vowels before them in ordinary notation, a dot prefixed to any such character will enable it to be used as the symbol of two words:—one being denoted by the letter alone, and the other by the letter with a dot before it.

95. On this principle the following table of *Alphabetic Logograms* is constructed.

96. As with the subordinate words, all derivatives may be indicated by very small alphabetic additions to the radical symbol. This short list will thus be found to represent a very considerable category of words—upwards of 500—so simple in their notation, and at the same time so distinctive, that they may be committed to memory, and brought into use, almost after a single reading. Let the learner supply the short-hand symbols. The ring letters are illustrated.

ALPHABETIC LOGOGRAMS.

b	pill	r	right
b	bible	r	royal
d	divine	r	err
d	educate	r	redeem
f	father	s	society
f	future	s	assist
g	God	sh	chapter
g	gospel	sh	motion
h	house	t	time
h	heaven	t	testament
k	Christ	t	eternity
k	omnion	th	faith
l	lord	th	author
m	almighty	th	brother
m	man	th	heathen
m	men	v	verse
m	omnipotent	v	erent
n	know	w	wise
n	know-new	w	word
n	honour	wh	white
n	ring	wh	whim
n	inward	y	unite
n	king	y	universe
ng	language	z	use (noun or verb)
p	prince	z	Israel
p	parliament	zh	Jesus
p	people	zh	measure

97. To these may be added the alphabetic *J* (zh), with its "breath-correspondent" *ch* (ts); the ring, the negative cross; the dot, and the comma.

j (zh)	h	judge
j	h	Jehovah
ch (ts)	h	church
ch	h	child
ring	h	now
neg. cross	o	may
dot	x	point
comma	;	points

98. EXERCISE.—Write the following words by adding the letters to initials to the radical symbols. The additions should be written as small as possible. The syllables within brackets are affixes. The negative in, un, or im is expressed by crossing the end of the contraction.

BILLS*; BILLS*, bibl[ca]; DIVINES*, divined (repeater), divining, diviner*, divinely, divination; DIVINITY (dot); EDUCATES*, -ed, -ing, -or, -tion; EDUCATED; PATHERS*, -ed, -ly, unilaterally; PATHERY (dot); GOD'S, godly, godlike, godhead; GODPERS*, -ed, -ing, -hold, -holder*, un-housed; HEAVENS*, -ly, heaven[ness], heaven[ward]; CHRIST'S, -ian, -s*, -ize, -ity (dot); CHRISTENDOM*, unchristian; COMMONS*, -er, -ly, -ally, -ness; AGE (dot), law (dot), wealth, -pleas*, -place, -hall, -coun[ty]; COMMONS* (h, n), -s*, -ed (repeater), -ing, -ity (dot), -ion (repeater); LEAF*, -s*, -ed (repeater), -ing, -leaf[ly], -ly (dot), -leaf[ly]; LEAF[ly], -ness; LEAF[ly], -s*, uncommon, incommunicable; LEAF[ly], -ing, -s*, loaded, -ing; ALMIGHTY'S*; MAN'S*, -ly, -ness, -hood, -kin, -d, -kin, -d's*, -ful, -fully (dot), s*laughter*, manned, unmanned, un-manned, woman; MEN-S*, women ("wu, m"); OMNIPOTENT'S*, -ly; omnipotence ("m, s), -cy (dot); omnipotent ("m, r*), -ence; omniscient ("m, s), -ence (m, s, s*), KNOWS*, -ing, -s*, unknown, know not (crossed); KNEW NOT; NEWLY, -er*, -est, -ish; NEWS*, news*paper*, -s*, news*paper*onger; KNOWLEDGE; acknowledge (dot before n*), -ed, -ing, -ment; UN-known*owed; MONOVS*, -ed, -ing, -able, -ably (dot), -ary (dot); DISHONOUR, -ed, -ing, -able, -ably; UNHONOURED; KING'S*, -ly, -dom*, -s*, unkingly; QUEENS*, -ly, unqueenly; LANGUAGES*, -ed; lingual (ng, l), linguis*t; PRINCES*, -ly (dot), -dom*, -cess, -es*, principal -ly (dot), principality, principle (p, l), -s*, unprincipled, principle (p, two dots), principia[tion]; PARALL[axes] (ary), PARALL[axes]*, -ed; POPULOUS (p, s), -ly, -ness; POPULAR (p, r*), -ly, -ity; POPULATE (p, t), -ed (repeater); POPULATION (p, r, t), -s*, unpeople, -ed; DEPOPULATE (d, p, t), -ed, -ing, -a[ction]; MOUNTS*, -ly, -ful, -ly (dot), -ness, -unrighteous; ROYALLY (dot); -ly; ERRORS*, -ing, -ed; error (repeater), -s*, erroneous, -ly, -ness; ERRANT, -ry; ERRATIC, erratic[ly] (r, [cal] dot); ERRAND, -s*, REFORMS*, -ed, -ing, -s*, -er (repeater), redemption; ASSOCIATES*, -ed; SOCIAL, -ity; UNSOCIAL [bility]; ASSOCIATE, -s*, -ed; ASSOCIATION, -s*, dissociate; ASSISTS*, -ed, -ing, -ant, -s*, -an*, -es*, unassisted; CHAPTERS*, -ed; MOTIONS*, -less; [motion], -s*, TIMES*, -ed (repeater), -ly; TIMOUS, untimely; AGRAD (t, l), -ly (dot); FAITH*, faith[ful], -less, unfaith[ful], -ness; AVICTIONS*, -ed, -ing, -a[ction]; AUTHORITY, -ies, -ative, -ly (dot), -ness; AUTHORESS*, -ship; UNAUTHORIZED; AUTHENTIC (th, k), -ly; AUTHENTIC (repeater), -a[ction]; AUTHENTIC[ity]; BROTHERS*, -ly, -less, -hood; BROTHERN*, unbrotherly; BROTHERS*, -ly, -ness; VERSES*, -ed (t); UN, -afile, -ity (dot); UNVERSED; VER[shion]; VERS[ity], -er*, -er*, -ical[tion]; CONVERSATION; DIVERSE, -ity (dot), -ly, -ical[tion]; DIVER[shion]; REVERSE, -s*, -ed (t) at; AVERSE, [ly]ans [verse, obverse; EVENTS*, -ed, -ing (dot), -ate; [ful]; WISLY, -ing, -er*, -s*, wisdom (w, ring), unwise; WORDS*, -y, -ness, -worlds, -ing, -ly, -ness, unworldly, worldly-wise; WRITES*, -ed, -ing, -er*, -s*, -ish, -ish[ness]; WRITERS*, -y (dot); SI [cal], -ly (dot), -ness; UNITS*, -ing, -ed, -ly; UNION*, -s*, unity (dot), -ies; UNIFORM (y, r* two dots), -ness; UNANIMOUS (y, m, s), -ly; UNANIMITY (dot); UNIFORM (y, f), -ly, -ity (dot); UNUSUALLY (dot), -ally, -ad[s]; ITY (dot), -ness; UNUS*, -ed, -ing, -fully (dot), -fulness; LESS, -y (dot), -ness; AGE (z, dz), -s*, as*, usual (z, l), -ly (dot); ER*, -er*, -y (dot), -er* (repeater); UNUS*, -ly; UTILITY (z, dot), -itarian (z, r* two dots), unusual; INUTILITY; ISRAEL'S*, -ite, -ness, -ish; JEST'S*: MEASURES*,

ed, -ing, -er*, -able, -ly (dot), -ness; [less] [ment], -s*, unmeasured, immeasur[able]; JUDGES*, -ing, -ed, -er*, [ment]; S*, -ship; JUDICATIVE (dz, s) SEATUR*o (dz, "yu" r*), -er* (dot); JUDIC[ation] (dz, [cal]) ly (dot); [scious] -ly, -ness; UNJUDGED, unjudicious; ADJUDGE, (z, repeater, zh), -s*, -ed; ADJUDICATE, -a[ction] (z, repeater, zh [lion]); JEHOVAN'S*; CHURCHES*, -ing, -ed (t); -y, -s*, -warden ("wu" r*), -s*; MAN, MEN, WOMAN, WOMEN, (the symbols united); CHILD'S, -ish (repeater), -ly, -ness; [less], -[less], -hood; REN*, -s* NOW (and) THEN (ling, th n): POINT-ed, -er, -ing*.

LESSONS IN GERMAN.—No. XLVI.

EXAMPLES ILLUSTRATING THE VARIOUS USES OF THE CONJUNCTIONS.

(Continued from p. 51, vol. III.)

Da. Since you are here, I will go out with you.

Da der Wind aus Westen kommt, As the wind comes from the west, it will rain.

Daher. The greatest probability of (the) accomplishment (still) admits of (a) doubt: therefore it is, that hope when it becomes a reality, always surprises.

Damit. Warm the room immediately, that we may take off our (the) wet clothes, and put on dry (ones).

Dann. First pray, then work.

Nicht nennt er sein, als seinen Rittermantel; he, therefore, (or on that account) looks upon every honest man's fortune with envy.

Das Wahre ist eine Fackel, aber eine ungleiche; des wegen suchen wir alle nur blinkend so fernem Licht zu kommen. (The) truth is a torch, but an immense one: therefore, we all attempt, only blinking at it, to pass by.

Der Haß ist ein actives Mißvergnügen, der Neid ein passives; deshalb darf man sich nicht wundern, wenn der Neid so schnell in Haß übergeht. (The) hatred is an active displeasure, (the) envy a passive one; therefore, one must not be surprised, if (the) envy readily passes over into hatred.

Das. There is no longer any doubt, that he has cheated us.

Demnach. We have already walked five hours, and, accordingly, we must soon be at the place.

Denn. I cannot tell you anything, for I do not know a word about it.

Wie kann man in ein starkes Haus gehen, und ihm einen Hausrath rauben, er sei denn, daß er unter den starken Hunden, und nicht unter den schwachen ist? I estimate him higher as a general, than as a statesman.

Dennoch, desse nungachtet, nicht desto weniger.

Phillip der Gütige war zu sehr verführer, um Schätze zu fürchten; dennoch fand Karl der Kühne in seiner Verlaßhaft an Tathgefahren, zu seinen Büchern, Taphen und Feinwand einen größeren Vorrath an Schatz, als drei reiche Fürstenthümer damals zusammen be-saßen. (Schiller.)

Christian der Vierte hatte sich in dem Vertrage von Ropenhagen verbindlich gemacht, ohne zu-gehung des Schwertes seinen emsel-tigen Frieden mit dem Kaiser zu schließen, desse nungachtet wurde der Antrag, den Wallen-stein ihm that, mit Bereitwillig-keit angenommen. (Schiller.)

Doch versprach er ihnen auf das Geheiß, daß viele Lasten nicht über vier Monate mehr brücken sollte; nicht desto weniger blieben diese Truppen statt dieser vier Monate, noch achtzehn im Lande. (Schiller.)

Doch. It is true, he has often offended me, yet, I can not be angry with him.

Erst. I shall come to you before I go home.

Endlich. After I had waited for a long time, he came at last.

Entweder oder. The remainder were either taken prisoners with their arms in their hands in the insurrection of the Gens, or arrested and sentenced for high-treason in consequence of their former participation in the petition of the nobility.

Falls. In case it should rain, I shall not come.

Erst, dann, ferner, endlich, zuletzt.

Erst kamen drei Reiter, dann (ferner) folgte ein singender Chor, und zuletzt (endlich) die Braut und die Gäste in (a) goldener Kutsche.

Folglich. He is my father, consequently I have a right to his love and his fortune.

Gleichwohl.

Wir gingen vorher Nacht erst nach zwölf Uhr zu Bett; gleich-wohl waren wir morgens um sechs Uhr wieder auf.

Phillip the Kind, was too great a prodigal to gather treasures; nevertheless, Charles the Bold found in his inheritance a greater store of table-service, jewels, books, carpets and linen, hoarded up, than three principalities together, possessed at that time.

Christian the IV. had obliged himself in the treaty of Copenhagen, not to conclude a partial peace with the emperor, without the advice of Sweden; nevertheless, the offer which Wallenstein made him, was accepted with the greatest readiness.

Although he promised them, in the most sacred manner, that this burden should not oppress them more than four months; nevertheless, these troops remained in the land eighteen months, instead of four.

It is true, he has often offended me, yet, I can not be angry with him.

I shall come to you before I go home.

After I had waited for a long time, he came at last.

The remainder were either taken prisoners with their arms in their hands in the insurrection of the Gens, or arrested and sentenced for high-treason in consequence of their former participation in the petition of the nobility.

In case it should rain, I shall not come.

First came three horsemen, then (further) followed a singing choir, and at last (finally) the bride and the guests in (a) gilded carriage.

He is my father, consequently I have a right to his love and his fortune.

We did not go to bed last night till after twelve o'clock; nevertheless, we were up again at six o'clock this morn-ing.

short, round, and tipped with white; the usual colour is a deep chocolate, sometimes nearly approaching to black; the sides are covered with hair of two colours, the tips being dark like the rest of the body, and the middle of a tawny hue.

The only way in which the pole-cat can make rapid progress is by a succession of leaps, but, owing to the shortness of its legs, when walking, the belly appears almost to touch the ground. In preparing to leap it arches its back, and then makes a forcible spring. It can creep up the side of a wall with great agility.

This animal chooses as its retreat woods or thick brakes, where it burrows underground to the length of from two to three yards, and then generally forms a round chamber among the roots of the trees. It seldom leaves its hole during the day, but as the shades of evening come on, it rouses from its repose, begins to prow abroad, and proves as mischievous as a fox. Its ravages are sometimes greater than those of that destructive animal, whole broods of chickens being often killed during a single night, and their bodies left on the spot. Its voracity extends also to the old fowls, ducks, geese, and even turkeys; and not content with killing one and making a meal, it sacrifices all within its reach. Mr. Bell mentions an instance in which sixteen large turkeys were killed by a pole-cat in the course of one night; and another in which ten ducks were destroyed in the same space of time, and in the morning, when the door of the outhouse in which they had been shut was opened, the perpetrator of the outrage marched out, licking his bloody jaws, without the slightest sign of alarm.

The pole-cat will moreover, become a fisher. Bewick mentions that during a severe storm, one of these animals was traced in the snow from the side of a rivulet to its hole at some distance from the stream. As it was observed to have made frequent trips, and as other marks were to be seen in the snow which could not easily be accounted for, its hole was examined, the fount was taken, and eleven fine eels were discovered to be the produce of its nocturnal exertions. The marks on the snow proved to be made by the motions of the eels while in the mouth of their enemy. This is by no means a solitary instance. On another occasion, the nest of a female pole-cat was opened, containing five young ones; while in a side hole were packed forty large frogs and two toads, scarcely alive, each having been paralyzed by a bite through the brain. The fur of the pole-cat, generally called *Fitch*, is imported very extensively from the north of Europe, and is plentiful in the furriers' shops in the metropolis. *Fitch* and *Blisheu* are names for this animal found in Shakspeare.

Closely allied to the pole-cat is the *Ferret*, a somewhat smaller animal. The general resemblance between the two creatures is strong, except that the ferret has a yellowish fur, and its eyes are red. It is a native of Africa, and has been employed in various countries of Europe to reduce the number of rabbits.

To these animals, the ferret has an instinctive antipathy. It is said that if a dead rabbit be presented to a young ferret, which has never seen one before, it will seize the carcass; and if a live rabbit be set before it, still greater marks of antipathy are shown: for it lays hold of the rabbit's neck, winds itself round it, and refuses to quit its gripe until it is completely satiated with the blood of its prey. When ferrets are used to drive rabbits from their burrows, they are muzzled, otherwise they would gorge themselves with blood, and then fall asleep. In some instances, they have got rid of the muzzle and were then only to be removed from the hole by digging for them, or smoking them out. Both these methods have even been resorted to without effect: the ferret has made good his retreat during the summer, preying on the rabbits; but when the winter sets in, ferrets either perish from cold, or leaving the burrow, are easily taken.

The *Stoat* is found in Europe and Asia, and, it is believed, in America. It closely resembles the weasel, but it is a full third larger. It has one marked peculiarity, in a change of dress. In the summer, its general colour is a pale reddish brown; but this, as winter advances, gradually changes to a pure white, which becomes universal, except at the tip of the tail, where it is, at all times, black. In its winter livery, its fur, called *Ermine*, becomes a valuable article of commerce. In England the stoat seldom assumes such a pure whiteness or such closeness of fur, as in Norway or Siberia—a special adaptation of

the beneficent Creator to protect the animal from the intense cold of those regions. *Ermine* is imported in large quantities from the north of Europe. The skins are sold in the districts where they are caught, at from two to three pounds sterling the hundred.

The habits of the stoat are precisely the same as those of the weasel; but while it does not disdain a water-rat, it preys habitually on hares, leverets, and other game. It hunts its prey by the scent. In the retreat of one stoat there were found two leverets, two leveret's heads, two young partridges, and a pheasant's egg—a sufficient proof of its carnivorous voracity; but beyond these, there were the heads of two other leverets, and at the extremity of the hole, was the little mauler dead. It might be supposed that such an accumulation of plunder indicated a provident disposition; but many naturalists are of opinion that stoats seldom devour any of their prey until it begins to putrify—in this respect, being like some human beings who have contracted such a depraved taste, as to be fond of high game.

The *Marten* may close our present article on creatures of this class. The *beech-marten*, distinguished by a white breast, is the more common in this country. The *pine-squirrel*, also found in this island, has a yellow breast and throat. This animal lives like a squirrel among the trees in the forests of the north, both of Europe and America, climbing them with the utmost facility. It is said to have a cuckoo-like propensity, usurping the nest of a squirrel or a bird, the original tenant becoming a sacrifice to the marten's rapacity. The general colour of the fur, which consists, as is usual, of two sorts of hair, is a deep chestnut, except on the throat and margin of the ears, where this colour gives place abruptly to a fine yellow. In summer, the tints not only become lighter, but the fur shorter; and the toes, which during the winter were well protected with woolly hair, are deprived of their covering, and the claws are entirely exposed.

LESSONS IN LATIN—No. I.

By JOHN R. BEARD, D.D.

GOVERNMENT BY VERBS.

A VERB may govern a noun, e. g.,

Amo filium.
I love a son.

Here the noun *filium* is dependent on the verb *amo*; by the force of the verb *amo* *filium*, the nominative form, is changed into *filium*, the accusative form, or the form of the object.

With the noun, one pronoun or more may be connected; also one adjective or more; in which case the pronoun and the adjective will be in the same gender, number, and case as the noun, presenting an instance of concord or agreement, e. g.,

Amo filium meum minorem natum.
I love my younger son.

Instead of a noun, the object of a verb may be a pronoun, e. g.,

Amo te.
I love thee.

All verbs do not govern nouns. In general, the verbs which govern nouns are transitive verbs in the active voice. Intransitive verbs, inasmuch as their action does not pass over to an object, do not govern nouns.

In the examples just given, the nouns, &c., are in the accusative case. Verbs govern nouns in other cases. The noun, when governed by a verb, is said to be the object of the verb. The object of a verb may be a noun, a noun and adjective or participle, or a pronoun. The object of a verb thus explained may be in either of these cases, namely, the genitive, the dative, the accusative, the ablative. Here you see in the Latin a great divergence from the English, in which the object is always in the accusative or the objective (as called from its being the case of the object) case. I subjoin instances of each of these governments:—

VERBS WITH THEIR GOVERNMENTS.

1. The object in the Genitive: *Miserere mei.*
Pity me.

II.	Dative:	<i>Medicinas dedit.</i> He cures the eyes.
III.	Accusative:	<i>Docet pueros.</i> He teaches boys.
IV.	Ablative:	<i>Fungitur munere.</i> He performs (his) duty.

Some verbs have in the same sentence two governments, e. g.,

Docet pueros musica.
He teaches the boys music.

A verb may also have two objects in unlike cases, e. g.,

Dat librum puero.
He gives a book to the boy.

Both *librum* and *puero* depend on *dat*, and, consequently, *dat* is said to govern them. The general rule may be given in these terms:—

Transitive verbs in the active voice have two governments, the noun and the remote; the noun is the accusative, the remote is the dative.

The same verb may govern two different cases, e. g.,

Sapienter eget nulli re.
The wise man wants nothing.
Agrotans eget medicina.
The sick man wants medicine.

The verb *eget* takes in one sentence, the ablative; in another, the genitive. These diversities of form generally involve some diversity of signification. *Egeo* signifies to be without, not to have; also to need, to require. In the first sense *eget* takes an ablative, the ancient wise man could be without nothing, for he possessed all things inasmuch as he wanted (wished for) nothing. The sick man, on the contrary, has occasion for medicine, inasmuch as he is sick.

The two meanings are so much alike that they are sometimes exchanged the one for the other; thus we find *medicina* in the ablative; and the genitive is employed when the ablative might have been expected.

Having given a general view of the government of verbs, I shall take up each case in succession; and first,

VERBS WHICH GOVERN THE GENITIVE.

Verbs which denote an active or quiescent state of the feelings require their object to be in the genitive case, such as *miserere*, *miserere*, e. g.,

Dorum miserere oportet.
It is proper to pity them.

Instead of a verb, you may have an adjective with *est*, e. g.,

Est patiens laboris.
He is enduring of (he endures) labour.

Certain impersonal verbs take a genitive together with an accusative for their object, e. g.,

Piget me stultitia.
I am ashamed of my folly.

This, literally rendered, is, it shames me of my folly, showing a compound object to the verb *piget* .

A neuter pronoun, corresponding in relation with the noun in the genitive, stands in the accusative, e. g.,

Id ne piget te?
Art thou not ashamed of that?

Verbs which signify to remember and to forget, also to remind and to admonish, take their object in the genitive. Such words are *memini*, *I remember*; *reminiscor*, *I call to mind*; *recordor*, *I recollect*; *obliscor*, *I forget*; *moneo*, *I put thee in mind*; *admoneo*, *I admonish*; *commemoro*, *I advise*; *commemoro facio*, *I warn*, e. g.,

Animus meminit praeteritorum.
The mind remembers past things.

Similar construction is the phrase *venit mihi in mentem aliquid*, *rei*, literally, it comes to me into the mind of something, that is, something occurs to me, is suggested to me. We also read *venit res in mentem*, *the thing comes to my mind*.

With verbs of remembering and forgetting, the accusative is found instead of the genitive, e. g.,

Cinam memini, Sullam vidi.
I remember Cinna, I saw Sulla.

This is specially the case if the object is a pronoun in the

neuter gender. *Recordor, I call to mind*, requires an accusative. *Recordor* may also have after it the preposition *de*, with its case.

Instead of the simple verb, we may have its equivalent in an adjective, and the copula *est*. Thus, instead of *he forgets*, we may say, *he is forgetful*. Consequently, a number of adjectives denoting states of mind are followed by the genitive, e. g., *prudens* (for providens), *foreseeing*, *prudent*; *gnarus*, *knowing*; *peritus*, *skilful*; *consciens* (*knowing with*), *conscious*, *aware of*; *rudis*, *destitute of*, *untrained*; *memor*, *mindful*.

Here we may place the phrase *certiorum facere*, *to inform*, which has a genitive object, e. g.,

Certiorum me fecit tui consilii.
He informed me of thy plan.

Some adjectives are denominated verbal, inasmuch as they are derived from verbs, and have a verbal meaning, thus *edax* from *edo*, *I eat*, signifies eating. Verbal adjectives in *as*, *as*, *capax*, *edax*, *ferax*, *rapax*, *tenax*, govern a genitive case; as, *tenax propositi*, *firm to (his) purpose*. Certain participles, also, when used as adjectives, take a genitive, e. g., *amans patriae*; *appellens gloriae*; *diligens veritatis*; *metuens futuri*; *sitions sanguinis*. The participle differs from the adjective in this, that while the participle denotes a single act, the adjective denotes an habitual state. When, then, these participles are used as participles, they require the government of the verbs to which they belong. *Sitions*, employed as an adjective, has a genitive; but when used as a participle, it governs an accusative like its verb; as,

Tiberius sitions sanguinem, septimum interfecit iuvenem.
Tiberius, thirsting for blood, commanded Septimus to be put to death.

Verbs which denote fullness, abundance, or want, take their object in the genitive case. Adjectives of similar import govern a genitive case, e. g.,

Adolescens suam temeritatis implet.
He fills the youth with his own rashness.

This is an instance of a verb with a double object, an accusative of the person, and a genitive of the thing.

The verb *potiri*, *to make yourself master of*, takes the genitive in the phrase *rerum potiri*, *to seize the helm of government*, *to obtain power over*; though generally *potiri* requires the ablative.

Adjectives, too, denoting such a state of mind as is implied in having power, possessing ability, or the reverse, take a genitive after them. Hence arises combinations which the student may be glad to see translated, e. g., *virtutis compos*, *endued with virtue*; *mentis impositus*, *weak of (in) mind*; *sui potens*, *master of himself*; *exors culpe*, *free from blame*; *rationalis particeps*, *sharing in the possession of reason*; *rationalis expertus* (*ex* and *particeps*), *having no part, no share, that is, devoid of reason*.

The adjective *proprius*, denoting that which belongs or is peculiar to a person, takes a noun after it in the genitive case, e. g.,

Viri proprius est fortitudo.
Courage is a property of man.

So *proprius* in the neuter is employed to designate the special property of an object, e. g.,

Id est vitium senectutis proprium.
This is the special fault of old age.

If an ellipsis of *proprius* you may explain what is commonly called the genitive of possession or quality, e. g.,

Hic liber fratris mei est.
This book is my brother's.

Virorum fortium est dolorem pati.
To bear grief is the part of brave men.

Vir est summus pietatis.
He is a man of the greatest piety.

The quality is sometimes put in the ablative, e. g.,

Aristoteles vir erat summo ingenio.
Aristoteles was a man of the greatest ability.

Allied with the usage of *proprius* is the phrase *nostrum* *est*, *vestrum* *est*, *meum* *est*, &c., e. g.,

Nostrum est parentes amare.
It is our duty to love our parents.

From the idea of partaking or sharing in anything seems to have arisen the use of the genitive with the adjectives *reus*, &c.

IMPERATIVE MODE.

Sci,	be thou
Qu'il soit,	let him be
Qu'on soit,	let one be
Soyons,	let us be
Soyez,	be ye or you
Qu'ils soient,	let them be.

SUBJUNCTIVE MODE.

SIMPLE TENSES.

PRESENT.

Que je sois, *that I may be*
 Que tu sois, *that thou mayest be*
 Qu'il soit, *that he may be*
 Qu'on soit, *that one may be*
 Que nous soyons, *that we may be*
 Que vous soyez, *that you may be*
 Qu'ils soient, *that they may be*

COMPOUND TENSES.

PAST.

Que j'aie été, *that I may have been*
 Que tu aies été, *that thou mayest have been*
 Qu'il ait été, *that he may have been*
 Qu'on ait été, *that one may have been*
 Que nous ayons été, *that we may have been*
 Que vous ayez été, *that you may have been*
 Qu'ils aient été, *that they may have been*

IMPERFECT.

Que je fusse, *that I might be*
 Que tu fusses, *that thou mightest be*
 Qu'il fût, *that he might be*
 Qu'on fût, *that one might be*
 Que nous fussions, *that we might be*
 Que vous fussiez, *that you might be*
 Qu'ils fussent, *that they might be*

PLUPERFECT.

Que j'eusse été, *that I might have been*
 Que tu eusses été, *that thou mightest have been*
 Qu'il eût été, *that he might have been*
 Qu'on eût été, *that one might have been*
 Que nous eussions été, *that we might have been*
 Que vous eussiez été, *that you might have been*
 Qu'ils eussent été, *that they might have been*

INFINITIVE MODE.

PRESENT.

Être, *to be*

PAST.

Avoir été, *to have been*

PARTICIPLE.

PRESENT.

Êtant, *being*

COMPOUND.

Ayant été, *having been*

PAST OR PASSIVE.

Été, *been*

§ 48.—REGULAR VERBS.

FIRST CONJUGATION, ENDING IN ER.

MODEL VERB.

CHANTER, TO SING.

INDICATIVE MODE.

SIMPLE TENSES.

PRESENT.

Je chante, *I sing*
 Tu chantes, *thou singest*
 Il chante, *he sings*
 On chante, *one sings*
 Nous chantons, *we sing*
 Vous chantez, *you sing*
 Ils chantent, *they sing*

PAST DEFINITE.

J'ai chanté, *I have sung*
 Tu as chanté, *thou hast sung*
 Il a chanté, *he has sung*
 On a chanté, *one has sung*
 Nous avons chanté, *we have sung*
 Vous avez chanté, *you have sung*
 Ils ont chanté, *they have sung*

IMPERFECT.

Je chantais, *I was singing, or I used to sing*
 Tu chantais, *thou wast singing*
 Il chantait, *he was singing*
 On chantait, *one was singing*
 Nous chantions, *we were singing*
 Vous chantiez, *you were singing*
 Ils chantaient, *they were singing*

PLUPERFECT.

J'avais chanté, *I had sung*
 Tu avais chanté, *thou hadst sung*
 Il avait chanté, *he had sung*
 On avait chanté, *one had sung*
 Nous avions chanté, *we had sung*
 Vous aviez chanté, *you had sung*
 Ils avaient chanté, *they had sung*

PAST DEFINITE.

J'eus chanté, *I had sung*
 Tu eus chanté, *thou hadst sung*
 Il eut chanté, *he had sung*
 On eut chanté, *one had sung*
 Nous eûmes chanté, *we had sung*
 Vous eûtes chanté, *you had sung*
 Ils eurent chanté, *they had sung*

PAST ANTERIOR.

J'eusse chanté, *I had sung*
 Tu eusses chanté, *thou hadst sung*
 Il eût chanté, *he had sung*
 On eût chanté, *one had sung*
 Nous eussions chanté, *we had sung*
 Vous eussiez chanté, *you had sung*
 Ils eussent chanté, *they had sung*

FUTURE.

Je chanterai, *I shall or will sing*
 Tu chanteras, *thou wilt sing*
 Il chantera, *he will sing*
 On chantera, *one will sing*
 Nous chanterons, *we shall sing*
 Vous chanterez, *you will sing*
 Ils chanteront, *they will sing*

FUTURE ANTERIOR.

J'aurai chanté, *I will sing*
 Tu auras chanté, *thou shalt sing*
 Il aura chanté, *he will sing*
 On aura chanté, *one will sing*
 Nous aurons chanté, *we shall sing*
 Vous aurez chanté, *you will sing*
 Ils auront chanté, *they shall sing*

CONDITIONAL MODE.

PRESENT.

Je chanterais, *I should, or would sing*
 Tu chanterais, *thou shouldst sing*
 Il chanterait, *he should sing*
 On chanterait, *one should sing*
 Nous chanterions, *we would sing*
 Vous chanteriez, *you would sing*
 Ils chanteraient, *they would sing*

PAST.

J'aurais chanté, *I should have sung*
 Tu aurais chanté, *thou shouldst have sung*
 Il aurait chanté, *he would have sung*
 On aurait chanté, *one would have sung*
 Nous aurions chanté, *we would have sung*
 Vous auriez chanté, *you would have sung*
 Ils auraient chanté, *they would have sung*

IMPERATIVE MODE.

Chante, *sing thou*
 Qu'il chante, *let him sing*
 Qu'on chante, *let one sing*
 Chantez, *let us sing*
 Qu'ils chantent, *let them sing*

SUBJUNCTIVE MODE.

SIMPLE TENSES.

PRESENT.

Que je chante, *that I may sing*
 Que tu chantes, *that thou mayest sing*
 Qu'il chante, *that he may sing*
 Qu'on chante, *that one may sing*
 Que nous chantions, *that we may sing*
 Que vous chantiez, *that you may sing*
 Qu'ils chantent, *that they may sing*

COMPOUND TENSES.

PAST.

Que j'aie chanté, *that I may have sung*
 Que tu aies chanté, *that thou mayest have sung*
 Qu'il ait chanté, *that he may have sung*
 Qu'on ait chanté, *that one may have sung*
 Que nous ayons chanté, *that we may have sung*
 Que vous ayez chanté, *that you may have sung*
 Qu'ils aient chanté, *that they may have sung*

IMPERFECT.

Que je chantasse, *that I might sing*
 Que tu chantasses, *that thou mightest sing*
 Qu'il chantât, *that he might sing*
 Qu'on chantât, *that one might sing*
 Que nous chantassions, *that we might sing*
 Que vous chantassiez, *that you might sing*
 Qu'ils chantassent, *that they might sing*

PLUPERFECT.

Que j'eusse chanté, *that I might have sung*
 Que tu eusses chanté, *that thou mightest have sung*
 Qu'il eût chanté, *that he might have sung*
 Qu'on eût chanté, *that one might have sung*
 Que nous eussions chanté, *that we might have sung*
 Que vous eussiez chanté, *that you might have sung*
 Qu'ils eussent chanté, *that they might have sung*

INFINITIVE MODE.

PRESENT.

Chanter, *to sing*

PAST.

Avoir chanté, *to have sung*

PARTICIPLE.

PRESENT.

Chantant, *singing*

COMPOUND.

Ayant chanté, *having sung*

PAST OR PASSIVE.

Chanté, *sung*

LESSONS IN ARITHMETIC—No. XXV.

VULGAR FRACTIONS.

The following are the answers to the exercises given in our last lesson:—

EXERCISES TO PROBLEM VIII.

RULE 2.—Answers: (1.) 59; (2.) 77; (3.) 79; (4.) 49; (5.) 302; (6.) 117.

RULE 4.—Answers: (1.) 20; (2.) 65; (3.) 3402; (4.) 7361; (5.) 111147; (6.) 1996144.

EXERCISES TO PROBLEM IX.

RULE 1.—Answers: (1.) 4; (2.) 14; (3.) 14; (4.) 21; (5.) 1; (6.) 400.

DIVISION OF FRACTIONS.

RULE 2.—When the divisor is a whole number, and the dividend a fraction. Multiply the denominator of the fraction by the given whole number, and place the product under the numerator, the result is the answer. The reason of this rule is plain from Principle 3, Art. 12, p. 134, vol. II. It may be observed, however, that if the numerator of the fraction can be divided by the given whole number without leaving a remainder, it will be easier so to do, and place the quotient over the denominator, the result

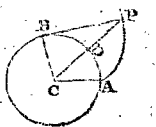
SOLUTION OF PROBLEMS AND QUERIES.

At the request of several ingenious correspondents, we insert the solution of the following query, proposed at p. 230, Vol. I.

"If a hundred yards of string were wound round a stick an inch in diameter, what distance would a person have to walk (supposing him to keep at the end of the string and the string to be always kept tight from the stick), in order to unwind it."

Let π be the circumference of a circle whose diameter is one inch; then the number of inches denoted by π will be unwound from the stick at every turn of the string. Now in 100 yards of string there are 3600 inches; whence $\frac{3600}{\pi}$ = the number of turns of the string before it is entirely unwound. But the person who unwinds the string will have to describe in walking as many involutes* of circles as this number denotes, the circles themselves continually varying from 1 inch to 7201 inches in diameter. Hence in the arithmetical progression of circles whose involutes are described, the first term will be 1 π and the last term 7201 π . But in such a progression the sum of the series is equal to half the sum of the first and last terms, multiplied by the number of terms; wherefore $3601 \pi \times \frac{3600}{\pi} = 3600^2 + 3600 = 12962600$ inches = 204 miles and 1060 yards, which is the answer to the question.

This question is more properly solved by means of the Differential and Integral Calculus as follows: in the adjacent figure, let the circle A B C represent a section of the stick perpendicular to its length. Let P B be a part of the string unwound, and A P a part of the involute or path of the unwinder. Let the arc A P of this curve = s ; the radius of the circle A C or B C = a ; the radius vector P C = r ; and the angle A C P = θ . Then by the unwinding of the string, the straight line P B, which is a tangent to the circle, is equal to the arc B D A. From Δ , I. E. we have P B = $\sqrt{r^2 - a^2}$; and by Trigonometry, the arc B D = $a \sec^{-1} \frac{r}{a}$ and the arc A D = $a \theta$; therefore the straight line P B = the arc B D A = $a \sec^{-1} \frac{r}{a} + a \theta$; consequently, $\sqrt{r^2 - a^2} = a \sec^{-1} \frac{r}{a} + a \theta$; and $\theta = \frac{\sqrt{r^2 - a^2}}{a} - \sec^{-1} \frac{r}{a}$. Now, by the Differential Calculus, we have $ds = \sqrt{dr^2 + r^2 d\theta^2}$; and by the Integral Calculus, $s = \int \sqrt{dr^2 + r^2 d\theta^2}$. But, by the preceding notation, we have $d\theta = \frac{r dr}{a \sqrt{r^2 - a^2}}$



$-\frac{a \theta r}{r \sqrt{r^2 - a^2}} = \frac{\sqrt{r^2 - a^2}}{a} dr$; whence $d\theta = \frac{r - r^2}{a^2 r^2} dr$; and $s = \int [dr^2 + \frac{r^2 - r^2}{a^2} dr^2] = \int \frac{r dr}{a}$. Now, by integrating this value of s between the limits $r = a$, and $r = b$, we have $\int_a^b \frac{r dr}{a} = \frac{b^2 - a^2}{2a}$; and in this expression, suppo-

sing $b = 3600\frac{1}{2}$ inches, and $a = \frac{1}{2}$ inch, we have $\frac{(3600\frac{1}{2})^2 - (\frac{1}{2})^2}{2 \times \frac{1}{2}}$

= $3600^2 + 3600 = 12962600$ inches, the whole length of the string, which is 204 miles and 1060 yards as before.

This question was solved in a manner similar to the preceding by A. LEARNER; Greenock; and according to various other modes, by E. C. HUGHES, Islington; J. J. WHITEHEAD, and J. BROOK, Paddock; J. LOVETT, and THOMAS HALL, Manchester; the solution of the latter being that which gave the answer nearest the truth.

* The involute of a circle is the curve formed by gradually unwinding a string or thread wrapped round its circumference.

is then the answer, in lower terms. This process is also explained in the place to which we have just referred.

EXAMPLE 1.—Divide $\frac{1}{2}$ by 12.

Here, $8 \times 12 = 96$; and $\frac{96}{12}$ is the answer.

EXAMPLE 2.—Divide $\frac{1}{4}$ by 12.

Here, $156 \div 12 = 13$; and $\frac{156}{12}$ is the answer.

EXERCISES.

Find the quotients indicated by the following expressions:—
 (1.) $\frac{1}{2} \div 9$; (2.) $\frac{1}{4} \div 12$; (3.) $\frac{1}{16} \div 11$; (4.) $\frac{1}{32} \div 52$; (5.) $\frac{1}{64} \div 37$; (6.) $\frac{1}{128} \div 100$.

RULE 3.—When the divisor is a fraction, and the dividend a whole number. Multiply the given whole number by the denominator of the fraction, and divide the product by its numerator, the quotient is the answer. The reason of this rule depends on the principle that as the divisor consists of a certain number of parts of a unit, and the dividend of a certain number of units, it is necessary first to find how many parts of the same kind that the divisor consists of, are contained in the dividend; and then to find how often the parts of which the divisor consists, are contained in those of which the dividend consists. Now the number of parts of which the dividend consists is found by multiplying it by the denominator of the divisor; and the number of times that this product contains the number of parts of which the divisor consists, is found by dividing it by the numerator of the divisor; hence the rule.

EXAMPLE.—Divide 14 by $\frac{1}{2}$.

Here, $14 \times 2 = 28$; and $28 \div 1 = 28$, the answer.

EXERCISES.

Find the quotients indicated by the following expressions:—
 (1.) $12 \div \frac{1}{2}$; (2.) $172 \div \frac{1}{3}$; (3.) $5 \div \frac{1}{100}$; (4.) $1000 \div \frac{1}{5}$; (5.) $1 \div \frac{1}{100}$; (6.) $75 \div \frac{1}{10}$.

RULE 4.—When the divisor is a mixed number, and the dividend a whole number. Reduce the mixed number to an improper fraction, and then proceed according to the preceding rule. The explanation of this rule is included in that of the preceding one.

EXAMPLE.—Divide 120 by $1\frac{1}{2}$.

Here, $1\frac{1}{2} = \frac{3}{2}$; $120 \times \frac{2}{3} = 80$, and $80 \div 1 = 80$, the answer.

EXERCISES.

Find the quotients indicated by the following expressions:—
 (1.) $112 \div 1\frac{1}{2}$; (2.) $160 \div 1\frac{1}{3}$; (3.) $1000 \div 1\frac{1}{4}$; (4.) $800 \div 800\frac{1}{2}$; (5.) $1 \div 1\frac{1}{2}$; (6.) $2 \div 2000\frac{1}{2}$.

RULE 5.—When the divisor is a whole number, and the dividend a mixed number. Reduce the mixed number to an improper fraction, and then proceed according to Rule 2. The explanation of this rule will be the same as that of Rule 2.

EXAMPLE.—Divide $1\frac{1}{2}$ by 5.

Here, $1\frac{1}{2} = \frac{3}{2}$; $\frac{3}{2} \times 5 = \frac{15}{2}$; and $\frac{15}{2} \div 5 = \frac{3}{2}$, the answer.

Otherwise.—Divide the integer of the mixed number by the divisor, and note the quotient and remainder. Then, bring the remainder and the fraction of the mixed number to an improper fraction, and proceed according to Rule 2; the result annexed to the former quotient will be the same as before.

EXAMPLE.—Divide $14285\frac{1}{2}$ by 9.

Here, $14285 \div 9 = 1587$, with 2 as the remainder; then $\frac{2}{9} \times \frac{1}{2} = \frac{1}{9}$; and $7 \times 9 = 63$; whence, $\frac{1}{9}$ is the result to be annexed to 1587; and $1587\frac{1}{9}$ is the answer required.

According to the former rule, the process would be as follows:—

First, $14285\frac{1}{2} = 28571$; then, $7 \times 9 = 63$; and $28571 \div 9 = 3174\frac{5}{9}$; the answer, as before.

EXERCISES.

Find the quotients indicated by the following expressions:—
 (1.) $17\frac{1}{2} \div 7$; (2.) $100\frac{1}{2} \div 12$; (3.) $14008\frac{1}{2} \div 9$; (4.) $4783965\frac{1}{2} \div 112$; (5.) $1000\frac{1}{2} \div 18$; (6.) $1\frac{1}{2} \div 800$.

RULE 6.—When the divisor and dividend are both mixed numbers. Reduce them both to improper fractions, and then apply Rule 1. The reason assigned for Rule 1, is equally applicable to the present rule.

EXAMPLE.—Divide $5\frac{1}{2}$ by $3\frac{1}{2}$.

Here, $5\frac{1}{2} = \frac{11}{2}$, and $3\frac{1}{2} = \frac{7}{2}$; then $\frac{11}{2} \times \frac{2}{7} = \frac{11}{7}$; the answer.

EXERCISES.

Find the quotients indicated by the following expressions:—
 (1.) $7\frac{1}{2} \div 5\frac{1}{2}$; (2.) $98\frac{1}{2} \div 17\frac{1}{2}$; (3.) $1072\frac{1}{2} \div 55\frac{1}{2}$; (4.) $1428\frac{1}{2} \div 8\frac{1}{2}$; (5.) $1000\frac{1}{2} \div 10\frac{1}{2}$; (6.) $1\frac{1}{2} \div 2\frac{1}{2}$.

102. TABLE OF ENGLISH VOWEL SYMBOLS.

Written at	Top.	Bottom.
ee, ale, an.	err, (on, old, isle, (all,	ill, (ell, ask, (up, ore, (pull, owl, (ere, (urn, (pool,
	ah, c, < oil.	

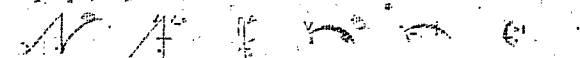
109. I.—Vowels pronounced *before* an articulation are written at its *left* side, or, if it is a horizontal character, *above* it; and those pronounced *after* are written on the *right* side, or *under*.

II.—The upper part of a letter, as it stands on the page, is reckoned the top, whether it may have been written upwards or downwards.

III.—The *left* end of horizontal characters is reckoned the top.

IV.—Vowels before repeaters should be placed *above* them, and those pronounced *after* should be placed *below* them.

The following words illustrate these rules:—
epitaph, appetite, safety, Isaiah, Esau, loyalty.



CONCLUDING OBSERVATIONS.

110. It is probable that many learners of this system may not have been able practically to keep pace with our development of it: the earlier lessons may still require practice; and, as it would be unwise to advance a single step prematurely, the learner should patiently work out the rudimental lessons, until accuracy of phonetic analysis and notation is perfectly attained. *Facility* will be the certain result of exercise. Aim solely at *neatness* and *accuracy* till these have become a habit. Repidity will not fail to follow.

111. It is possible, also, that many persons may have deferred commencing a regular prosecution of the study until they saw the end before them. This is but natural. Let them now go on with diligence: the whole system is in their hands.

112. There are so many systems of shorthand now before the public, that indecision as to which to choose may well be, for a time, almost a matter of course. Each has its warm advocates among the number of those who practise it; and a new system, till it raises up friends of this description, is apt less to be judged by its merits, than to be misunderstood, or at once condemned, by prejudice in favour of that system which happens to have been required by its critics. Thus the old alphabet orthography has still its partisans, notwithstanding the manifest superiority of a phonetic foundation for shorthand writing.

113. To those who have already attained facility in the use of any other system, we say nothing of the comparative advantages of this: let them hold to that which they know. But to those who have not yet commenced, or who have but commenced, we would point out the characteristics that make this system *simple in the acquisition, and perpetual in the use, far beyond any other that can offer them a corresponding amount of brevity.*

114. There is, as most of our readers may know, a system of phonetic shorthand which has been before the public for many years, and which is a great improvement on the old alphabetic methods, in point of brevity and legibility. It was in the course of an attempt to use this system for a strictly scientific notation of spoken sounds that, discovering in it several phonetic defects and inconsistencies which unfitted it for that purpose, we were led to construct a new system, that should exhibit the analogies of the elements of speech with greater accuracy, and with less complexity of detail. Some years of experiment, and the practical experience acquired in communicating the system to others, have led to its gradual perfection, and it is now presented to the readers of the *POPULAR EDUCATOR*, challenging comparison with the older "Phonography," and claiming to be, in point of *phonetic*

* The vowel-mark points towards the articulation for "ale-owl," and from it for "ell."

simplicity, greatly superior; in brevity, at least equal; and in perspicuity and easy legibility, unexcelled by any system of shorthand that has ever been published.

116. This practical result has followed courses of lessons given by the author, that pupils have been able to write correctly,—slowly, of course, but with all the abbreviations,—and to decipher the shorthand with certainty and tolerable promptitude, after a single course of six lessons—in some instances after only four lessons.

116. The following comparative table of PRINCIPLES AND POINTS TO BE REMEMBERED in PITMAN'S "Phonography" and BELL'S Phonetic Shorthand or "Steno-Phonography" will substantiate our assertions with reference to the rudimental simplicity of the latter system.

COMPARATIVE VIEW OF PRINCIPLES AND POINTS TO BE REMEMBERED IN BELL'S PHONETIC SHORTHAND AND PITMAN'S PHONOGRAPHY.

Principles.	Pitman.	Bell.
I. Voice letters represented by thick lines.	With various exceptions.	With 76 exceptions.
II. Breath letters represented by thin lines.	With various exceptions.	With 76 exceptions.
III. Letters, simple and compound, symbolized as pairs of voice and breath, between which no such relation subsists.	Six pairs.	None.
IV. Letters symbolized as pairs of voice and breath, between which the reverse relation subsists.	One pair.	None.
V. Contrasted letters indicate the addition of <i>t</i> or <i>d</i> (with several exceptions).	That no vowel precedes (with no exceptions).	Whether initial, medial, or final; and whether single or double.
VI. Vowel points require to be inserted to secure legibility.	Only by arbitrary difference of position, above, below, or on a line; or by fixed precedences in the mode of writing.	By the absence of full-sized characters, and by grouping.
VII. Subordinate grammatical classes of words distinguished from leading words.	Undistinguished.	By the absence of full-sized characters, and by grouping.
VIII. Logograms and arbitrarily abbreviated words distinguished from fully written words.	Undistinguished.	By the absence of full-sized characters, and by grouping.

POINTS TO BE REMEMBERED IN THE ORDINARY UNCONTRACTED WRITING OF ARTICULATIONS.

	Pitman.	Bell.
Number of elementary symbols ..	27	26
Additional symbols for compound articulations ..	10	9
Additional symbol for repetition of any articulation ..	0	1
Distinctive sizes of alphabetic characters ..	0	2
Variable values of alphabetic symbols, as written ten upwards or downwards ..	2	0
Variable values of cursive symbols (hooks, rings, &c.), as written to right or left, at top or at bottom ..	14	1
Variable values of "repeater," as applying to single letters or combinations ..	0	2
Character of ..	55	34

	Pitman.	Bell.
Arbitrary appropriation of alphabetic forms to other sounds ..	4	0
Rules for applying hooks ..	9	1
Distinctive sizes of hooks ..	2	1
Rules for applying loops ..	4	2
Distinctive sizes of loops ..	2	1
Rules for applying rings ..	6	2
Distinctive sizes of rings ..	2	1
	55	43

VOWELS.—(Scientific Notation).

Number of English vowel sounds represented ..	13	16.
Varieties of English sound unrepresented ..	9	0
Sounds of identical "quality," but different "quantity," correctly symbolized as pairs of "long" and "short" vowels ..	2	4
Sounds of different quality unphonetically represented as quantitative pairs ..	8	0
Number of true quantitative pairs that might, for scientific purposes, be represented by writing the symbols dark or light ..	5	16.

POINTS TO BE REMEMBERED IN THE FULL NOTATION OF VOWELS.

Number of simple characters ..	6	0
Number of distinctive positions in which the marks require to be placed ..	3	2
Rules for the placing of vowels ..	9	1
Aggregate of vowels ..	18	12
Aggregate of articulations ..	85	43
Comparative total of points to be remembered ..	103	55.

117. Vowels being implied in the "articulate skeleton" in Bell's system, and separate vowel marks being thus unnecessary, the comparative simplicity of Bell's over Pitman's shorthand is even greater than these numbers indicate. THE LATTER IS, TO THE LEARNER, AT LEAST TWICE AS DIFFICULT AS THE FORMER.

LESSONS IN ENGLISH.—No. XLIV.

By JOHN R. BEARD, D.D.

GENDER.

Words are said to undergo inflexion when they are capable of appearing in different forms according to variations in the sense. Inflexion, then, is the general term which denotes this capability. And "the inflexions" is a phrase used to signify the changes themselves which the words capable of inflexion undergo.

These remarks imply that some words are capable, and that other words are not capable of inflexion. *John* is a word capable of inflexion, for *John* may become *John's*. But *with* is a term which remains ever the same, and consequently is incapable of inflexion.

Inflexion (from the Latin *in*, upon, and *flecto*, I bend) is a word of Roman origin, signifying a bending, that is, a derivation, and so denotes the deviations or departures of words from their root-form or condition. In the Latin language inflexion is a marked feature, and involves many important changes. In English its prevalence is small. In general, the variations and inflexions of English grammar are somewhat indefinite, undetermined, and variable, wanting the prominence, the fixedness, and the sharp distinctions found in the Latin and the Greek. Some sort of remedy has been sought for in the application to English of the terms, the definitions, and even the laws of classical grammar. The effect has been to augment the trouble of the student, and to conceal or even destroy the natural simplicity of our vernacular tongue. Every language has facts and laws of its own. These it is the business of the philosophical grammarian to collect, systematise, and expound. The Latin grammar is one thing, the Saxon grammar is another, and the English is different from both. Let every language be

studied in its own elements; let every grammar be an exposition of the laws of the language which it professes to explain. In grammar let there not be, as there was at Babel, a confusion of tongues. The usages of one language may throw light upon another, but the laws of the Greek must not be thrust on the observance of the student of English. Every language resembles an independent commonwealth, and, as such, is and must be governed by its own laws, and owes obedience solely to one supreme authority—that is, the usages and customs of its best authors.

In order the more exactly and clearly to understand what inflexion is, study these examples:—

John	reads	a	book.
I	read	an	epistle.
We	read	John's	books.

I will now present these words to you arranged so as to show several of their inflexions,

John	reads	a	book	I
John's	read	an	books	we

In each of these five pairs of words there is, you see, a difference; thus, *John* becomes *John's*, *reads* becomes *read*, *a* becomes *an*, *book* becomes *books* and *I* becomes *we*. Here, then, are five classes of words, which, admitting of variations, are capable of inflexion; these classes are the noun proper, the noun common, the verb, the article, and the personal pronoun.

Nouns are affected by inflexion in gender, number, and case. I shall speak of gender in the first place.

Gender is a distinction of nouns in regard to sex. As there are two sexes, the male and the female, so properly there are but two genders, for gender is simply the grammatical term for that which in physiology is termed sex. Accordingly, the very term *gender*, as in what is called the third or neuter gender, signifies *neither*, so that *neuter gender* is properly the gender which is *neither* masculine nor feminine. Hence things without life being neither male nor female, are said to be in the neuter gender.

THE GENDERS KNOWN FROM THE SEXES.

Sex.	Male	Female	Without life	
Gender.	Masculine	Feminine	Neuter	
Compare together these words,				
	1	2	3	4
Masculine.	Man	Husband	Lord	Heir
Feminine.	Woman	Wife	Lady	Heiress

and you will not only see what gender means, but learn also how gender in English is denoted; in number one, the feminine is indicated by a change at the beginning of the word, for *man* is made into *woman*; in number four, the feminine is indicated by a change at the end of the word, for *heir* is made into *heiress*; while in number two, the feminine is indicated by a different word. By a different word also is the feminine in number three indicated in appearance;—but in appearance only, for *lady* (Anglo-Saxon *læfdia*, old Scotch *leadi*) is merely the feminine form of the Anglo-Saxon word *hiald*, which is our *lord*, signifying master or proprietor.

Gender is marked in various ways. The primitive way of denoting difference of sex is probably the employment of one word for the male and another for the female; this usage seems most in conformity with the simplicity which is an essential characteristic of the English language, e. g.:—

I. SEX SIGNIFIED BY DIFFERENT TERMS.

Masculine.	Feminine.	Masculine.	Feminine.
Bachelor	maid (maiden, spinster)	Gentleman	lady
Boy	girl	Hart (buck)	doe
Bridegroom	bride	Horse (stallion)	mare
Brother	sister	Husband	wife
Buck	doe	Monk	nun
Bull	cow	Milker	spawner
Bullcock (steer)	heifer	Ox	cow
Cook	hen	Ram	ewe
Coit	illy	Sir	madam
Dog	bitch	Sire	dam
Drake	duck	Son	daughter
Droon	bee	Stag	hind
Earl	countess	Steer	heifer
Father	mother	Uncle	aunt
Friar	nun	Wether	sheep

[illegible]

— *Drumstick*.

Exercise 1.—Char How many more p
In this example, r
But subtraction is d
pression 5a — 3a pears
pears; which is the s

Exercise 2.—A ge
but he is in debt £300
Here r

58. Let us now att
rations are performe
account with your

der menschliche Körper.

60. Hence universally algebraic expression is negative quantity; and

ANSWERS TO THE EXERCISES

ANSWERS TO EXERCISES FOR PRACTICE.

ANSWERS TO EXERCISES FOR PRACTICE.

ANSWERS TO ADDITIONAL EXERCISES.

SUBTRACTION.

Here we have $14,500 - 1800 = 12,700$. Ans. 3.

60. Hence universally, taking away a positive quantity from an algebraic expression is the same in effect as adding an equal negative quantity; and taking away a negative quantity is the same as adding an equal positive one.

65. From $xy + d$, take $7ad - xy + d + hm$. Here, $xy + d - (7ad - xy + d + hm) = -7ad + 2xy - hm$. Answer, $-7ad + 2xy - hm$.
 66. On the other hand, when a number of quantities are to be introduced within the marks of parenthesis, with immediately preceding it, their signs must be changed. Thus, $-m + b - d + 3h = -(m - b + d - 3h)$.

EXAMPLES FOR PRACTICE.

67. From $6ab + 7xy + 18z$, take $3xy + 4ab + 8z$.
 68. From $35ar - 21ab - 37m$, take $-30a - 15ab - 10m$.
 69. From $9xy + 19z + 22b$, take $12xy + 31b + 50b$.
 70. From $8xy - 10ab + 6z$, take $-12ab + 10d + 24xy$.
 71. From $7a + 6z + d + xys$, take $3x - 4z - 3d - 17xy$.
 72. From $18bc - xy + 22gh$, take $41xy - gh + bc$.
 73. From $21ax + y + az$, take $4x - bc + x - yz - de$.
 74. From $21x + 40xy - 13a$, take $42 + 10ab - 5bc$.
 75. From $5xy$, take $2ab + 30at + a - 4ab$.

69. From $6a + 9b$, take $2a + 4b$. Here, Change the signs of the subtrahend but not those of the minuend thus: $6a + 9b - 2a - 4b$. Next reduce these terms, by Art. 53, and you have the answer $4a + 5b$.

EXAMPLES.

1. From $6a + 9b$, take $2a + 4b$. Here, Change the signs of the subtrahend but not those of the minuend thus: $6a + 9b - 2a - 4b$. Next reduce these terms, by Art. 53, and you have the answer $4a + 5b$.

2. From $16b$, take $12b$. Answer, $4b$.

3. From $11a$, take 10 . Answer, 1 .

4. From 23 , take 12 . Answer, 11 .

5. From $16b$, take 10 . Answer, $6b$.

6. From $14d$, take $6d$. Answer, $8d$.

7. From $16b$, take 10 . Answer, $6b$.

8. From $14d$, take $6d$. Answer, $8d$.

9. From $16b$, take 10 . Answer, $6b$.

10. From $14d$, take $6d$. Answer, $8d$.

11. From $16b$, take 10 . Answer, $6b$.

12. From $14d$, take $6d$. Answer, $8d$.

13. From $16b$, take 10 . Answer, $6b$.

14. From $14d$, take $6d$. Answer, $8d$.

15. From $16b$, take 10 . Answer, $6b$.

16. From $14d$, take $6d$. Answer, $8d$.

17. From $16b$, take 10 . Answer, $6b$.

18. From $14d$, take $6d$. Answer, $8d$.

19. From $16b$, take 10 . Answer, $6b$.

20. From $14d$, take $6d$. Answer, $8d$.

21. From $16b$, take 10 . Answer, $6b$.

22. From $14d$, take $6d$. Answer, $8d$.

23. From $16b$, take 10 . Answer, $6b$.

24. From $14d$, take $6d$. Answer, $8d$.

25. From $16b$, take 10 . Answer, $6b$.

26. From $14d$, take $6d$. Answer, $8d$.

27. From $16b$, take 10 . Answer, $6b$.

28. From $14d$, take $6d$. Answer, $8d$.

29. From $16b$, take 10 . Answer, $6b$.

30. From $14d$, take $6d$. Answer, $8d$.

31. From $16b$, take 10 . Answer, $6b$.

32. From $14d$, take $6d$. Answer, $8d$.

65. From $xy + d$, take $7ad - xy + d + hm$. Here, $xy + d - (7ad - xy + d + hm) = -7ad + 2xy - hm$. Answer, $-7ad + 2xy - hm$.

66. On the other hand, when a number of quantities are to be introduced within the marks of parenthesis, with immediately preceding it, their signs must be changed. Thus, $-m + b - d + 3h = -(m - b + d - 3h)$.

EXAMPLES FOR PRACTICE.

1. From $6ab + 7xy + 18z$, take $3xy + 4ab + 8z$.

2. From $35ar - 21ab - 37m$, take $-30a - 15ab - 10m$.

3. From $9xy + 19z + 22b$, take $12xy + 31b + 50b$.

4. From $8xy - 10ab + 6z$, take $-12ab + 10d + 24xy$.

5. From $7a + 6z + d + xys$, take $3x - 4z - 3d - 17xy$.

6. From $18bc - xy + 22gh$, take $41xy - gh + bc$.

7. From $21ax + y + az$, take $4x - bc + x - yz - de$.

8. From $21x + 40xy - 13a$, take $42 + 10ab - 5bc$.

9. From $5xy$, take $2ab + 30at + a - 4ab$.

10. From $5ax + 18xy$, take $4ax - xy + 3ax + 4xy$.

11. From $a + b$, take $(c + d - f + g - h - xy)$.

12. From $7ab + 18xy - 7ad$, take $(6ab - 12xy + ad)$.

13. Introduces the following quantities within a parenthesis with immediately preceding, without altering their value; viz. $-a + b - c - d + f + gh$.

14. Also, $ab - cd + ef - x - y + gh - bc + xyz$.

15. From $4xx + 3bb$, take $3xx + 1bb$.

16. From $20yy - 2y + 12ax$, take $15yy - 2y - 12ax$.

17. From $-8(a + b) + 10(x + y)$, take $2(a + b) - 6(x + y)$.

18. From $4(x + y) - 10(x - y)$, take $17(x + y) - 36(x - y)$.

19. From $2a - ca + ba$, take $a - 4a - 6ba$.

20. From $xx + 3x - xxx$, take $2x + 3xx + 10xxx$.

21. From $18 - 25d + 20x + 3y$, take $3x + 3y - 25d + 1$.

22. From $6(x - y) - 17(x + y)$, take $3(a + y) - 7(a - y)$.

23. From $ax - xy - my - 6$, take $6ax - 6xy - 6y + 46 - 7d$.

24. From $66a - 4b$, take $20a - 30a - 16b - 3b + 5a$.

ADDITIONAL EXERCISES.

1. From $6x^2 - a^2$, take $2x^2 - 7a^2$.

2. From $x^2 + 4xy + 6x^2y + 4xy^2 + y^2$, take $x^2 - 4xy + 6x^2y^2 - 4xy^2 + y^2$.

3. From $4a^2 - 8a^2 + 16a^2$, take $3a^2 - 4a^2 + 5a^2$.

4. From $a + b + c$, take $-a + b + c$.

5. From $4a^2 - 5b^2 + ax^2 - 2x^2$, take $2a^2 - 4a^2 - ax^2 - x^2$.

6. Take $a^2 - 3x^2 + 3x - 1$ from $x^2 + 3a^2 + 3x + 1$.

7. From $ax^2 + by^2$, take $ax^2 - by^2$.

LESSONS IN FRENCH—No. LVII.

By Professor LOUIS FARQUHAR, LL.D.

§ 49.—REMARKS ON THE PRONUNCIATION OF SOME VERBS OF THE FIRST CONJUGATION.

(1.) In verbs ending in *ger*, in order to retain the soft pronunciation of the *g*, the *e* of the infinitive is preserved, when over the *y* would come before *a*, or *o* :—

Nous mangeons, we eat; instead of nous mangons;
 Je mangeai, I ate; instead of je mangai;
 J'engrai, I engined; instead of je engrai.

(2.) In verbs ending in *ger*, the *y* is changed into *i*, before *a*, *o*, *u*, and *e* (not accented), followed by *r*, and one or more vowels :—

Je paie, I pay; instead of je paye;
 Il paie, he pays; instead of il paye;
 Ils paient, they pay; instead of ils payent.

(3.) In verbs terminating in *er*, *t* in order to preserve its soft pronunciation, a cedilla (*ç*) is put under the *c* when it comes before *a* or *o* :—

† This rule applies also to *c* and *x* in verbs of the third conjugation, ending in *oir*, *Je reçois*, *I receive*; *J'aperçois*, *I perceive*.

Commengant, commencing; instead of commençant;
 Nous plaçons, we place; instead of nous plaçons.

(4.) In verbs ending in *er* and *eler*, the *t* or *l* of the infinitive is doubled; when it comes before *e*, *es*, *ent*, and *e* (not accented), followed by *r*, and one or more vowels :—

J'appelle, I call; instead of j'appèle;
 Je jeterai, I will throw; instead of je jeterai;
 J'appellerai, I will call; instead of j'appellerai.

(5.) The following verbs form exceptions to the last rule :—

Acheter, to buy; Découler, to uncover the throat;
 Bonifier, to torment; Litiqner, to tickle;
 Congeler, to congeal; Geler, to freeze;
 Coûter, to cost; Marquer, to mark;
 Coquetter, to coquet; Peler, to peel;
 Déceler, to detect; Suracheter, to pay dear for;
 Geler, to freeze.

In the above verbs, when the *t* or *l* comes before *e*, *es*, *ent*, or *e* (not accented) followed by *r* and one or more vowels, a grave accent (*`*) is put over the *e* which precedes the *t* or *l* :—

J'appèle, I peel; Je pèlerai, I will peel;
 J'achète, I buy; J'achèterai, I will buy.

(6.) A grave accent is also used in verbs ending in *er*, *er*, *er*, *er*, *er* :—

Je sème, I sow; Je mène, I lead;
 Je célèbre, I will celebrate; Il rigore, he will rig.

is changed into a grave one, when the consonant following the first *e* of these terminations comes before *e*, *es*, *ent*, and *e* (not accented) followed by *r* and one or more vowels :—

Je sème, I sow; Je mène, I lead;
 Je célèbre, I will celebrate; Il rigore, he will rig.

(7.) In the tables of peculiar, irregular, defective, and impersonal verbs, we will place a model verb of each class embraced in the preceding remarks, and also include in the same table the names of the principal verbs coming under these remarks, with references to the models.

§ 50.—REGULAR VERBS.—CONTINUED.

SECOND CONJUGATION.—ENDING IN *IR*.

MODEL VERB.

FINIR, TO FINISH.

INDICATIVE MODE.

SIMPLE TENSES. COMPOUND TENSES.

PRESENT. PAST INDEFINITE.

Je finis,	I finish	J'ai fini,	I have finished
Tu finis,	thou finishest	Tu as fini,	thou hast finished
Il finit,	he finishes	Il a fini,	he has finished
On finit,	one finishes	On a fini,	one has finished
Nous finissons,	we finish	Nous avons fini,	we have finished
Vous finissez,	you finish	Vous avez fini,	you have finished
Ils finissent,	they finish	Ils ont fini,	they have finished

IMPERFECT.

Je finissais,	I was finishing, or used to finish	J'avais fini,	I had finished
Tu finissais,	thou wast finishing	Tu avais fini,	thou hadst finished
Il finissait,	he was finishing	Il avait fini,	he had finished
On finissait,	one was finishing	On avait fini,	one had finished
Nous finissions,	we were finishing	Nous avions fini,	we had finished
Vous finissiez,	you were finishing	Vous aviez fini,	you had finished
Ils finissaient,	they were finishing	Ils avaient fini,	they had finished

PAST DEFINITE.

Je finis,	I finished, did finish	J'eus fini,	I had finished
Tu finis,	thou didst finish	Tu eus fini,	thou hadst finished
Il finit,	he finished	Il eut fini,	he had finished
On finit,	one did finish	On eut fini,	one had finished
Nous finîmes,	we finished	Nous eûmes fini,	we had finished
Vous finîtes,	you finished	Vous eûtes fini,	you had finished
Ils finirent,	they finished	Ils eurent fini,	they had finished

FUTURE.

Je finirai,	I shall finish	J'aurai fini,	I shall have finished
Tu finiras,	thou wilt finish	Tu auras fini,	thou wilt have finished
Il finira,	he will finish	Il aura fini,	he will have finished
On finira,	one will finish	On aura fini,	one will have finished
Nous finirons,	we shall finish	Nous aurons fini,	we shall have finished
Vous finirez,	you will finish	Vous aurez fini,	you will have finished
Ils finiront,	they will finish	Ils auront fini,	they will have finished

CONDITIONAL MODE.

PRESENT.

PAST.

Je finirais,	I would finish	J'aurais fini,	I should have finished
Tu finirais,	thou shouldst finish	Tu aurais fini,	thou shouldst have finished
Il finirait,	he would finish	Il aurait fini,	he should have finished
On finirait,	one might finish	On aurait fini,	one should have finished
Nous finirions,	we would finish	Nous aurions fini,	we should have finished
Vous finiriez,	you might finish	Vous auriez fini,	you should have finished
Ils finiraient,	they should finish	Ils auraient fini,	they should have finished

IMPERATIVE MODE.

Finis,	finish thou	J'aurais fini,	I should have finished
Qu'il finisse,	let him finish	Tu aurais fini,	thou shouldst have finished
Qu'on finisse,	let us finish	Il aurait fini,	he should have finished
Finissons,	let us finish	On aurait fini,	one should have finished
Finissez,	finish ye or you	Nous aurions fini,	we should have finished
Qu'ils finissent,	let them finish	Vous auriez fini,	you should have finished

SUBJUNCTIVE MODE.

PRESENT.

PAST.

Que je finisse,	that I may finish	Que j'aie fini,	that I may have finished
Que tu finisses,	that thou mayest finish	Que tu aies fini,	that thou mayest have finished
Qu'il finisse,	that he may finish	Qu'il ait fini,	that he may have finished
Qu'on finisse,	that one may finish	Qu'on ait fini,	that one may have finished
Que nous finissions,	that we may finish	Que nous ayons fini,	that we may have finished
Que vous finissiez,	that you may finish	Que vous ayez fini,	that you may have finished
Qu'ils finissent,	that they may finish	Qu'ils aient fini,	that they may have finished

IMPERFECT.

PLUPERFECT.

Que je finisse,	that I might finish	Que j'eusse fini,	that I might have finished
Que tu finisses,	that thou mightest finish	Que tu eusses fini,	that thou mightest have finished
Qu'il finisse,	that he might finish	Qu'il eût fini,	that he might have finished
Qu'on finisse,	that one might finish	Qu'on eût fini,	that one might have finished
Que nous finissions,	that we might finish	Que nous eussions fini,	that we might have finished
Que vous finissiez,	that you might finish	Que vous eussiez fini,	that you might have finished
Qu'ils finissent,	that they might finish	Qu'ils eussent fini,	that they might have finished

SIMPLE TENSES.

COMPOUND TENSES.

PRESENT.

PAST.

Finir,	to finish	Avoir fini,	to have finished
Finissant,	finishing	Ayant fini,	having finished
Finissant,	finishing	Finissant,	finishing

PARTICIPLE.

COMPOUND.

PRESENT.

PAST OR PASSIVE.

Finissant,	finishing	Ayant fini,	having finished
Finissant,	finishing	Finissant,	finishing

§ 51.—REGULAR VERBS.—CONTINUED.

THIRD CONJUGATION.—ENDING IN *OIR*.

MODEL VERB.

RECEVOIR, TO RECEIVE.

INDICATIVE MODE.

PRESENT. PAST INDEFINITE.

Je reçois,	I receive	J'ai reçu,	I have received
Tu reçois,	thou receivest	Tu as reçu,	thou hast received
Il reçoit,	he receives	Il a reçu,	he has received
On reçoit,	one receives	On a reçu,	one has received
Nous recevons,	we receive	Nous avons reçu,	we have received
Vous recevez,	you receive	Vous avez reçu,	you have received
Ils reçoivent,	they receive	Ils ont reçu,	they have received

IMPERFECT.

Je recevais,	I was receiving, or I used to receive	J'avais reçu,	I had received
Tu recevais,	thou wast receiving	Tu avais reçu,	thou hadst received
Il recevait,	he was receiving	Il avait reçu,	he had received
On recevait,	one was receiving	On avait reçu,	one had received
Nous recevions,	we were receiving	Nous avions reçu,	we had received
Vous receviez,	you were receiving	Vous aviez reçu,	you had received
Ils recevaient,	they were receiving	Ils avaient reçu,	they had received

PAST DEFINITE.

Nous finirons,	<i>we shall finish</i>	Nous aurons fini, <i>we shall have</i>	<i>fini</i>
Vous finirez,	<i>you will finish</i>	Vous aurez fini, <i>you will have</i>	
Ils finiront,	<i>they will finish</i>	Ils auront fini, <i>they shall have</i>	

SIMPLE TENSES.

FUTURE.

Je recevrai,	I shall receive	J'aurai reçu,	I shall have
Tu recevras,	Thou wilt receive	Tu auras reçu,	Thou wilt have
Il recevra,	He shall receive	Il aura reçu,	He will have
On recevra,	One will receive	On aura reçu,	One will have
Nous recevrons,	We shall receive	Nous aurons reçu,	We shall have
Vous recevrez,	You will receive	Vous aurez reçu,	You will have
Ils recevront,	They will receive	Ils auront reçu,	They shall have

CONDITIONAL MODE.

Je recevrais,	I should receive	J'aurais reçu,	I should have
Tu recevrais,	Thou wouldst receive	Tu aurais reçu,	Thou wouldst have
Il recevrait,	He should receive	Il aurait reçu,	He might have
On recevrait,	One might receive	On aurait reçu,	One might have
Nous recevriions,	We should receive	Nous aurions reçu,	We should have
Vous recevriez,	You might receive	Vous auriez reçu,	You might have
Ils recevraient,	They should receive	Ils auraient reçu,	They should have

IMPERATIVE MODE.

Reçois,	receive thou	reçois-tu,	receive thou
Qu'il reçoive,	let him receive	Qu'il reçoive,	let him receive
Recevois,	let one receive	Recevois,	let one receive
Recevez,	receive ye or you	Recevez,	receive ye or you
Qu'ils reçoivent,	let them receive	Qu'ils reçoivent,	let them receive

SUBJUNCTIVE MODE.

PRESENT.	PAST.
Que je reçoive,	That I may receive
Que tu reçoives,	That thou mayest receive
Qu'il reçoive,	That he may receive
Qu'on reçoive,	That one may receive
Que nous recevions,	That we may receive
Que vous receviez,	That you may receive
Qu'ils reçoivent,	That they may receive

IMPERFECT.

Que je reçusse,	That I might receive
Que tu reçusses,	That thou mightest receive
Qu'il reçût,	That he might receive
Qu'on reçût,	That one might receive
Que nous reçussions,	That we might receive
Que vous reçussiez,	That you might receive
Qu'ils reçussent,	That they might receive

INFINITIVE MODE.

SIMPLE TENSES.

PRESENT.

Recevoir,	to receive
-----------	------------

COMPOUND TENSES.

Avoir reçu,	to have received
-------------	------------------

PARTICIPLE.

PRESENT.

Recevant,	receiving
-----------	-----------

COMPOUND.

Ayant reçu,	having received
-------------	-----------------

PAST OR PASSIVE.

Reçu,	received
-------	----------

§ 52.—REMARKS.

(1.) In the verbs of this conjugation, ending with *revere*, in order to preserve its soft pronunciation, a cedilla (*ç*) is put under the *s*, when it comes before *a, o, u* :—

Je reçois,	Freece;	J'aperçois,	I perceive.
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(2.) There are only seven verbs in this conjugation. They are:—

Appercevoir,	to perceive;	Percevoir,	to collect duties, taxes;
Concevoir,	to conceive;	Recevoir,	to receive;
Décevoir,	to deceive;	Relever,	to raise again.
Décevoir,	to deceive;		

A KEY TO THE EXERCISES IN THE LATIN LESSONS.

(Continued from page 86, Vol. II.)

By JOHN R. BRANT, D.D.

Page 140, col. 2, vol. II.—LATIN-ENGLISH.

In all matters, before you approach them, deliberation is necessary; but when you have deliberated, approach the thing itself speedily; Socrates, on the last day of his life, discoursed many things concerning immortality; the fight having begun (hands [manibus] having been joined), our soldiers excelled in bravery; the mind sets in motion that body over which it has been placed; Xeno placed a happy life (*beatam vitam*) in virtue alone; nature has produced in man a desire to arrive at truth; a love of themselves has been produced by nature in all animals; Alexander, the conqueror of so many kings and peoples, became a slave to anger; I hope that you will always apply yourself to letters with the greatest zeal; men endowed with the greatest intellects, regarded the sanctity of tombs; (there) clung to their minds (an idea) that death is not annihilation blotting out all things, but, as it were, a certain migration of life; death among excellent men and women is the guide to heaven; men endowed with the greatest intellects would not have regarded the sanctity of tombs with so much solicitude, unless (the idea) had clung to their minds that death is not annihilation blotting out all things, but, as it were, a certain migration and change of life; which, among excellent men and women, is wont to be the guide to heaven; if your intellect has been cultivated by arts and letters (literis), you will be useful both to yourself and others; the leader, in order that the soldiers might not lose courage, concealed the wounds inflicted on himself; who believes that any fault remains hidden from God? the coverings (tegumenta) of the body are either woven or sewed; who has woven that beautiful garment? thy speech seized our attention; Socrates asks (querit), whence we got our minds, if there was no mind in the world? the city, taken by the enemies, has been plundered; Scipio fought with Hannibal, who was born almost in the tent of his father, a most valiant leader, and was brought up and educated among weapons; with whom does not that state place, where he was brought up and taught, carry with pleasing recollection in the mind? the husbandmen (agricolae) have already not only mowed the wheat, but have even collected it, after being cut down, into barns; Hector himself trembled in his whole breast, when Ajax, with much gaiety, came forward to fight out the quarrel with him.

Page 140, col. 2, vol. II.—ENGLISH-LATIN.

Consulatus patrum consul tuis liberis; ubi bene consulerint rem aggrederentur; milites manus conserbant; quis militem in proelio excellit? Deus animum corpori praeposuit; a sapientibus vita in virtute posita est; felicitatem pono in Dei amore; esse tibi cupiditas verum invenendi? natura animis talea cupiditatem ingenuit omnibus; divitiis et pauperibus avaris sui ingentibus est; pietas tui fratri succubant, et, concertis manibus, pugnavant; studio in litteras incubant; pater meus sperat me in litteris studiis incubitum esse; multas conseruit arbores; haeret in hominibus mendibus nuptia non vitae firma esse; ingenium tuum artibus litterisque excolunt; ducis, ne rex animam demitteret, vulnera sibi inflata occulerunt; texant syntique; vestes textae et sutae sunt; unde animum arripimus? in Deo est origo animi; Deus omnium rerum est origo; urbs expugnabitur et diripietur; inter arma altus atque eductus es? ubi agricolae frumentum demoustrant? miles progreditur to oppugnatur; pater meus progreditur urbem obsessurum; copiae progressi sunt demoustrant; juravit se in proelio cito progressurum esse; urbs expugnata, hostes cives interfecerunt.

Page 141, col. 1, vol. II.

Applications of Cato.

- The steward has been appointed for the sake of tilling the land.
- Not all fields which are tilled are fruit-bearing.
- Inhabit the city. O my Rufus, and live in that light (distinguished place).
- The men who together with us inhabit these lands.
- Thou, Jupiter, who carest for and nourish the race of men. Let it be your object, to take care of your breast by noble means.
- Nothing more acceptable (gratius) ever happened to me than that you took care of my Italia most agreeably (suavissime) and most diligently.
- All things are full of Jupiter, he takes care of the lands.
- He cultivated the study of philosophy from early youth.
- He studied the liberal arts most diligently.

Now clearly I am able to pursue neither that diet nor that way of life.

- I love you, because you regard me.
- By whom we seem to be carefully regarded and esteemed.
- Which state my brother esteems and loves.
- Friends will not only esteem and love, but will even revere each other.
- You wish, O Sextus (Sexte), to be respected, I wished to love thee. However you must be obeyed, as you command you are respected. But if I respect you, O Sextus, I shall not love you.
- What is it you say why the gods should be worshipped by men, when the gods not only do not look upon men, but, indeed, care nothing about them? We ought both to adore and worship these gods.

Page 141, col. 2, vol. II.—LATIN-ENGLISH.

Regard for our body is implanted in us; where there is no sewing, there is no reaping; everything which was gross and corporeal, God made subject to the mind; you have put down the reproaches and hatred of ill-disposed persons by your way of living; the governor, Probus, planted the Golden mountain near Moesia with vines; the battle having begun, all places far and wide were strewn with weapons, armour, and dead bodies; the consciousness of despised virtue torments the wicked man; tell me, why you have despised my counsel; listen, my mother asks you why you have forgotten to eat the battered bread; he who has defied himself with foreign manners is displeasing; a word uttered opportunely decided the doubtful affair; fortitude (fortitudo) and beauty of personage are separated from health; Cato addressed the people; Cato denied that he would allow the Comitia to be held; the Cato did not allow wine to be at all brought into their country; why have you ceased to read that book? the power of the Thebans, as long as Epaminondas and Pelopides governed them, increased in a wonderful manner; our friendship grew with our age; we do not doubt that the river which has swollen suddenly is also about to subside suddenly.

Page 141, col. 2, vol. II.—ENGLISH-LATIN.

Institus est potestati liberorum nostorum amor; meum consilium approbant; consilium meum ab illis spreum est; spem natus consilium; mihi pater, butro oblige panem; panis meus, mater, butro abligas est; non te sequi decrevit; cito decernam quid faciam; se obliuisti mibi meritis; boni a malis secernendi sunt; quoniam secrevi a puella; a senibus iuvenes a secreti sunt; Cicerone conseruatur; consul demoustrat; Comitibus uere siturum esse; Victoria regnante, Britanniae potentia, mirum in modum crevit; amicitia nostra cum actate crescit; post laborem ubens animus quiescit.

Page 143, col. 1, vol. II.—LATIN-ENGLISH.

Many men, accustomed to constant and daily toil, when on account of the weather they are prevented from going out, are delighted by going to the country; Socrates was accustomed to pronounce at the top of his voice many verses in one breath; at the suggestion of the fathers (the fathers being the originators) the people took to themselves as king, Numa Pompilius, a foreigner; the Roman people observed with the greatest sanctity the sacred rites of Ceres, adopted from the Greeks; when my mind has rested a little while from business, I will hasten to thee, in whose love and sweetness I hope to find repose and to lay down all my cares and griefs; if you are well acquainted with the character of my friends, I trust you will perceive his innocence and will pardon him; hearts impelled by hunger often return to that place where they have once been fed; take care lest you take the unknown for the known, and assent to it rashly; what is so futile as to approve of anything which has not been examined; the Roman nation grew to such a size that it was overthrown by its own strength; what is so pleasant to read and to hear as an oration adorned with wise and mighty words; the shorter a narration, the clearer and easier to be understood is it; Cato as long as he lived grew in his reputation for virtue; when the nature of all things is known, we shall be freed from superstition (the nature of all things being known, we are freed from superstition).

Page 158, col. 1, vol. II.—ENGLISH-LATIN.

Quoad vitam me colere Deum assuefaciam; nihil est tam futile quam incognita pro cognitis habere; pastri boves ad eum locum ubi pasci consuevit sunt revertuntur; Anglia ad maximum magnitudinem crevit, crescitque ad maiorem; quam iacundum metu levavi! de futuris scisco; ignoscere filii tui peccatis; hanc scio an auius hominis obtrectationibus ignoscere possim; animus meus in filio meae venustate et suavitae conquevit conquevitque; me auctor, frater tuis officiis deponit; luxuriam contemnere labore assidue assuesco; approbat quid dixisti; putasne illum mea facta approbatum esse? animus meus paululum requievit, nunc ad labores revertar.

Page 158, col. 1, vol. II.—LATIN-ENGLISH.

Men when they have obtained the things which they eagerly desired, often disdain them; did you hear that the horse reared? let the war be so begun that nothing else save peace may seem sought after; when in memory you have traced back all antiquity, you will sorely find three pairs of friends who were ready to lay down their life for one another; take care you do not decide concerning the matter before you have carefully searched it out; the daughters of Brechtius eagerly desired death for the life of the citizens; the whole philosophy of the Romans is borrowed from the Greeks; Socrates spent his whole life and years in amending the morals of others; the precepts of virtue, although they are late and common, yet are observed by few; it is known that Hannibal in the second Punic war wore down the resources of Italy; that important man has given me much trouble; I do not doubt that trouble has been caused to the citizens by the new law; if the soldiers had not hastily left the city and taken to flight, the citizens would have fallen upon them with their weapons; scarcely had the enemies challenged our soldiers to the fight, when they took to their arms and fell upon them; we read that the Romans often sent for their consuls from the plough; the Romans piously observed many sacred rites brought and adopted from foreign Nations.

Page 158, col. 2, vol. II.—ENGLISH-LATIN.

Quis nescit Hannibalem Romanorum aliquando opes attrivisse? bene multa nunquam petunt; id quod adipiscar fastidium nunquam; putasne te, pecunia agguisti? non enim fastidium est; edere ne continentias aut fastidias aliquam; accessu duces ab aratro, ne facesset illi homini bono negotium; multi discipuli praepceptis optimis vocatum facessant; in bello pascam patimus; in bello pax a nobis petitur; liberi mei cupido mortem eripuerunt pro vita mea; constat nostros cives in hostem incessanter esse.

Page 159, col. 1, vol. II.—LATIN-ENGLISH.

Let us be disposed towards our friends in the same manner as they are towards us; completed labours are pleasant; virtue alone is in its own power; all things except it are subject to the rule of fortune; one day spent well and according to the precepts of philosophy is to be preferred to a sinful immortality; the consciousness of a well spent life, and the remembrance of many good deeds, are most agreeable; the desires (appetitus) are by a law of nature subject to reason; Xerxes was urged more by the wisdom of the Thémistocles, than by the arms of Greece; how much do eighty years spent in indolence delight a man? take care you do not be deceived that a happy man has a long life; long life is not a desire; what is so outrageous as the empty sorrow? are the most elegant words, when there is no idea involved? if fortune has taken away money from any one, yet, while his reputation is sound, credit easily alleviates his want; the soldiers, having seized their weapons, made an attack upon the enemies, but these hastily took to flight; the enemies having broken the treaty which they had but just made, rushed suddenly into our camp; if any philosopher has done wrong in his course of life, he is so much the more base, because he professes the art of living; Plinius read no book from which he did not make extracts; the citizens subdued by the enemies, having every hope of recovering their liberty removed, passed a wretched life; the soldiers broke through and scattered the enemies' line; the treaties which were made have been broken by the enemies.

Page 159, col. 1, vol. II.—ENGLISH-LATIN.

Fœdus letum milites vestri rumprunt; hostes perfringuntne aciem pascram? hostes nunquam copias nostras disiciunt; improbi miseram vitam transigunt; putasne improbos vitam miseram transigunt? rex omnem pacis recuperandae spem ademit; exerce illam horum; milites nostri, capitis armis, impetum facient in hostes; eodem modo erga senes affici volo, quo erga iuvenes; religio sola in sua potestate est; Deo iuvante, quicquid placet sibi ex facere potest.

Le meilleur des hommes est celui qui fait du bien aux hommes. Ce qu'est le salut pour l'autre vie, l'honneur l'est pour celle-ci: il est la ressource du sage dans les disgrâces qui lui arrivent.—Duclos.

Quelque honte que nous ayons méritée, il est presque toujours en notre pouvoir de rétablir notre réputation.—La Rochefoucauld.

Il y a une espèce de honte d'être heureux à la vue de certaines misères.—La Bruyère.

Les hommes sont faits comme les oiseaux, qui se laissent toujours prendre dans les mêmes filets, où l'on a déjà pris cent mille oiseaux de leur espèce. Il n'y a personne qui n'entre tout neuf dans la vie, et les sottises des pères sont perdues pour les enfants.—Fagel.

ANSWERS TO CORRESPONDENTS.

JUVENIS (Bradford): In the Latin-English part, *Audire*, s. a *hearer*, or, *one who hears*; take either of these meanings, both are equally good, if you are translating Latin into English. In the Latin-English part, *Audire*, s. *auditor*, *audient*, or *one who hears*; take either of these meanings, both are equally good, if you are translating English into Latin. **AN AMERICAN:** In the sentence "Comme il y a les personnes qui ne savent lire sans faire des applications des caractères vietnams ou des lettres vietnams dans les ouvrages, &c.," the word *vietnams* with the words *les personnes* to which it refers, is gender and number. **ADDISON:** wrote in the "Spectator," the "Teller," &c., and signed himself *Clio*. **QUINTUS PRINGLES (Glasgow):** His editions are received, and will be noticed in the Lectures on Euclid. **S. J. B. (Lond):** The exercises in the German, as well as in the French, have a mutual connexion, which will be easily discovered by first translating the German exercises into English, and the English exercises that immediately follow them into German; thus they are made to correspond to each other. **GEORGE PARRER (Belief):** informs R. C. that Orange is the name of a Protestant Society in Ireland, so called from William, Prince of Orange. More information than this would lead us into party politics, which we eschew.

J. G. (Drechin): We cannot really alter our course of instruction or go out of our way to please a single individual. Optics will have their turn. **Y. X. (Taam):** We should be glad to insert the places of the ascending nodes of the asteroid Planets, but how are we to get them? They are only partially known, and not usually published yet in Almanacs. **JOHN WEAVER (Relford):** His exercises in French are very passable for a first attempt; but they are rather too literal, that is, they are not sufficiently idiomatic to stand the test of criticism. **E. F. C. (Portsea):** We heartily sympathize with his views; but we must be cautious in introducing them without more consideration. There would be no objection to anything on the History, Nature, and Uses of the American White Cedar, "in this specimen of wood is recommended in the 'Requisite qualities of a Life Boat,' by the Northumberland Committee, 1st June, 1851."

F. J. R. (Longton): Book-keeping will appear after Phonetic Short-hand. **L. M. (Huddersfield):** We see announced in Longman's list "A Treatise on Electricity in Theory and Practice," by Augustus De La Rive, Professor in the Academy of Geneva," to be completed in 2 vols. with engravings. Vol. I. 8vo., price 18s. A Treatise states that all the works of the Department of Practical Art are published by Chapman and Hall. He wishes to know of some one who would teach him Latin by means of the P. R. A. S. exercises (Pentenville). His suggestion shall be attended to. **M. H. B. (See the P. R. A. S. list, p. 337, col. 1, line 22 from bottom, and col. 2, line 11 from top; also p. 371, col. 1, line 12 from top, and line 17 and 18 from bottom.)** **J. T. K. (Waltham Abbey):** A French dictionary is preparing. **X. P. R. V.:** His ingenious solution of the *Arve fons* is received. **L. A. N.:** Dissociata videtur concordia pars figurit. (The exhibition) "has bound together in peace and concord, those whom place had separated." **Lectum** and **audire** are supines; the supine is often given instead of the passive participle; thus the principal parts of *audire* may stand either *audi, audire, audivi, audita*, or *audis, audire, audivi, audita*. What is called *Agreement* in English is merely a combination of the past participle and form from the Latin *esse*, locum, *esse*, plain. It is found in the French *être*, to *être*, that is, *être*; also in the French *avoir*, and our *have*, as well as in our word *to have* or *have*; the idea is that of carrying everything before you, laying waste, as in a foray or plundering expedition, in which objects, both men and things, are put to the fire and sword, or carried off as booty. In English we find the idea expressed in the verb *to conquer*, as "the troops conquered the whole district." *Hanza* was used specially by the French to describe the devastations of their ravaging expeditions in Africa.

J. A. K. (Reading): Book-keeping will be completed in two or three numbers after this one. **J. L. (Oxford):** The only way of gaining knowledge in your own mind is to try and impart it to others; remember the old adage, *docendo discit*, that is, *learn by teaching*. **JUVENIS (Southport):** Ancient History will be taken up when Geology is finished. Greek will commence when Latin is finished, which will be soon. The works of Arnold are well worthy of perusal. **W. J. (Rochdale):** He may send his copy of the *Educator* in any manner most agreeable to himself; we have important and valuable subjects before us for many volumes to come, but fencing and the sword exercise are among the last things we should touch upon; we hope that before our work is completed, the following prophecy shall have begun to be accomplished: "And they shall beat their swords into ploughshares, and their spears into pruning-hooks: nation shall not lift up sword against nation, neither shall they learn war any more." **A. G. (Dublin):** The New York Exhibition will open on the 2nd May next. **T. S. GARRER (Droghda):** If we did, we sent them to Mr. Curwen. **H. E. JONES (Cardiff):** Have patience, nature will put herself to rights. **J. DENNIS (Droghda):** It should be 83. **J. G. YATES (Bolton):** The sliding rules will be explained. **E. BROOKS (Newark):** Rules for the apostrophe will be given. See the advice given to *SANNE* (Newington), p. 136, col. 2, vol. II. **J. F. MORRAN (Clapham):** His solution of the Ex. on Prop. 6, is correct. **H. C. W.:** We do not know the law of the ecclesiastical courts; but we know the law of God; and it is this, that though a man should (wickedly) desert his wife for seven years or for any given number of years, she has no right to marry again, unless she has certain proof of his death. **J. EMBALL (Halifax):** His answer is wrong, and ours right. **G. SIMMONS (Low Torry):** must really study Euclid better; his last exercises won't do. **S. H. A.:** Avowing ourselves, as we do, to be peace members of society, we cannot admire the sentiment of his poetry on Wellington; neither can we approve of the unbridled license of a so-called poem in which the feet or the number of syllables vary through all the following series, at the pleasure or the whim of the author, viz. 4, 3, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18! Such poetry reminds us of Zachary Bray's metrical version of the Scriptures deposited in the University of Glasgow, of which the following is a specimen: "Pharaoh king of Egypt was a great rascal. For not allowing the children of Israel, with their flocks and their herds, and their little ones, to go into the wilderness, for to eat the Paschal."

LITERARY NOTICES.

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LESSONS IN DRAWING.—No. XI.

ON TREES, AND THEIR APPENDAGES

THE student should now be able to draw regular forms with the necessary precision; and if he has thus far trained his hand to obey his wishes, he may be considered as having completed a preparatory course, or the first division of the exercises which are to make him a draughtsman. In such circumstances, his hand will no longer wander in unsteady lines; and he should now know how to curb it, and when to give it liberty to move beyond the limits of symmetrical forms. So as to prevent that liberty from becoming license. But this is not advisable to carry to too great an extent the formal exercises which are necessary at the commencement; and it is usual for the student, at an early period of his course, to practice largely that free movement which is requisite in drawing trees, including under that term, stems, branches, foliage, and herbage. Of these we now proceed to give examples. Each kind of tree has its peculiarities in the character of stem, branches, and foliage (from folium, Lat. a leaf), and to each a peculiar touch is appropriate. These we shall explain farther on, but the essential point in drawing trees is that they shall be done with spirit, boldness, and freedom, combining also in the execution that discriminating touch which gives to each its character.

With a rather soft black-lead pencil, let the student now try to imitate such rude lines as these in fig. 95, dashing his hand up and down, and feeling the paper well with the pencil; in this exercise



Fig. 95.—Trunk of a tree.

any well executed drawing or print will do for a copy. He should not draw such exercises with the point of the pencil only; by leaning it a little to one side, he will get a broader and richer touch; and when used in this way, the pencil has almost always a point at some part, until the lead in it is worn down to the wood so much as to require cutting. A wiry touch looks hard and unpleasant; while a soft uncertain touch has a tendency to look smoky. These extremes are to be avoided by aiming at a clear, distinct medium touch, with as much variety as can be got out of the lead pencil; for this is the most useful, and certainly the most advisable instrument the student can employ, yielding as it does everything in drawing to the touch of a master.

In the study of trees, let us begin with the oak, fig. 96.

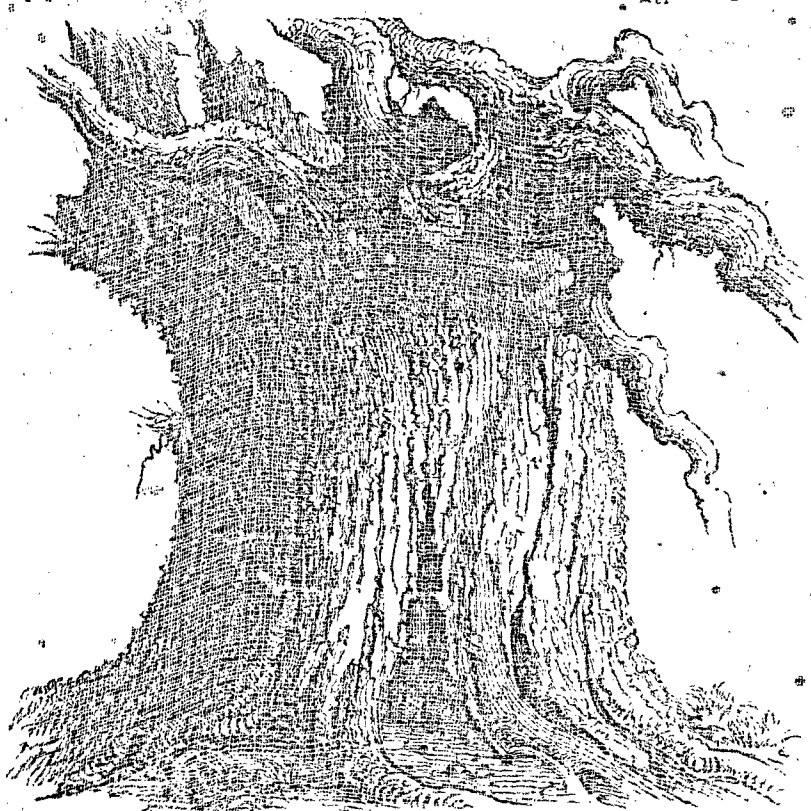


Fig. 96.—Trunk of the Oak.

The oak tree which is here presented to our students of drawing, should not be passed over without some botanical and historical notice, in order to relieve their studies. Of the oak, there is a very considerable number of species, according to some, amounting to one hundred and fifty. These are generally reduced to three classes, namely, the *Robur* or strong oak; the *Ilex* or evergreen oak; and the *Quercus* or deciduous oak. Of the common or British oak, which belongs to the first class, and of whose leaves and fruit we have already given a drawing at p. 283, vol. ii., we here present the trunk, in a state of very considerable decay, arising from its enormous old age. The timber of this oak is reckoned the most suitable for ship-building; and the "wooden walls of Old England," under the imaginary care of her guardian Britannia, whose "home is on the deep," can testify to its complete adaptation to the national purposes of commerce and of safety. This species of oak sometimes attains to an extraordinary size in more genial climes. It is said that there is a specimen of one in Normandy, whose interior having become hollow by decay, has been converted into a place of worship. The drawing of the trunk of an oak, in fig. 96, represents the commencement of this process of decay in the interior. From the earliest ages of the world has this "numeral of the woods" been accounted sacred for religious purposes. Its name in Hebrew, *Alon*, *Elah*, or *Alah*, signifies strength or might, and is evidently connected in its derivation with the name of God, that is, *El Elna*, *Alahim*, which properly means the mighty one, the Almighty, the Omnipotent. Thus, God in the strength of his people. In ancient times, when God visited his people by appearing to them in an angelic form, and with an audible voice, he appeared usually under an oak; hence, in order that he might be favoured by such visits, Abraham, the friend of God, dwelt by the oak of Moreh, or by the oak of Mamre in Hebrew. And not the pains of Mamre, as put in our common translation of the bible.

The name of the oak in Greek is *Dryas*, and this tree was held sacred to their imaginary god *Zeus*, or *Jupiter*, who was supposed to give his oracles from the oaks of Dodona in Epirus, as we gather from the *Odyssey* of Homer. Thus we see how the superstitious rites of the Greeks descended by tradition (which distorts everything sacred) from the ancient worship of the oak, a name of the Hebrew races. From the same origin come the notions of the nymphs or goddesses, called *Dryads*, or *Druides*; *Adruads* and *Hamadryads*, whose lives were supposed to be bound up with that of the oaks which they were said to inhabit. The false worship thus given to these imaginary divinities was grafted on the stock of those early nations, which, departing from the early worship of the true God, and from the early seat of the human race, overspread Europe, and filled it with superstition, war, and barbarism. Thus the Greeks, the Etruscans, the Germans, the Celts, and the Scandinavians, delighted in the rites and ceremonies of the old oak-worship, and veiled the homely truth of Hindubrae, when he says,

"Sometimes the pleasure is as great,
In being cheated, as to cheat."

The Celtic priests who officiated in this species of worship were called *Druids*, which title is evidently derived from the Greek name of the oak; and we know, from history, how prevalent this superstition was in Britain in ancient times, and how our ancestors were accustomed to indulge in its idolatrous rites. Many traces of this fact are to be found in various parts of the country, in circular clumps and groves of trees, and in circular erections of stones, and rude buildings of various kinds, allusion to which is not unaptly set forth in the following lines, from an old poem on the institution of the Order of the Garter, put into the mouth of the *Genius* of England:—

"There on this solemn day assembled round
The throne of British England: I, awhile,
Must here await th' approach of other spirits,
Sage Druids, Britain's old philosophers;
Fetched by my summons from the Western Isles,
That, scatter'd o'er the rough Hibernian flood,
Seem like huge fragments by the wild wave torn
From stormy Scotland, and the Cambric shore,
There from the world retired in sacred shades,
Coeval where Beant and Meinat wash'd the oaks

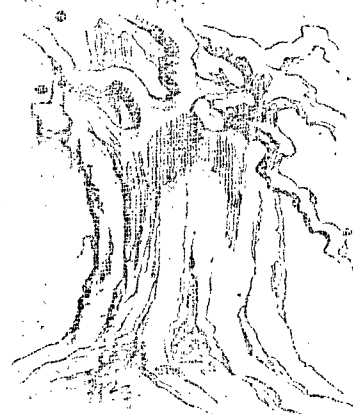
Of ancient Mona, their Academies
And schools of sage and moral discipline
They held; and to the neighbouring Britons bound,
Went their rever'd tribunals, holy mounts,
Dispers'd at once their oracles and laws.
Till fierce Pashana and his Roman bands,
Them and their gods d'ying, drove them thence
To seek for shelter in Hibernian shades.
Yet still enamour'd of their ancient haunts,
Dash'd of mortal eyes, they hover round
Their ruin'd altars, consecrated hills
Once gilt with spreading oaks, mystic fane
Of rude, enormous obelisks, that rise
Orb within orb, stupendous monuments
Of artless architecture, such as now
Of times amaze the wand'ring traveller,
By the pale moon discern'd on Scythia's plain."

The allusion, in the latter lines, to the Druidical remains at Stonehenge, on Salisbury plain. A Greek writer, speaking of the Druidical system of worship, says, "The glory or the image of the Celtic Jove is the lofty oak;" and it is remarkable, that in the Septuagint translation of the Scriptures, the oak of Moreh, where Abraham dwelt, is called by the same name, the lofty oak.

The Latin name of the oak, namely, *Robur*, also signifies strength, like the Hebrew name. Hence comes our English word, *robust*, meaning strong. The strength, beauty, and durability of this famous tree, have rendered it of the greatest use to man in buildings of every description, as well as in naval architecture. In the middle ages, it entered largely into the Gothic structures, and it was carved into every design under the sun. The much-admired roof of Westminster-hall is constructed of a species of oak. To the eye of the painter this tree forms one of his finest subjects; and, in proof of this, we have only to refer to the celebrated painting of Rubens, in the picture-gallery at Dresden: the "Boar Hunt in an Oak Forest."

In this example, fig. 96, which represents the lower part of the stem or trunk of an old oak, a rude, rough touch is desirable; and the smaller drawing of the same object (fig. 97,) shows the student what are the characteristic points—that is, those which he should determine in the first place.

Fig. 97.



Trunk of the Oak.

His drawings should be made at the least as large as the first of these figures, and he may make it larger if he pleases. The use of hot-pressed paper—which may be known by the high gloss it bears—such as the finest kinds of writing paper, is to be avoided. Paper with a grain in it, provided that it is not too coarse, is the most suitable for such drawings. Hot-pressed paper is indeed often recommended for pencil drawing; but it is only suited for drawings which require great delicacy and extreme finish.

Any student who possesses the advantage of having the natural tree before him, or who can easily attain this advantage, should study from nature, confining his attempts for a while to about as much of the trunk as we have given in the preceding examples.

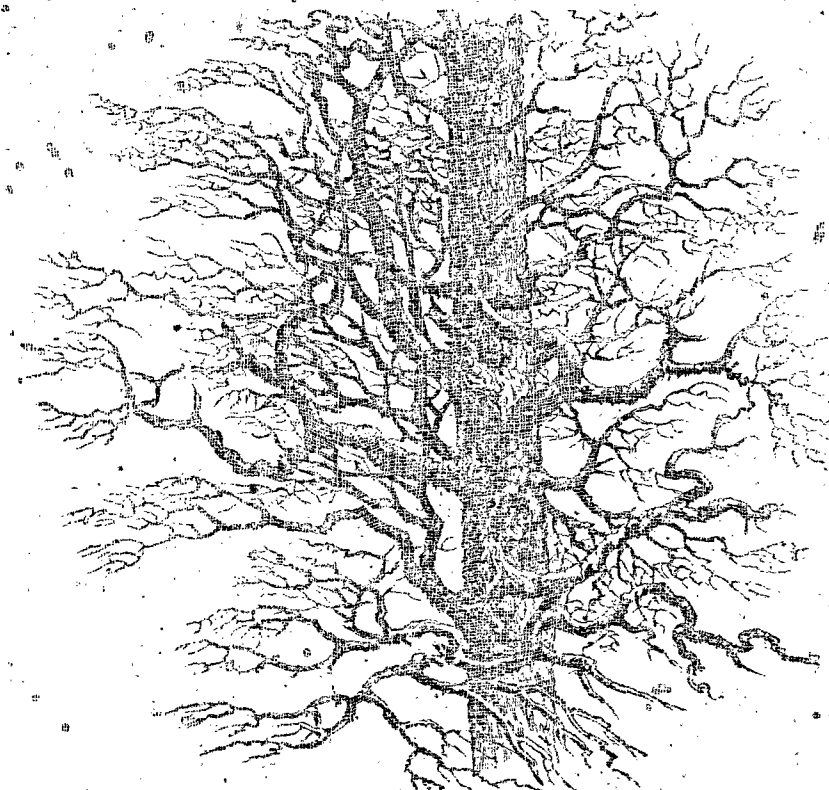


Fig. 98. - Ramification of the Oak.

In fig. 98, the student has an example of part of a very beautiful oak tree, which shows the nature of the ramification (from Latin, *ramus*, a branch, and *fecere*, to make) or manner in which the branches are made to issue from the stem; this is always an important characteristic in a tree. There is also one governing angle in the ramification of each kind of tree, extending from the largest arms to the smallest twigs and branches; and to this characteristic too much attention cannot be paid by the student who wishes accurately to represent natural objects.

In the oak this angle is nearly a right angle; and it is this circumstance which gives to the tree that peculiarly stubborn look, which is so characteristic of its nature.

In fig. 99, the



Fig. 99. - Angle of Ramification in the Oak.

student will distinctly see what he should aim at in the first instance; at A, B, C, he will observe marked examples of the peculiarity to which we have just adverted. When he has got his drawing put into this state, he may then proceed to add the smaller twigs. We have touched on this point before, but it will bear repetition, that he should never give attention to the smaller details, until he has secured the larger features of whatever subject he may take in hand. In drawing the angle of ramification, the student must remember that it is not exactly a right angle, but only nearly so; that is, it may be in some cases more than a right angle, and in others less than a right angle. He must not be too precise in this matter, otherwise his drawings will only resemble mathematical diagrams.

LESSONS IN ENGLISH.—No. XLVII.

By JOHN R. BEARD, D.D.

GENDER. (Continued.)

MANY words give no indication as to sex, and may be used indifferently, as the sex requires, of either males or females. Such nouns have been called of the common gender; the appellation may pass, provided the reader bear in mind that, strictly speaking, there are in English only two genders, the masculine and the feminine.

Nouns either Masculine or Feminine.

child	friend	servant
cousin	neighbour	slave
dancer	novice	sage
enemy	orphan	thief
favourite	painter	sovereign
flatterer	parent	artist
fool	philosopher	writer

With these nouns, the sex is made known by some accompanying word, e. g.,

He is my cousin.

She is my cousin.

My female cousins are dead.

My male cousins have married.

Child, or infant, is generally used in the neuter gender (except when you wish to mark the sex emphatically), until the person you speak of has grown to some degree of intelligence; thus, we say of a babe,—

What a pretty child, and it is so good!

but we do not say,—

What a bad child! it tells stories; or,

It is a good boy, it has mastered its Latin lessons.

There are some feminine nouns of which masculine counterparts do not exist, e. g.,

a blonde	a shrew
a brunette	a syren
a dowager	a vixen
a dressmaker	a termagant
a mantuamaker	a scold
a milliner	a vixen

Some titles are double feminine, e. g., the Queen Dowager, that is, the King's widow; the Dowager Duchess of Derby, that is, the Earl of Derby's widow.

Sex is sometimes attributed to inanimate objects. This attribution is very common in Latin, and other languages in which the ending of nouns is one means of determining the sex; thus, gladius, a sword, is of the masculine gender, because it ends in *us*. Sometimes sex may be ascribed to things without life, from a regard to the nature of the functions which such objects perform. Those which exert active functions may thus be spoken of as masculine; those which receive influences may thus be spoken of as feminine. In general, active and quickening energy is viewed as male, passive and producing power is viewed as female. But the rule is not of universal application. What is more active and quickening than the sun? In English, the sun is masculine, but in German the sun is feminine. With us, too, agreeably to the rule, the moon is feminine, but with the Germans, contrary to the rule, the moon is masculine.

Little more in this case can be done than to study and follow usage. As an aid, I subjoin instances of what, as the latitude is chiefly taken by poets, may be called the poetic gender:—

Poetic Gender.—Masculine.

Anger	Sleep	Tyranny	The Lion
Danger	The Sun	War	The Tiger
Death	Terror	Winter	The Leopard
Fear	Thunder	The Elephant	The Panther
Laughter	Time	The Horse	The Names of
Love	The Ocean	The Dog	Trees and Rivers

Poetic Gender.—Feminine.

Affection	Benevolence	Contemplation	Eternity	Fancy
Ambition	Charity	Darkness	Etna	Fate
Art	Chastity	Devotion	Experience	Flattery
Astronomy	Church	Discord	England	Folly
Autumn	Commerce	Earth	France	Fortune
Avarice	Compassion	Echo	Faith	Freedom
Beauty	Conscience	Envy	Fame	Habit

Happiness	London	Night	Pride	Spring
Heaven	Melancholy	Nature	Prose	Summer
Hope	Memory	Necessity	Reason	Tongue
Honor	Mind	Patience	Religion	Treason
Humility	Misfortune	Peace	Republic	Truth
Justice	The Moon	Pleasure	Science	Vice
Law	Morning	Plenty	Ship	Virtue
Liberty	Muse	Paris	Science	Vanity
Life	Musical	Poetry	Soul	Wisdom

Ship is of the feminine gender; yet a ship, intended for war-like purposes, is called a man-of-war; nevertheless, a man-of-war is spoken of as feminine.

The gender of Greek and Latin proper names, and the poetic gender of other classical nouns, must be learnt from classical authorities; thus *Venus*, the goddess of Beauty, is feminine, and *Oceanus*, the god of the sea, is masculine.

This poetic gender has its basis in what is called *prosopopœia*, or *personification*. These two words represent the same thing, the former indicating a direct address to an inanimate object as if it were animate, and the latter indicating the ascription to an inanimate object of personal qualities. *Prosopopœia*, called also *apostrophé*, does not, however, always convert the neuter into the masculine or feminine; in the engaging fine instance of *apostrophé*, *sword* retains its natural gender:—

"O thou sword of the Lord! how long will it be ere thou art quiet? Put thyself up into thy scabbard, rest, and be still! How can I be quiet, seeing that the Lord hath given it a charge against Askelon, and against the sea-shore?"—Jer. xlviii. 6.

Personification is a figure of larger comprehension than *apostrophé*, for, in general, it is to be recognised wherever things are spoken of, or spoken to, as if they were persons or animals. In English, the employment of personification is easy, inasmuch as you have only to use a masculine or feminine pronoun instead of a pronoun in the neuter gender: as,

"Haste! haste! Death lies in wait; he's at the door."

Being easy, this figure is apt to become common, and should be frugally, not to say sparingly, employed. *Personification* is the peg of young writers and young speakers, especially those who have aught of the poetic temperament.

I am now about to begin a series of exercises. These exercises are intended partly for parsing, and partly for practice in composition. One set of the examples will be complete; these may be considered as models;—in another set, the examples will be incomplete; these the student is to fill up according to the models, and according to the instructions in the several lessons. With these exercises I shall connect specimens of parsing, which, in his studies, the student should carefully meditate, making a point of parsing every sentence in every exercise. At first, the parsing can be only partial, for it cannot extend to points on which instruction has not been given; but, expounding as we proceed, the parsing lessons will as a whole comprehend everything involved in a grammatical acquaintance with the English language.

EXERCISES.—COMPLETE.

When the last trumpet sounds, then shall old father Ocean deliver up his dead. Love, the blind boy; never shall he enter the portals of this heart. The sun, with his vivifying rays, gives new light to the whole of sleeping nature. Time, with his balsam, heals all wounds. Stern winter comes tottering on, with his head covered with silvery snow. Art, like music, is very jealous of her votaries. O mother earth, when shall I again return to thy fond bosom! Dame Fortune showers her favours where least deserved. Necessity is the mother of invention. How sweet, how delightful is religion; she always comforts those who seek her aid. The Prince and the Princess of Wales are heirs to the crown of England. How many gods and goddesses have the Britons? Many millions for some of them worship tigers and tigresses, lions and lionesses. My father and mother, my uncle and aunt, together with my brothers, sisters, nephews, and nieces, are going to the Isle of Man for sea-bathing. There were earls and countesses, monks and nuns, in the procession. Is Mr. Smith at home? No, Sir, but Mrs. Smith is. Do you know my cousin? Yes, I know William Earnsworth. I mean my female cousin. O yes, she married my old college friend. As a class, authoresses are not the most gentle and lovable of their sex. My mother is in want of a chamber-maid and a man-cook. The voice of Xanthippe, the wife of Socrates, was very shrill, resembling that of a shrew rather than that of a sparrow. Poetry and painting are sister arts.

LESSONS IN LATIN.—No. LI.

By JOHN R. BEARD, D.D.

VERBS WHICH GOVERN THE DATIVE.

If we look at the cases according to their applications, we find that the nominative (Latin noun, *a nomen*) is that case in which the name or noun stands when it is uninflected, and when it is the subject of the verb. The nominative answers to the question *who?* or *what?* e. g.,

Veni dixit; Quis? Nemo.

Veni dixit (id) qui (said it)? Nemo.

The genitive (from *gignō*, *I beget*, *gignō*, *a stud*, or *care*), denotes the origin of a person or thing, e. g.,

Petrus filius est pauperis.

The father's daughter is fair.

and hence possession in all its varieties. The genitive answers to the question *whose?* e. g.,

Pater meus domus; cuius? patris.

It is the mother's house; whose? mother's.

The dative (from *do*, *I dare*, *datum*, *I give*) conveys the ideas implied in *to* and *for*, and so is the case of giving or receiving. The dative answers to the question *to* or *for* whom? e. g.,

Dedit equum militi; cui? militi.

A horse is given to a soldier; to whom? a soldier.

The accusative (ad and *causa*) is the case of that which is caused or affected,—more strictly, that which is affected, that is, affected by the verb; that which is the object of the verb's action. As denoting the object, this case is more significantly called in English the objective case. The accusative or objective case answers to the question *whom?* or *what?* e. g.,

Mat Robertum; quem? Robertum.

He went to Robert; whom? Robert.

The vocative (*voco*, *I call*) is the case of calling, that is, of invocation or direct address, e. g.,

Hic veni, domine.

Sir, come hither.

The ablative (*a* and *fero*, *fero*, *fully*, *to*) is the case of removing. As the dative denotes giving *to*, so the ablative denotes taking *from*. This seems to be the fundamental meaning of the ablative. Other significations, such as *by*, *with*, and *in*, are derivative. The ablative answers to the question *from* (or *by*) whom or what? e. g.,

Puer mortuus est a cane; a quo? a cane.

A boy has been bitten by a dog; by what? a dog.

The nominative and vocative are called the direct cases, the rest are called the indirect or oblique cases; when, then, you read of the oblique cases, you will know that by the words are meant all the cases except the nominative and the vocative.

The oblique cases in Latin are not exactly identical in meaning with the corresponding cases in English. The Latin genitive is of much wider application than the English possessive, and not seldom implies relations which are commonly expressed by *to* or *for*. The Latin ablative also embraces the varied significations of *from*, *by*, *through*, *in*, and *with*.

Although there exists this want of correspondence, yet is there so great a general agreement, that a knowledge of English usage in the relations of nouns to nouns, nouns to adjectives, and nouns to verbs, will afford material assistance to the student of Latin. In many cases the idioms of the two languages vary; nay, in Latin, verbs very like in meaning have different governments; thus the Latins said, *juvo te*, *opitulator tibi*, though both verbs signify *I help* or *assist*. These diversities show the necessity of studying and carefully imitating the Latin idioms; as well as warn the student not to blindly follow the analogy either of his own tongue or of the Latin itself.

Sometimes, however, a close inspection of the elements of a word may of itself assist the student to a knowledge of its construction, provided he looks at the matter with Latin and not English eyes. So long as he regards the common English meaning of *juvo* and *opitulator*, *I aid*, he discovers no reason why the second should govern a dative case, while the former governs an accusative. But let him analyse *juvo* and *opitulator*.

EXERCISES.—INCOMPLETE.

Experience is the—of wisdom. War broke loose from—chains, chose Napoleon for—general, and set the whole of Europe in flames. Folly, twin sister to shame, has many votaries in—trial. My mother—tongue is the—. Name memory, at all times treacherous, has withdrawn—presence from me. Fate has marked me for—own. Peace, with—hundred brazen tongues, delights in scandal. I have read the affecting story of the Abbot Abbotard, and the—Hercules, as written by Pope. There were at the ball four peers and six—, among whom were the—and the Countess of Shrewsbury. He lived a—till he was forty years of age, and then married. I saw at Greta Green a bride of sixteen years of age, and—of sixty. I want to see Miss Williams, not—Williams. Female authors want the robust strength of—. Sappho was a Greek. Look at this horse; what a fine animal—in. Have you seen the Crystal Palace? Yes,—is a very fine structure. Time, the mightiest—of the earth, overcomes all things. Britannia sits on—invisible throne, the acknowledged—of the ocean.

SPECIMEN OF PARSING.

Knowledge is proud that he has learnt so much;

Wisdom is humble that he knows so much.

Knowledge, a noun neuter, of Indo-Germanic origin, being found in the Latin *nascor* (Greek, *gnō*), and the Teutonic *know*; it is the subject to the verb *is*.

Is, a verb, part of the substantive verb *to be*, the copula between the subject *knowledge* and the attribute *proud*.

Proud, an adjective, of Saxon or Teutonic origin, forming with *is*, the predicate to the subject *knowledge*.

That, a conjunction, uniting the two simple sentences *knowledge is proud* and *he has learnt so much*.

He, a personal pronoun, of the masculine gender, the subject to the verb *has learnt*.

Has learnt, a verb transitive, of the past time, from the Teutonic *lernen*, to teach.

So, an adverb of Teutonic origin.

Much, a Teutonic adjective, singular number, neuter gender, employed here as a noun, and being the object after the transitive verb *has learnt*.

Wisdom, a Teutonic abstract noun, made up of the adjective *wise*, and the termination *-dom*.

Is, a part of the substantive verb *to be*, the copula between *wisdom* and *humble*.

Humble, from the Latin *humilis*, *low*, being the attribute to *wisdom*, and forming with *is*, the predicate to the subject (commonly called the *copulative* case, *verbum*).

That, a conjunction, uniting the two simple sentences of which the proposition or period consists.

He, a personal pronoun, of the masculine gender, the subject to the verb *has learnt*.

Knows, a transitive verb (Indo-Germanic), of the present time of tense.

So, an adverb.

More, an adjective (Teutonic), from *much*; here with *no*, used as a noun, being the object to the verb *knows*.

Words with their proper Prepositions to be formed into sentences.

	F. R.
Deviate from,	de, from, and via, away
Devolve on, or upon,	de, down, and volvo, I roll
Devote to,	de, down, and votum, a vow
Dictate to,	dico, I say
Die of a disease; by the sword,	(a word of Saxon origin)
or famine; for another,	
Differ with a person; in	dis, in different directions, and fero,
opinion, from a person or	I bear
thing, or some quality,	
Difficultly in,	dis, not, and facilis, easy
Disabled from,	dis, not, and abili
Disagree with, to,	dis, not, and agree

L'homme s'ennuie d'être bien, cherche le mieux, trouve le mal, et s'y aggrave de crainte de pire.—Louis.

L'homme passe sa vie à raisonner sur le passé, à se plaindre du présent, à trembler pour l'avenir.—Rivarol.

La plupart des hommes emploient la première partie de leur vie à rendre l'autre misérable.—La Bruyère.

Combien de grands hommes, généralement applaudis, ont été le concept de leurs louanges en y mêlant leur voix.—Fontenelle.

* An Indo-Germanic word must be found in two classes of tongues, the Teutonic and the Greek or Latin. Teutonic is a general term for the class of languages which embraces the Anglo-Saxon, the German, the Dutch, &c.

open tulo aliud, "I have told to some one." Here the cause of the dative is at once seen, and the government falls under the rule that transitive verbs in the active voice take after them a dative as well as an accusative. A similar exposition shows why succorro, I aid or succour, requires a dative for succorro consists of sub and curo. Maledico, I speak evil of, may have its construction explained in the same manner. If you look merely at the English, I speak evil of, and are told that the corresponding Latin term is maledico, you, remembering that of is the English sign of the Latin genitive, will be disposed to think that the verb maledicere governs a genitive. But look at the composition of the word. It is a compound term, consisting of dico, I say, and male, evilly. Now, according to the genius of the Latin, verbs compounded with adverbs have a dative by their regimen or government: so that maledicere aliud is as good as saying, I speak evil of any one. There are not few verbs which govern an accusative as well as a dative. This difference arises from a difference of view. You must always bear in mind that language is a picture of thought. The Latin language is a picture of Latin thought. Every Latin word exhibits a state of mind. Every Latin word implies the particular state of mind of which it is the utterance. Hence, the necessity of getting to regard a relation of one object to another, or one state of mind to another, or of one action to another, just in the way in which the relation was regarded by Cicero, or Caesar. But in their own minds the view may have varied at different times. As the view varied, so the construction varied. With this variation of construction, there of necessity arise two cases expressive of two separate relations. Sometimes a verb has three or even four constructions. Take an example or two:—

a. Curo aliud, curo aliquem, curo ab aliquo.

b. Convenire aliud, convenire ad rem, convenire in rem, convenire aliquem, convenire eadem aliqui re.

c. Insistere rei, insistere in re, insistere vnum, insistere rationum.

For the sake of brevity, I will give the English arranged according to the numbers:—

a. to take precautions for (any one), to protect oneself against, to guard against.

b. to agree with, to suit, to be fit for, to meet, to correspond.

c. to stand on, to be in, to tread a road, to follow a plan.

In all etymological inquiries and considerations the first thing is to get to know the physical or primary meaning of the word. When you know this, you will, with a little practice, easily make out the derivative or secondary meanings for yourself. Thus insistere (from in and sto) has for its root-meaning to stand on; as a house stands on a river's bank, so an image may stand on, that is be in, or be held up, in a man's hand; with an extended application, to stand on, is to tread, or pursue a road, and with a yet wider application, to follow or execute a plan.

A change of construction is not always attended by a change of meaning. At least the change, if any, is in some instances so slight, and has so strictly a reference to the Latin point of view, as to be scarcely appreciable by English minds. Thus the Latin said equally

Dono tibi aliquid;
I give something to thee; and
Dono te aliqui re.
I gift thee with something.

This twofold construction is found in the compounds, im-
perio, induo, exuo, circumdo, circumfundo, inuro, illino, in-
tercludo, adspingo and inspergo, &c. The government may be
given thus: aliquid aliud; aliquid aliquem; or aliquem aliqui re, aliquid aliqui re.

If, then, you consider what verbs imply the relation indicated by *to* or *for*, you will ascertain the class of verbs which require their object to be in the dative. But here you must take difference of idiom into account. In English we say, *they obey me*, but the Latins said they obey to me, *mibi obediunt*. Hence arises what is called the rule, that in Latin

verbs of obeying and committing are constructed with a dative. In English we say, he approached the shore, though the expression is elliptical, and the approach to the shore was formerly used. In Latin when approaching denotes motion it takes an accusative with *ad* (our *to*) or the dative without *ad*; the dative without *ad* is used when the verb denotes a position, a being or a lying near, e. g.,

Ad summum aquam, piscis appropinquat.
Fishes draw near (rise) to the top of the water.
Mantidibus appropinquat milites.
The soldiers approach the fortifications.
Rivus oppidum appropinquat.
The river is near the town.

Dare aliud aliquid is sometimes equivalent to *do something out of love or regard for*, e. g.,

Da hoc patriae ut consilio tuo uti possit.
Give this to thy country that it may make use of thy counsel.

After a similar manner are employed the verbs *donare*, *condonare*, *remittere*, *concedere*.

Many verbs compounded of prepositions take their expression in the dative. The prepositions in question are *a*, *ab*, *ante*, *de*, *e*, *ob*, *post*, *pro*, *super*. Instead of a preposition an adverb is used, such as *male* and *bene*.

"To marry," in English, has a construction corresponding with the Latin accusative. Thus we say *she married him*, *he married her*. But *nubo*, I marry, in Latin commonly requires a dative. *Nubo* is used of the female, thus, *nupsit* (Chloe) *Claudius*, *Chloe married Claudius*. The reason why *nubere* requires a dative is found in its derivation. *Nubo* has for its stem *nub* which is the base of *nubes* a cloud, also a veil. Now the bride came in her husband veiled. Accordingly she was quick to veil herself to or for, that is, to marry her husband. On his part the state was said *nucere uxorem*, to lead or conduct a wife, that is *domum*, home.

The verb *nucere* when it signifies possession, being equivalent to our word *have*, puts in the dative the noun which denotes the possessor, e. g.,

Est mihi domus.
I am a house.

In this rule belong such forms as:

Est mihi Arctura pot.
The fountain has the name (off) Arctura.

In this case Arctura agrees with *nomen*. It is more common for the name to be in the dative by attraction to the noun or pronoun, e. g.,

Delphi, cui postea Africano cognomen fuit.
Delphi, who afterwards had the surname (off) Africano.

More rare is the construction in which the word *nomen* governs the actual name, e. g.,

Est mihi Mercurii nomen.
I have the name of Mercury.

The dative of the possessor is distinguished from the genitive of the possessor in this, that the former is used when you ask for what is possessed, and the latter when you ask who is the possessor, e. g.,

1 Regi est ager.
The field belongs to the king.
2 Ager est regis.
The field is the king's.

In number one you ask "what belongs to the king?" Answer, "the field." In number two you ask "whose is the field?" Answer, "the king's."

What has been said of the dative of the pronoun may enable us to explain the use of datives with passive verbs. The ordinary construction is thus:—

Ad me consilium captum est.
A plan has been taken by me.

Instead of which Cicero says—

Mihi consilium captum est.

Here *mibi* is equivalent to a *me*. An action completed for or to a person, is an action which he has completed, and which as such belongs to him.

Similar is the use of the dative with the gerund or passive participle in *duo*, e. g.,

Amandum est mihi.
I must love.

Ratio mihi refrendenda est.
An account must be given by us.

Only *soldum* is the use of the dative to prece with verbs in the present tense, e. g.,

Honesti bonis viris, non opulenti quærantur.
Honorable (and) not hidden things are sought for by good men.

The poets freely employ this construction with the dative. The student may at first be excused from attempting to imitate it.

Adjectives which involve the idea of *to* or *for* take a dative. Such adjectives are those which signify useful, useless, suitable, unsuitable, knowing, friendly, &c., e. g., *utilis*, *inutilis*, *salutaris*, *damnosus*, *gratus*, *carus*, *aptus*, *acer*, *odatus*, *idoneus*, *facilis*, *difficilis*, *notus*, *ignotus*, *proprius*, *alienus*, *amicus*, *sequeus*, *iniquus*, *infustus*, *infensus*, *iratus*, *fidus*, *fidelis*, &c. So with the adverbs *convenienter*, *constanter*, *amico*.

Some of these adjectives admit of another construction, namely, *ad* with the accusative, as *utilis ad rem*; or *erga* with the accusative, as *benevolus erga aliquem*; or again, the genitive without a preposition, as, *alius alienus mi*, *foreign to a matter*, that is, having nothing to do with it, knowing nothing of it. *Alienus* may be also constructed thus, *alienus aliqui re*, or *ab aliqui re*. *Proprius* may have a genitive, as *proprius alienus, peculiar to some one*, or some thing. *Amicus*, *friendly*, *intimate*, *unfriendly*, *familiaris*, *intimate with*, and *superstes*, *surviving*, are often used as substantives, and consequently take their object in the genitive. *Aptus dididoneus*, if used of a thing, are generally constructed with an accusative, and *ad*, if of a person, simply with a dative.

The dative is also used with adjectives signifying *like*, *unlike*, *near*, *related*, &c.; such as *par*, *impar*, *dispar*, *aequalis*, *inequalis*, *similis*, *disimilis*, *contrarius*, *propinquus*, *propior*, *proximus*, *similimus*, *vichinus*, *affinis*, *cognatus*, *communis*, &c.

Aequalis, *affinis*, *vichinus*, *propinquus*, are employed and constructed as nouns.

Propior and *proximus* may have an accusative, but only as referring to place, thus *propior hostem*, but not *propior clementiam*, instead of which you must say *propior clementiae*. Probably the former construction is to be explained by the ellipse or omission of *ad*.

Similis and *disimilis* take a genitive as well as a dative; a genitive when the likeness or unlikeness is internal, a dative when external.

Idem may be constructed with a dative, e. g.,

Invitum qui servat idem facit occidenti.
He who saves a person unwilling (to be saved) does the same as one who kills (another).

What grammarians call the *dativus commodi* or *incommodi*, the dative of advantage or disadvantage, is simply a dative arising out of the general relation involved in *to* or *for*, e. g.,

Tibi aras, tibi ceras, tibi seris, tibi cides metis.
Thou sownest for thyself, thou harrowest for thyself, &c.

The dative of a personal pronoun, *mibi*, *tibi*, *nobis*, *vobis*, called the *dativus ethicus*, or the *dative of feeling*, may seem to the ordinary English student as superfluous, but in reality conveys a half latent meaning which it is not always easy to give in English, e. g.,

At tibi repente pueri post diebus venit ad me Caninius.
But Caninius suddenly came to me a few days afterwards.

Certain exclamations govern a dative, as *vae tibi*! *alas for thee*! *hei misero mihi*! *ah, my miserable*!

For the sake of illustration, I may also state that verbs which signify *to serve* and *to be intended for*, or in general verbs which have a second object in relation to or for which an act takes place, such as *dare*, *relinquere*, *tribuere*, *mittere*, &c. take a dative as well as, for the most part, an accusative.

Esse, when it signifies *to cause* or *bring*, has a dative, e. g.,

Nimia fiducia calamitatem solent esse.
Excessive confidence is wont to be for (to cause) calamity.

The object on whom the calamity falls is also in the dative, e. g.,

Nimia tibi fiducia calamitatem erat.
Thy too great confidence caused calamity to thee.

The rule is commonly given thus, *est for affero* (I bring to)

takes two datives, one of the person, the other of the thing, e. g.,

Hæc res mihi voluptati fuit.
This thing gave me pleasure.

The force of the dative may often be best rendered by *as*, e. g.,

Paupertas probo haberi solet.
Poverty began to be held as a disgrace.

VOCABULARY.

Obtempero 1. I obey, yield to; simul-serum, I, n. on image; adine 2. I take away; neptis, is, f. a grand daughter; despondere, 2. I promise marriage to, I betrothe; simulas, atis, f. a grudge, or select hate; obuerto (ob and urto) 1. I deride, shame; vigilas, arum, f. a watch by night, watches; lascivias, ar, f. lasciviousness; socordia, ae, f. slush; auctor, oris, m. an author; eucter fui, I recommended; deligo, 3. I select; antecello, 3. I surpass.

EXERCISES.—LATIN-ENGLISH.

Caesar Dumnorigi dixit se praeterea Divitiaco fratri (Dumno-
rigis) condonare; maledicere utique mulier requisition; medici, toto corpore curando, minimas etiam parti mederentur; Venus nupsit Vulcano; obreatur Gabinius; Trebatium objurgavi quod parum valetudini parceret; nihil facili persuaderetur invitis; sic mihi persuadere; inimicitias suas reipublicae donat, civis bonus; labori ac dupliae student Germani; mihi persuasum est te esse vitem; adest periculis dux bonus; remedia adhibuit vulgibus medicus; bellum Galliae intulit Caesar; certis rebus certa, signa praecur-
runt; parva magnis confort pater; omnium salutem stuglorum salutem anteposuit consul; equidem mihi omnia propono; postula-
bunt illi caritatem publicae utilitati; Quintus Fabius unus ex-
stinctae ad Cremam genti superstit; honores detulit senatus claris viris; virgo nupsit ei, cui Caecilia nupta fuerat; tibi nomen insano posuere custodes; si morbo nomen est avaritia; nomen Arcturo est mihi; mihi deliberatum est consilium est; oratori omnia quae sunt in hominum vita, quaevis, audita, lecta, disputa-
ta, tractata esse debent; erat Alcibiades ea sagacitate ut decipi non
posset, praesertim quum agnitionem attendisset ad cavendum; non bene
convenit nequ in una sede morantur majestas et amor; pater filio
caenam dedit; Ithenus oceano appropinquat; necis cui maledicas
viro; cave canem; num videntur convenire haec nuptis? yillae,
secutae fluminis amoenitatem, margine insistent; mundus Deo
paret, et huic obediunt maria terraeque, et hominum vita iustis
supremae legis obtemperat; abs te caveo, cautius; mihi cum De-
jotaro convenit ut ille in sacris castris, caesa cum suis capia; ille
Comptum movebat ut meum domum meumque atque a me ipso
caveret; inter omnes vero convenit Sytyllam ad Tarquinium
Superbum tres libros attulisse; in quod cavere possis attulim ad-
mittere est; mihi nec locus nec sermo convenit; insubebat in
manu Cereis dextra simulacrum Victoriae; Crasso signa ademer-
ant Parthi; Attici neptem Caesar Tiberio Claudio Neroni des-
pondit; ipsi patriae conduci quos cives habere in parentis; im-
probo et stulto nemini bene esse potest; memoriam simulationem
patriae remisit Caesar; Perseus vix totis familiariter ardebat;
alorum laudi atque gloriae maxime invidi solet; haec tibi agitata
esse debet; cui non sunt audite Democriti's Vigiliae? semper ita
vivamus ut rationem reddendam nobis arbitremur; apud Pytha-
goram discipulis quinque annis taceunda erat; leges cernitur
ubi Aeneas; Julius et Apollinaris inservia socordiaque gladi-
torum magis quam flumina similes; alius meus, si quid peccat,
mihi peccat; non solum nobis divites esse volumus, sed liberi,
propinqui, amici, maximeque reipublicae; Pompeio et senatu
pagis auctor fui; quis huic rei testis est? quid mihi Celsus agit?
quid tibi velis? avaritia scilicet quid sibi velit non intelligit; virtus
sola neque dono datur neque accipitur; habere quatuor rem-
publicam turpe et nefarium est; vito mihi dant quod mortem
maius graviter fero; Pausanias venit Aeneas auxilio; Veientes Sa-
binis cum auxilio; hunc sibi domicilio locum delegerunt; Caesar
quinque cohortes castris praedidio reliquit; seminus similissimus
est mihi; medicus subvenit corpori aegrotis; sed quis medetur
animi? leoni est rex terribilis; Aegyptus adjecta est imperio
Romano; qui sibi id detrahit, quod, attulit, est est liberalis;
Graecorum poctura lugentium ceterarum gentium poctis longe
antecellit.

ENGLISH-LATIN.

Thy name is Robert; I gave to my son the name of Robert;
your son is very like his father; thou sowest for another, not thy-
self; I have a field; my field brings me riches; my friends have
come for my aid; the boys selected plays for themselves; the
physician assists thee, but cannot cure thee; they have left me as
a guard for the house; alas for me! what am I doing? Italy was
added to the empire of France; my brother's genius far exceeds
mine; if thou sinnest, thou sinnest against (for) thyself; take care
of the lion; the book lies near the dog; the forces stand on the

river's brink; the book suits me; our soldiers will take standards from the enemy; it is not well with the impious; bad men curse (speak evil of) each other; it is not proper for thee to be ignorant; the horse runs before the chariot; they propose all good things to themselves; the senate will confer the greatest honours on the brave general; many things are easily persuaded to the willing; the physician will apply remedies to thy wounds; the English give themselves to (studere) labour; my father is in danger; he granted the pardon to his supplicating wife; I shall marry a virgin.

LESSONS IN FRENCH.—No. XLVIII.

By Professor LOUIS PASQUELL, LL.D.

§ 53.—REGULAR VERBS.—Continued.

FOURTH CONJUGATION.—ENDING IN RE.

MODEL VERB.

VENDRE, TO SELL.

INDICATIVE MODE.

SIMPLE TENSES. COMPOUND TENSES.

PRESENT.

Je vends,	I sell	J'ai vendu,	I have sold
Tu vends,	thou sellest	Tu as vendu,	thou hast sold
Il vend,	he sells	Il a vendu,	he has sold
On vend,	one sells	On a vendu,	one has sold
Nous vendons,	we sell	Nous avons vendu,	we have sold
Vous vendez,	you sell	Vous avez vendu,	you have sold
Ils vendent,	they sell	Ils ont vendu,	they have sold

IMPERFECT.

Je vendais,	I was selling or used to sell	J'avais vendu,	I had sold or been selling
Tu vendais,	thou wast selling	Tu avais vendu,	thou hadst sold
Il vendait,	he was selling	Il avait vendu,	he had sold
On vendait,	one was selling	On avait vendu,	one had sold
Nous vendions,	we were selling	Nous avions vendu,	we had sold
Vous vendiez,	you were selling	Vous aviez vendu,	you had sold
Ils vendaient,	they were selling	Ils avaient vendu,	they had sold

PAST DEFINITE.

Je vendis,	I sold or did sell	J'eus vendu,	I had sold
Tu vendis,	thou soldst	Tu eus vendu,	thou hadst sold
Il vendit,	he sold	Il eut vendu,	he had sold
On vendit,	one sold	On eut vendu,	one had sold
Nous vendîmes,	we sold	Nous eûmes vendu,	we had sold
Vous vendîtes,	you sold	Vous eûtes vendu,	you had sold
Ils vendirent,	they sold	Ils eurent vendu,	they had sold

FUTURE.

Je vendrai,	I shall sell	J'aurai vendu,	I shall have sold
Tu vendras,	thou wilt sell	Tu auras vendu,	thou wilt have sold
Il vendra,	he will sell	Il aura vendu,	he shall have sold
On vendra,	one will sell	On aura vendu,	one will have sold
Nous vendrons,	we shall sell	Nous aurons vendu,	we shall have sold
Vous vendrez,	you will sell	Vous aurez vendu,	you will have sold
Ils vendront,	they will sell	Ils auront vendu,	they shall have sold

CONDITIONAL MODE.

Je vendrais,	I should sell	J'aurais vendu,	I should have sold
Tu vendrais,	thou wouldst sell	Tu aurais vendu,	thou wouldst have sold
Il vendrait,	he might sell	Il aurait vendu,	he might have sold
On vendrait,	one would sell	On aurait vendu,	one should have sold
Nous vendrions,	we should sell	Nous aurions vendu,	we should have sold
Vous vendriez,	you might sell	Vous auriez vendu,	you should have sold
Ils vendraient,	they would sell	Ils auraient vendu,	they should have sold

IMPERATIVE MODE.

Vends,	sell thou
Qu'il vende,	let him sell
Qu'on vende,	let one sell
Vendons,	let us sell
Vendez,	let ye or you sell
Qu'ils vendent,	let them sell

SUBJUNCTIVE MODE.

SIMPLE TENSES.

PRESENT.

Que je vende,	that I may sell	Que j'aie vendu,	that I may have sold
Que tu vendes,	that thou mayest sell	Que tu aies vendu,	that thou mayest have sold
Qu'il vende,	that he may sell	Qu'il ait vendu,	that he may have sold
Qu'on vende,	that one may sell	Qu'on ait vendu,	that one may have sold
Que nous vendions,	that we may sell	Que nous ayons vendu,	that we may have sold
Que vous vendiez,	that you may sell	Que vous ayez vendu,	that you may have sold
Qu'ils vendent,	that they may sell	Qu'ils aient vendu,	that they may have sold

IMPERFECT.

Que je vendisse,	that I might sell	Que j'eusse vendu,	that I might have sold
Que tu vendisses,	that thou mightest sell	Que tu eusses vendu,	that thou mightest have sold
Qu'il vendît,	that he might sell	Qu'il eût vendu,	that he might have sold
Qu'on vendît,	that one might sell	Qu'on eût vendu,	that one might have sold
Que nous vendissions,	that we might sell	Que nous eussions vendu,	that we might have sold
Que vous vendissiez,	that you might sell	Que vous eussiez vendu,	that you might have sold
Qu'ils vendissent,	that they might sell	Qu'ils eussent vendu,	that they might have sold

INFINITIVE MODE.

PRESENT.	PAST.
Vendre, to sell	Avoir vendu, to have sold
PRESENT.	COMPOUND.
Vendant, selling	Ayant vendu, having sold
Vendu, sold	

§ 54.—CONJUGATION OF A PASSIVE VERB.

ÊTRE AIMÉ, TO BE LOVED.

INDICATIVE MODE.

PRESENT.

Je suis aimé, m. aimée, f.	I am loved
Tu es aimé or aimée,	thou art loved
Il est aimé,	he is loved
Elle est aimée,	she is loved
On est aimé,	one is loved
Nous sommes aimés or aimées,	we are loved
Vous êtes aimés or aimées,	you are loved
Ils sont aimés, m.	they are loved
Elles sont aimées, f.	they are loved

IMPERFECT.

J'étais aimé, m. aimée, f.	I was loved, was being loved
Tu étais aimé or aimée,	thou wast loved, wast being loved
Il était aimé,	he was loved, was being loved
Elle était aimée,	she was loved, was being loved
On était aimé,	one was loved, was being loved
Nous étions aimés or aimées,	we were loved, were being loved
Vous étiez aimés or aimées,	you were loved, were being loved
Ils étaient aimés, m.	they were loved, were being loved
Elles étaient aimées, f.	they were loved, were being loved

PAST DEFINITE.

Je fus aimé, m. aimée, f.	I was loved
Tu fus aimé or aimée,	thou wast loved
Il fut aimé,	he was loved
Elle fut aimée,	she was loved
On fut aimé,	one was loved
Nous fûmes aimés or aimées,	we were loved
Vous fûtes aimés or aimées,	you were loved
Ils furent aimés, m.	they were loved
Elles furent aimées, f.	they were loved

PAST INDEFINITE.

J'ai été aimé or aimée,	I have been loved
Tu as été aimé or aimée,	thou hast been loved
Il a été aimé,	he has been loved
Elle a été aimée,	she has been loved
On a été aimé,	one has been loved
Nous avons été aimés or aimées,	we have been loved
Vous avez été aimés or aimées,	you have been loved
Ils ont été aimés, m.	they have been loved
Elles ont été aimées, f.	they have been loved

PAST ANTERIOR DEFINITE.

J'eus été aimé, m. aimée, f.	I had been loved
Tu eus été aimé or aimée,	thou hadst been loved
Il eut été aimé,	he had been loved
Elle eut été aimée,	she had been loved
On eut été aimé,	one had been loved
Nous eûmes été aimés or aimées,	we had been loved
Vous eûtes été aimés or aimées,	you had been loved
Ils eurent été aimés, m.	they had been loved
Elles eurent été aimées, f.	they had been loved

PLUPERFECT.

J'avais été aimé or aimée,	I had been loved
Tu avais été aimé or aimée,	thou hadst been loved
Il avait été aimé,	he had been loved
Elle avait été aimée,	she had been loved
On avait été aimé,	one had been loved
Nous aurions été aimés or aimées,	we had been loved
Vous auriez été aimés or aimées,	you had been loved
Ils auraient été aimés, m.	they had been loved
Elles auraient été aimées, f.	they had been loved

FUTURE.

Je serai aimé, m. aimée, f.	I shall or will be loved
Tu seras aimé or aimée,	thou shalt or wilt be loved
Il sera aimé,	he shall or will be loved
Elle sera aimée,	she shall or will be loved
On sera aimé,	one shall or will be loved
Nous serons aimés or aimées,	we shall or will be loved
Vous serez aimés or aimées,	you shall or will be loved
Ils seront aimés, m.	they shall or will be loved
Elles seront aimées, f.	they shall or will be loved

FUTURE ANTERIOR.

J'aurai été aimé, m. aimée, f.	I shall, will have been loved
Tu auras été aimé or aimée,	thou shalt, wilt have been loved
Il aura été aimé,	he shall, will have been loved
Elle aura été aimée,	she shall, will have been loved
On aura été aimé,	one shall, will have been loved
Nous aurons été aimés or aimées,	we shall, will have been loved
Vous aurez été aimés or aimées,	you shall, will have been loved
Ils auront été aimés, m.	they shall, will have been loved
Elles auront été aimées, f.	they shall, will have been loved

CONDITIONAL MODE.

PRESENT.

Je serais aimé, m. aimée, f.	I should, would, could, might be loved
Tu serais aimé or aimée,	thou shouldst, couldst, mightest be loved
Il serait aimé,	he would or might be loved
Elle serait aimée,	she might be loved
On serait aimé,	one could be loved
Nous serions aimés or aimées,	we should or would be loved
Vous seriez aimés or aimées,	you would or might be loved
Ils seraient aimés, m.	they might or should be loved
Elles seraient aimées, f.	they might, could, should be loved

PAST.

J'aurais été aimé, m. aimée, f.	I should, would have been loved
Tu aurais été aimé or aimée,	thou wouldst have been loved
Il aurait été aimé,	he would have been loved
Elle aurait été aimée,	she would have been loved
On aurait été aimé,	one would have been loved
Nous aurions été aimés or aimées,	we might have been loved
Vous auriez été aimés or aimées,	you would have been loved
Ils auraient été aimés, m.	they might have been loved
Elles auraient été aimées, f.	they should or might have been loved

IMPERATIVE MODE.

Sois aimé, m. aimée, f.	be thou loved
Qu'il soit aimé,	let him be loved
Qu'elle soit aimée,	let her be loved
Qu'on soit aimé,	let one be loved
Soyez aimés, or aimées,	be ye or you loved
Qu'ils soient aimés, m.	let them be loved
Qu'elles soient aimées, f.	let them be loved

SUBJUNCTIVE MODE.

PRESENT.

Que je sois aimé, m. aimée, f.	that I may be loved
Que tu sois aimé or aimée,	that thou mayest be loved
Qu'il soit aimé,	that he may be loved
Qu'elle soit aimée,	that she may be loved
Qu'on soit aimé,	that one may be loved
Que nous soyons aimés or aimées,	that we may be loved
Que vous soyez aimés or aimées,	that you may be loved
Qu'ils soient aimés,	that they may be loved
Qu'elles soient aimées,	that they may be loved

IMPERFECT.

Que je fusse aimé, m. aimée, f.	that I might be loved
Que tu fusses aimé or aimée,	that thou mightest be loved
Qu'il fût aimé,	that he might be loved
Qu'elle fût aimée,	that she might be loved
Qu'on fût aimé,	that one might be loved
Que nous fussions aimés or aimées,	that we might be loved
Que vous fussiez aimés or aimées,	that you might be loved
Qu'ils fussent aimés, m.	that they might be loved
Qu'elles fussent aimées, f.	that they might be loved

PAST.

Que j'aie été aimé, m. aimée, f.	that I may have been loved
Que tu aies été aimé or aimée,	that thou mayest have been loved
Qu'il ait été aimé,	that he may have been loved
Qu'elle ait été aimée,	that she may have been loved
Qu'on ait été aimé,	that one may have been loved
Que nous ayons été aimés or aimées,	that we may have been loved
Que vous ayez été aimés or aimées,	that you may have been loved
Qu'ils aient été aimés, m.	that they may have been loved
Qu'elles aient été aimées, f.	that they may have been loved

PLUPERFECT.

Que j'eusse été aimé, m. aimée, f.	that I might have been loved
Que tu eusses été aimé or aimée,	that thou mightest have been loved
Qu'il eût été aimé,	that he might have been loved
Qu'elle eût été aimée,	that she might have been loved
Qu'on eût été aimé,	that one might have been loved
Que nous eussions été aimés or aimées,	that we might have been loved
Que vous eussiez été aimés or aimées,	that you might have been loved
Qu'ils eussent été aimés, m.	that they might have been loved
Qu'elles eussent été aimées, f.	that they might have been loved

INFINITIVE MODE.

PRESENT.

Être aimé, m. aimée, f.	to be loved
Êtant aimé, m. aimée, f.	being loved
Êtant aimé, m. aimée, f.	being loved
Êtant aimé, m. aimée, f.	being loved
Êtant aimé, m. aimée, f.	being loved
Êtant aimé, m. aimée, f.	being loved
Êtant aimé, m. aimée, f.	being loved
Êtant aimé, m. aimée, f.	being loved
Êtant aimé, m. aimée, f.	being loved

COMPOUND.

Ayant été aimé, m. aimée, f.	having been loved
Ayant été aimé, m. aimée, f.	having been loved
Ayant été aimé, m. aimée, f.	having been loved
Ayant été aimé, m. aimée, f.	having been loved
Ayant été aimé, m. aimée, f.	having been loved
Ayant été aimé, m. aimée, f.	having been loved
Ayant été aimé, m. aimée, f.	having been loved
Ayant été aimé, m. aimée, f.	having been loved
Ayant été aimé, m. aimée, f.	having been loved

PAST.

Avoir été aimé, m. aimée, f.	to have been loved
Avoir été aimé, m. aimée, f.	to have been loved
Avoir été aimé, m. aimée, f.	to have been loved
Avoir été aimé, m. aimée, f.	to have been loved
Avoir été aimé, m. aimée, f.	to have been loved
Avoir été aimé, m. aimée, f.	to have been loved
Avoir été aimé, m. aimée, f.	to have been loved
Avoir été aimé, m. aimée, f.	to have been loved
Avoir été aimé, m. aimée, f.	to have been loved

§ 55.—RULE.

There is only one conjugation for passive verbs. It is formed of the auxiliary être in all its tenses, simple and compound, and the participle past of the active verb which we wish to conjugate in the passive voice. See § 43 (4.)

LESSONS IN GEOLOGY.—No. XXXI.

By THOMAS W. JENKYN, D.D., F.R.G.S., F.G.S., &c.

CHAPTER II.

ON THE ACTION OF WATER ON THE EARTH'S CRUST.

SECTION XV.

ON THE DISTRIBUTION OF DRIFTS AND BOULDERS.

In extensive districts of the northern hemisphere of our globe, both in Europe and America, valleys, plains, and mountains, are found covered all over with transported gravel, sand, boulders, and massive blocks, some of which are water-worn and others rugged and angular.

This transported matter was formerly called Diluvian, as it was supposed to have been caused by some tremendous deluge, like Noah's flood; but it is now generally called Drift, and sometimes Till, especially in Scotland.

This drift, as it lies on the surface of the earth, appears in a great variety of forms. It sometimes exists as a sheet of sand and gravel, spread over extensive areas. In other plains it forms ridges, mounds, and hills of comparatively low elevation, like what are sometimes called moraines. A portion of it is often found to cap or crest the summits of lofty mountains and abrupt escarpments. On some plains and in some lowland valleys, they divide and radiate, as it were, in broad streams, running from some mountain chain as their origin. In deep valleys they constitute

a series of terraces, as if they had been benches originating in the gradual and successive elevation of a sea coast.

These drifts are as diversified in their composition as they are various in form and place. They are divided into two classes. The first consists of drift which has originated from local circumstances, and is known by containing pebbles, boulders, and clays, which are derived from the formation of rocks about which it is found. The second consists of drift which has been transported from distant rocks, and which is formed chiefly of fragments of older formations. It is sometimes made up of the detritus of rocks of all ages, intermingled promiscuously, and varying in lithological character from loam, sand, gravel, and pebbles, to large boulders and to huge masses of rock many tons in weight.

Since these drifts vary so exceedingly in mineral composition and structure, it is evident that they have been accumulated under dissimilar circumstances, and must belong to very different geological epochs. No epoch in geological time can be called the Drift Period; for some of the most ancient eras furnish us with records of similar phenomena of transport of materials. For instance, the conglomerates of the old red sandstone in the western Highlands of Scotland, and in south Wales, present an enormous aggregation of boulders of considerable size and magnitude. In the neighbourhood of Oban, in the Highlands, such an aggregation of boulders is seen in juxtaposition with erratic blocks of granite, which granite blocks have evidently been subjected to very great friction, which has greatly reduced them from their original shape and dimensions. The fossiliferous rocks of Wigtownshire, in Scotland, present remarkable beds of conglomerates, consisting among smaller boulders, of rounded blocks of four or five feet in diameter, regularly interstratified with the other beds. In Ireland, also, the Silurian conglomerates of Connemara contain blocks of great magnitude. These facts teach you two important lessons in geology: first, that the transport of such blocks to their present position can be assigned only to the agency of water; and secondly, that this agency must have been exerted in different geological epochs.

The proofs of difference of epoch are strengthened by the variety of circumstances in which the drifts are found. Some of them have all the appearance of being ancient marines, or sea beaches, forsaken by the ocean in consequence of an elevation of the land. Others look as if they were sheets of detritus that were spread along a coast under shallow water, or on the borders of large rivers or lakes and estuaries. When they appear in the form of ridges or mounds of debris, they seem to have been heaped up by some sudden deluge or powerful flood, that has swept over low parts of the country, or perhaps by subaqueous currents, or deep streams in the ocean, setting on the bottom of a sea not very far from land. When a drift contains, embedded amid its gravel, large and massive boulders of ancient and remote rocks, they have every appearance of having been removed, first by the agency of glaciers, and then borne by icebergs floating in the sea, until the drifting iceberg deposited them where we find them.

When a fragment of rock is of greater dimensions than a very large pebble or a very big stone, it is called a boulder. When such boulders are found at great distances from a rock of the same mineral character, they are called erratic boulders, or blocks. These boulders appear sometimes rounded as if they had been worn either by friction with other pebbles, or by having been rolled by a current to great distances: at other times they are ragged and angular, as if they had just fallen from a weather-worn cliff. On account of this distinction in their form, some geologists regard them as two separate classes of phenomena—the boulder formation being rounded and worn by friction, the erratic blocks being angular. Both rounded and angular boulders are frequently of very great size and in great abundance. In one district, these huge masses are embedded in the alluvial sands and gravel; in others, enormous blocks are found lying exposed on the surface, and as bare as when they were left there by the retreating waters. Many of them are of such magnitude as almost entitle them to be called rocks, being from twenty to forty feet high, and of many hundreds of tons in weight.

The transport of these massive boulders for many hundreds of miles, from north to south, and their wide spread distribution over thousands of miles from east to west, on the northern hemisphere of the earth, have tasked all the sagacity and the science of the most skillful geologists of Europe and America to account for it.

At the present day the majority of geologists agree to combine the actions of three agents as probable means by which the transport of large boulders has been effected. These three agents are

glaciers, floating ice, and currents of water. In the recognition of the efficiency of these three agents, the most scientific and practical and considerable difficulty in distinguishing the operations of one agent from the other, or in assigning to each agent its own share in the transport. A great number of the difficulties in this problem would be obviated, if it were granted that such boulders as are found at great heights were transported there by sea currents that bore floating icebergs. These icebergs were enormous fragments of the glaciers which first brought such blocks from their original cliffs down to the level of the sea. As, however, our present chapter is upon the action of water on the earth's crust, this lesson, though the concluding section of that chapter, cannot extend to a consideration of what is called the Glacial Theory. The action of ice and other atmospheric agents on the earth's crust is of sufficient importance and distinctness to engage a chapter of its own.

In some countries the boulders do not lie far from their parent rocks, and, therefore, their course and origin are easily traced and ascertained; but over vast areas of America, Europe, and Asia, the water-worn blocks appear to have been derived from very remote regions. The boulders are distributed in such a manner as to show that their transport could not have taken place under the existing conditions of sea and land. The transport and the distribution of them must have been effected when what is now dry land was beneath the sea, and when deep and wide ocean currents and floating icebergs were in operation. By the operation of subaqueous currents in the ocean, what we see as accumulations of sand, mud, and gravel, may have been deposited. By the agency of icebergs, the blocks and boulders, which are now found at immense distances from their parent rocks, may have been transported and deposited. These operations of icebergs will be further explained in your future lessons.

The course which this drift has taken is almost uniform. In the northern part of America, Europe, and probably of Asia, the course appears to have been from north and north-west to south and south-east. This fact seems so intimate that all the materials of the drift or boulder formation had been brought by polar currents from the northern to the southern districts. It is in this account that the formation has been sometimes called the Northern Drift. Wherever it is found, it seems to prove that powerful masses of water have proceeded from north to south over vast areas of the northern hemisphere, and that these currents moved with sufficient velocity to transport large and ponderous masses of rock. It was to be expected that the course of such drifts would be much modified and obstructed among the valleys, hills, and mountains which it encountered.

In England the most important drifts may be divided into three groups:—

I. The Silurian group, which overlies the geological district of that name on the English and Welsh border. This drift is of local origin and consists of fragments of rocks of that formation.

II. The western group which lies to the west of the ridge of mountains called the Backbone of England, a ridge which commences in Staffordshire and strikes up through Derbyshire and Yorkshire towards Scotland. This group extends southward from Lancashire, over Cheshire, Shropshire, Worcestershire, Gloucestershire, and other midland counties. It is composed of rounded fragments of the crystalline mountains and trap rocks, which constitute the lofty escarpments of Westmoreland, Cumberland, and Dumfriesshire.

III. The Eastern group, comprising the various deposits which strew our north-eastern coast and the adjacent districts with fragments of rocks that have the same mineral character with mountains now existing in Norway and Sweden. These fragments must have been furnished, either by the rocks of those countries, or by land which once occupied the present bed of the German Ocean.

It would be impossible for me, in one lesson, to point out to you the startling and remarkable phenomena developed by the drifts of your own country. I will just give you an assertion of the facts connected with the western and the eastern groups of drift.

Take a journey from Bristol towards Liverpool and Lancaster. When you have come to the vale of the Severn, near the Clent Hills between Worcester and Birmingham, you find the surface of the country for miles upon miles, covered by a wide-spread stratum, containing huge boulders of granite and rounded pebbles of quartz. Where have they come from? And how were they brought here? All these granite boulders are from the granite rocks of Dumfriesshire and Kirkcubright in Scotland. All this region, and many of the districts of central England, were once a broad ocean sound, that

ran nearly parallel to the Irish Channel. On both sides of this sea there was land. Wales had its head above the water to the west of it and the Cotswold Hills of Gloucestershire rose above it to the east. The bottom of this sound, and its shores, east and west, are covered with granite drift; but mark the lesson which this drift tells—there is not a particle of this Scotch drift to be found either on the Welsh mountains and the Malverns to the west of it, or on the Cotswold Hills, on the east. The drift, where it now lies, marks the entire course of the central channel. It lies thick in Lancashire, Cheshire, Shropshire, Staffordshire, and Worcestershire. In some localities it has a depth of a hundred and fifty feet. In other localities it forms small hills of an elevation from fifty to five hundred feet above the level of the sea.

This sound was deep and large. Its eastern shores extended far into the midland counties of England. Its waves beat against the Malverns on one side, and against the Cotswold on the other. At that time the Wrekin in Shropshire rose above the waves like an island, and the river Severn was purely a Welsh river that entered this sea between the Breidden hills and Oswestry in Shropshire.

But how came these pebbles of quartz and these boulders of granite into this sound? Along this broad sea, every spring, when the northern ice began to break up, huge icebergs or icefloes came drifting in shoals from the Scottish coast, loaded beneath with the granite blocks which they had enveloped when they were being formed in firths and estuaries in the north. As the icefloes floated along, driven by wind or tide, the loosened boulders dropped on the sea bottom. In one place scores of them fell down in comparatively still water. In another place hundreds were precipitated where the conflicting tides dashed fierce and strong. So great is the abundance of these granitic boulders in the south-western parts of Staffordshire, that a strange geologist would feel persuaded that he was approaching the foot of some vast range of granite rocks; and yet the source of all these boulders is one hundred and fifty miles distant.

Another remarkable circumstance in this drift is that the quartz cock of the Lickey Hills between Birmingham and Worcester have furnished immense beds of pebbles, which have been strewn over areas in Warwickshire and Oxfordshire, down even into the valley of the Thames, which extend to the great gorge of the Chalk Downs near Reading, where they stop.

Examples of the eastern group of drifts in England are found on the coasts and flanks of all the districts ranging from the mouth of the Thames to the Shetland Isles. In these districts may be seen graves, pebbles, and massive boulders of rocks of such a mineral composition as would be derived only from Norway and Sweden, where similar rocks are known to exist.

In the immediate vicinity of London, and near Highgate, is Muswell Hill, a spot which supplies a very instructive example of a ridge of drift, deposited probably by an iceflow. This hill is capped by an alluvial bed of pebbles, boulders, and fossils, of rocks of nearly all ages, from the chalk down to the carboniferous limestone below the coal measures. The geologists of Highgate have collected at Muswell Hill hand specimens of the chalk, the oolite, the lias, new red sandstone, and mountain limestone, of gneiss, granite, and other primary rocks. I wish you to mark that none of these granitic pebbles are found on the western side of Highgate, or in any part of the valley of the Thames between Hampton and the Surrey Hills.

At Holderness, on the Yorkshire coast, there are fragments of rock, varying in roundness and size, which appear to have been transported, some from Cumberland, some from the Highlands of Scotland, and some from Norway.

Scotland abounds with examples of drift. A rush of water over that country has left traces of its course in furrows, which the transported mineral substances, moving with great velocity, have cut in the solid rocks over which they passed. In the Shetland Isles, at Papa Stög, there are fragments of rocks which must have travelled twelve miles from Hillswickness bearing north-east. At Scaun Voe, a place open to the Northern Ocean, there are boulders about three or four feet high which do not correspond with any rocks in the country, and were probably derived from the northward.

I content myself with giving you these few illustrations of drift formations as found in your own country. I cannot now give you even hints of these phenomena as found in North America, in Germany, and in Russia. When we come to lessons about ice and glaciers, drifts and boulders will again come under your consideration.

In continuing this chapter on the action of water on the earth's crust, I wish to prepare you for the facts which will be developed in the results of atmospheric agency by means of glaciers and floating icebergs.

Geologists who have studied drifts and erratic blocks most extensively agree in the conclusions:—1. That the boulder formation is not the work of a sudden transient action of a flood or debacle of short duration, but the result of operations that were going on during the age of what is called the middle tertiary. 2. That the greater part of the accumulations took place after the existing species of shellfish came to inhabit the adjoining seas, for their remains are found in the boulder clay. 3. That the transport of erratic blocks took place at a period subsequent to the age of the drift and boulders. 4. That the boulder and drift accumulations, and the erratic blocks which now cover the dry land, were all deposited on a sea bottom which has been afterwards upheaved. 5. That the erratic blocks must have been brought down from lofty mountains to an open sea that washed their bases by glaciers. 6. That these huge masses of rock were floated to great distances by masses of ice breaking off from these glaciers to form icebergs, which bore their contents in different directions from central points, and stranded them on the more elevated parts of the sea bottom, and without having subjected them to much friction. 7. That all such blocks can, in a great number of instances, be traced to their parent rock, though they are now separated by many hundreds of miles.

LESSONS IN GERMAN.—No. XLVIII.

VOCABULARY OF WORDS.—(Continued).

VII. FURNITURE. *Möbilien.*

<i>Becken, m.</i> -s, pl. -n, tumbler, cup.	<i>Stuhl, m.</i> -s, pl. -e, Stühle, jug, pitcher.
<i>Bett, n.</i> -s, pl. -en, bed.	<i>Stuhl, m.</i> -s, pl. -e, Stühle, tub.
<i>Bettstelle, f.</i> -n, pl. -n, egg-stool.	<i>Stuhl, m.</i> -s, pl. -e, Stühle, kitchen utensil.
<i>Bettstätt, f.</i> -n, pl. -n, bedstead.	<i>Stuhl, m.</i> -s, pl. -e, Stühle, lamp.
<i>Bettstätt, n.</i> -s, pl. -n, bed, sheet.	<i>Stuhl, m.</i> -s, pl. -e, Stühle, lantern.
<i>Bettstätt, m.</i> -s, pl. -e, Stühle, bellows.	<i>Stuhl, m.</i> -s, pl. -e, Stühle, snuffers.
<i>Bettstätt, n.</i> -s, pl. -n, book-shelf.	<i>Stuhl, m.</i> -s, pl. -e, Stühle, mortar.
<i>Bettstätt, m.</i> -s, pl. -n, book-case.	<i>Stuhl, m.</i> -s, pl. -n, pan.
<i>Bettstätt, n.</i> -s, pl. -n, smoothing-box.	<i>Stuhl, m.</i> -s, pl. -n, pepper-box.
<i>Bettstätt, n.</i> -s, pl. -n, saucepan.	<i>Stuhl, m.</i> -s, pl. -n, cork.
<i>Bettstätt, n.</i> -s, pl. -n, cover.	<i>Stuhl, m.</i> -s, pl. -n, cork-screw.
<i>Bettstätt, n.</i> -s, pl. -n, bucket.	<i>Stuhl, m.</i> -s, pl. -n, bolster.
<i>Bettstätt, n.</i> -s, pl. -n, basket.	<i>Stuhl, m.</i> -s, pl. -n, desk.
<i>Bettstätt, n.</i> -s, pl. -n, feather-bed.	<i>Stuhl, m.</i> -s, pl. -n, frame.
<i>Bettstätt, m.</i> -s, pl. -n, steel.	<i>Stuhl, m.</i> -s, pl. -n, salt-cellar.
<i>Bettstätt, m.</i> -s, pl. -n, lint.	<i>Stuhl, m.</i> -s, pl. -n, (See <i>Stuhl</i>).
<i>Bettstätt, f.</i> -n, pl. -n, tong.	<i>Stuhl, m.</i> -s, pl. -n, shovel.
<i>Bettstätt, n.</i> -s, pl. -n, tinder-box.	<i>Stuhl, m.</i> -s, pl. -n, skimmer.
<i>Bettstätt, f.</i> -n, pl. -n, foot-stool.	<i>Stuhl, m.</i> -s, pl. -n, screen.
<i>Bettstätt, n.</i> -s, pl. -n, cover.	<i>Stuhl, m.</i> -s, pl. -n, picture.
<i>Bettstätt, n.</i> -s, pl. -n, picture.	<i>Stuhl, m.</i> -s, pl. -n, cupboard.
<i>Bettstätt, n.</i> -s, pl. -n, towel.	<i>Stuhl, m.</i> -s, pl. -n, drawer.
<i>Bettstätt, n.</i> -s, pl. -n, hearth.	<i>Stuhl, m.</i> -s, pl. -n, poker.
<i>Bettstätt, f.</i> -n, pl. -n, charcoal.	<i>Stuhl, m.</i> -s, pl. -n, match.
<i>Bettstätt, n.</i> -s, pl. -n, box.	<i>Stuhl, m.</i> -s, pl. -n, soap.
<i>Bettstätt, n.</i> -s, pl. -n, kettle.	<i>Stuhl, m.</i> -s, pl. -n, mustard-pot.
<i>Bettstätt, f.</i> -n, pl. -n, taper, candle.	<i>Stuhl, m.</i> -s, pl. -n, napkin.
<i>Bettstätt, f.</i> -n, pl. -n, chest.	<i>Stuhl, m.</i> -s, pl. -n, sieve.
<i>Bettstätt, n.</i> -s, pl. -n, chest of drawers.	<i>Stuhl, m.</i> -s, pl. -n, sofa.
<i>Bettstätt, n.</i> -s, pl. -n, pillow.	<i>Stuhl, m.</i> -s, pl. -n, coal.
<i>Bettstätt, n.</i> -s, pl. -n, skirt, basket.	<i>Stuhl, m.</i> -s, pl. -n, turban.
<i>Bettstätt, m.</i> -s, pl. -n, chandelier.	<i>Stuhl, m.</i> -s, pl. -n, carpet.

Take any point D in AB , and from A cut off AE (I. 3) equal to AD . Join DE . Upon DE , opposite to the triangle DAE , describe (I. 1) an equilateral triangle DEF . Join AF . The straight line AF bisects the angle BAC .

Because AD is equal (Const.) to AE , and AF is common to the two triangles DAF and EAF , the two sides DA and EA are equal to the two sides DF and EF , each to each; and the base DE is equal (Const.) to the base DE . Therefore the angle DAF is equal (I. 8) to the angle EAF . Wherefore the given rectilinear angle BAC is bisected by the straight line AF . Q. E. F.

SCHOLIUM 1.—In the construction of this problem, it is necessary to describe the equilateral DEF upon the side of the line DE , opposite to that on which the triangle DAE stands; otherwise, there is evidently a case in which the construction would fail, namely, when the angle DAE is such that the triangle DAE is also an equilateral triangle. This necessary remark was overlooked by Dr. Simson, and is still overlooked in the common editions of Simson's Euclid up to the present day. It is but justice to add, that in Dr. Thomson's edition, and in the Gower-street edition, this remark is carefully noted. In the latter edition, it is also shown that in every other case but that of the angle of an equilateral triangle, the construction of the problem will be effected by describing the equilateral triangle DEF on the same side of the straight line DE , as that on which the triangle DAE stands; and that in this construction, there will be two cases, one when the vertex F of the equilateral triangle falls within the given angle BAC , and another when it falls without that angle. Moreover, when this vertex falls within the angle BAC , the demonstration is precisely the same as the preceding one, word for word; but when it falls without, the straight line AF is not the part of the straight line which bisects the angle BAC , but its production through the vertex A . The demonstration of this case, although also depending on the eighth proposition of this book, is different from the preceding one. We leave the construction and demonstration of these two cases to our younger students. It is not right to solve every problem to them, otherwise they would lose interest in the subject. The self-solution of problems is the best test of a learner's actual knowledge; and the beauty of the study of geometry is this: that the student knows well when he has solved a problem with accuracy; for, if not, he will find that his master Euclid will condemn him at once wherever there is a flaw or defect in the demonstration.

SCHOLIUM 2.—It may be useful to observe that it is not necessary that the triangle DEF should be equilateral; it is enough that it be made isosceles, viz., that the side DF be equal to the side EF .

SCHOLIUM 3.—By means of this proposition, an angle may be divided into any number of equal parts denoted by the successive powers of the number 2, that is, into 2, 4, 8, 16, 32, 64, &c., equal parts; but to divide any angle into three equal parts, that is, to trisect an angle, is beyond the power of elementary geometry.

PROPOSITION X.—PROBLEM.

To bisect a given finite straight line, that is, to divide it into two equal parts.

In fig. 10, let AB be the given straight line. It is required to bisect it, that is, to divide it into two equal parts.

Describe upon AB (I. 1) an equilateral triangle ABC , and bisect (I. 9) the angle ACB by the straight line CD ; let CD meet A in the point D . Then, AB is divided into two equal parts at the point D .

Because the side AC is equal (Const.) to the side CB , and the side CD is common to the two triangles ACD and BCD , the two sides AC and CB , are equal to the two sides CD and CD , each to each; and the angle ACD is equal (Const.) to the angle BCD . Therefore the base AD is equal to the base BD (I. 4); wherefore the straight line AB is bisected, that is, divided into two equal parts at the point D . Q. E. F.

SCHOLIUM 1.—In the construction of this problem, an isosceles triangle might have been employed instead of the equi-

Fig. 9.



lateral triangle, ABC ; a remark which may be useful in practice; but it is obvious that this method was not adopted by Euclid, because that he has not shown in his Elements how to construct an isosceles triangle previous to this proposition; neither indeed has he done it until he comes to the general problem of constructing a triangle whose sides shall be equal to any three given straight lines, under the restriction that any two of these straight lines must be greater than the third.

COROLLARY.—It may be inferred from this proposition, that if a straight line bisect the angle of an equilateral triangle, it also bisects the opposite side or base; and conversely, by applying the eighth proposition of this book, that if a straight line joining the opposite angle bisects the base, it also bisects the angle. This corollary may also be inferred concerning an isosceles triangle, provided the angle under consideration be that which is not opposite to either of the equal sides.

SCHOLIUM 2.—By this problem a straight line may be divided into any number of equal parts denoted by the series 2, 4, 8, 16, &c.

PROPOSITION XI.—PROBLEM.

To draw a straight line at right angles to a given straight line, from a given point in the same.

In fig. 11, let AB be a given straight line, and C a given point in it. It is required to draw a straight line from the point C at right angles to AB .

Take any point D in AC , and make (I. 3) CE equal to CD . Upon DE describe (I. 1) the equilateral triangle DEF , and join FC . The straight line FC drawn from the given point C , is at right angles to the given straight line AB .

Because the side DC is equal (Const.) to the side CE , and the side FC is common to the two triangles DCF and ECF , the two sides DC and CE , are equal to the two sides FC and FC , each to each; and the base DF is equal (Const.) to the base EF . Therefore the angle DCF is equal (I. 8) to the angle ECF ; and they are adjacent angles. But when the adjacent angles which one straight line makes with another straight line, are equal to one another, each of them is called a right (Def. 10) angle. Therefore each of the angles DCF and ECF is a right angle. Wherefore, from the given point C , in the given straight line AB , a straight line FC has been drawn at right angles to AB . Q. E. F.

COROLLARY.—Two straight lines cannot have a common segment; that is, they cannot coincide in part without coinciding altogether.

If it be possible, let the two straight lines ABC and ABD , have the segment AB common to both of them.

From the point B draw (I. 11) BE at right angles to AB .

Because ABC is a straight line, the angle CBE is equal (Def. 10) to the angle DBE . Because ABD is a straight line, the angle DBE is equal to the angle EBA . Therefore (Ax. 1) the angle CBE is equal to the angle EBA , the less to the greater, which is impossible. Therefore two straight lines cannot have a common segment. Q. E. D.

SCHOLIUM 1.—This corollary was added by Dr. Simson, as being necessary to the demonstration of the first proposition of the Eleventh Book of the Elements. In reference to that proposition, he says "the words [in the Greek] at the end of this, for a straight line cannot meet a straight line in more than one point, are left out, as an addition by some unskilful hand; for this is to be demonstrated, not assumed." The Gr. then says, "Mr. Thomas Simpson, in his notes at the end of the second [also in the fifth] edition of his Elements of Geometry, p. 262, after repeating the words of this note, adds 'Now can it possibly show any want of skill in an editor, he means Euclid or Theon, to refer to an axiom which Euclid himself has laid down [Book I., Axiom 10.] and not to have demonstrated what no man can demonstrate? But all that in this case can follow from that axiom is, that, if two straight lines could meet each other in two points, the parts of them between those points must coincide; and so they would have a segment be-

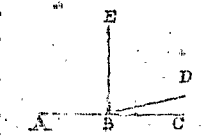
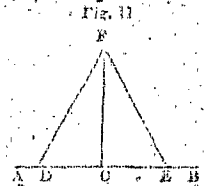


Fig. 10.



twixt these common to both. Now, as it has not been shown in Euclid that they cannot have a common segment, this does not prove that they cannot meet in two points, from which their not having a common segment is deduced in the Greek edition; but, on the contrary, because they cannot have a common segment, as is shown in the Corollary to Prop. XI., Book I. (4th edition), it follows plainly that they cannot meet in two points, which the remark says no man can demonstrate. Again, "He is mistaken in thinking the 10th Axiom he mentions here to be Euclid's; it is none of Euclid's, but is the 10th in Dr. Barrow's edition, who had it from Herigon's Cursus, vol. I., and in place of it, the Corollary of Prop. XI., Book I., was added."

It is not a little amusing, and it is very instructive, to see a little gentle skirmishing between two great geometers, Dr. Robert Simpson and Mr. Thomas Simpson, the one a Scotchman, Professor of Mathematics in the University of Glasgow, and the other an Englishman, Professor of the Royal Military Academy at Woolwich. The former in the very passage from which we have only quoted what belongs to the point in hand, acknowledges the justice of the observations of the latter on another point, and states that he had corrected the error in a second edition. The fame of Dr. Simpson's Euclid has no doubt long eclipsed that of Mr. Simpson's Elements of Geometry; but in the latter work there are many excellent hints, and short and valuable demonstrations to which we, when learning ourselves, were very much indebted.

SCHOLIUM 2.—In Playfair's edition of the Elements, the above corollary is drawn from the defective definition of a straight line, which he has substituted for Euclid's.

The solution of the exercises appended to this proposition will be given in our next lesson.

SOLUTIONS OF PROBLEMS AND QUERIES.

1. How many acres of the earth's surface may be seen from the top of a steeple 400 feet high, supposing the earth perfectly spherical, and its diameter 7,920 miles? See vol. I., p. 332.

2. How far above the surface of the earth must a man be elevated in order to see one-fifth of the surface of the globe? See vol. II., p. 44.

In order to solve these problems, let us suppose that in the adjoining figure, A is any point above the earth's surface; AG a vertical line passing through G , the earth's centre; BCD a circular section through the centre; FG its diameter; AF the altitude of the point A above the surface; the points B and C the limits of the visible horizon; AB and AC being tangents to the earth's surface at those points; BC the diameter of the base of the segment of the sphere made by a plane passing through the points B and C , and cutting the diameter FG at right angles in E , the centre of that base; the spherical surface of this segment, of which BCD is a vertical section through the axis or diameter FG , will be the portion of the earth's surface visible from the point A .

Now, let $FG = d$, FE or $BC = r$, $EF = n$, $AF = h$, and the fraction of the earth's surface visible from the point $A = \frac{1}{x}$. Also,

let $3.1416 = \pi$. Then, the surface of the sphere $= \pi d^2$, and the surface of the spherical segment $= \pi r n = \frac{1}{x} \times \pi d^2$; whence $n = \frac{d}{x}$.

But, by Euclid, Book VI., Prop. VIII., Cor., we have $AD : DC :: BC : BE$, or, $r + h : r :: r : n$; whence, $r^2 = (r + h)(r + h) = r^2 + r h + r h + h^2$; therefore, $r^2 = (r + h) n = (r + h) \frac{d}{x}$.

$\frac{d}{x} = (r + h) \frac{2r}{x}$; whence $h = \frac{2(r + h)}{x}$, and $x = \frac{2(r + h)}{h} = \frac{2r}{h} + 2$.

Here, let $h = 400$ feet, and $d = 7920$ miles $= 2r$. Then $x = \frac{7920 \times 5280}{400} + 2 = 104519$; whence, we find that the

$\frac{104519}{104519} + 2 = 104519$; whence, we find that the 104519th part of the earth's surface is visible from a height of 400 feet above the surface. Accordingly, $\frac{7920 \times 7920 \times 3.1416}{104519}$

$= 1881.924$ square miles, or $1884.924 \times 640 = 1206351.36$ acres, are visible from that height.

Again, since $h = \frac{2(r + h)}{x}$, we have $xh = 2r + 2h$, and $(x - 2)h = 2r = d$; whence $h = \frac{d}{x - 2}$.

Now, if $x = 5$, we have $h = \frac{d}{3}$, that is, a person must be raised to the height of one-third of the diameter of the earth above its surface, or 2,640 miles, in order to see one-fifth of that surface.

How far above the earth's surface must a man be raised to see one-half of that surface? Ans. To an infinite height. For, since $x = 2$, then $h = \frac{d}{2 - 2} = \frac{d}{0} = \infty$ (infinity).

How far above the earth's surface must he be raised to see the whole of that surface? Ans. He must be lowered to the bottom of the diameter, with his eye looking upwards within the sphere, supposing it like Wyld's model. For, since $x = 1$, we have

$h = \frac{d}{1 - 2} = \frac{d}{-1} = -d$.

CORRESPONDENCE.

HOW TO INCREASE THE CIRCULATION OF THE "POPULAR EDUCATOR."

(Tried and found useful.)

MR. EDITOR.—I am a farmer's boy at present, residing at P— Grange, and a student of the P. E. When I first came here, the people had not even heard of your excellent publication, and were much surprised to hear me speaking "Gaelic," as they designated Dr. Beard's Latin Lessons. I endeavoured as well as I was able to explain the advantages of the P. E., and was so far successful as to induce two of the ploughmen to become subscribers. The foreman and two more were won by my describing the advantage and value of the arithmetic and the penmanship. In short, the master's son took it for the short-hand; his two daughters for the drawing and the music; the carpenter and the gardener for geometry, architecture, and botany; and the master himself for a library-book. Now, Mr. Editor, you have many farmer's boys and others as your scholars; what is to hinder them to go and do likewise, and be as successful as, yours truly, R. READ-ABOUT-IT.

April, 1858.

THE PYTHAGOREAN THEOREM.

SIR.—It appears to me, that in the new demonstration of the Pythagorean Theorem, inserted in No. 47 of the P. E., vol. II., it ought to be stated that the lines BM and AO (not AC , which is a misprint) should be drawn through the greater of the two squares described on the legs of the triangle opposite to the hypothenuse; otherwise the solution is a failure, except as applied to that particular construction. The same remark will also apply to the solution given in No. 43, vol. II. I am, &c., W. WAIN.

East Dereham, Feb. 26, 1853. [The criticism of our correspondent appears to be well-founded; we hope the authors of these demonstrations will look into the matter, and endeavour to remove the flaw.]

* The first question was solved by a learner (Glasgow); John Bates (Copley Mill); Thos. (in Remedy Septentrio); S. Featherstone (Darnley); Dawson (Knareborough); W. Smeaton (Colne); J. Janson and J. Turner (Sunderland); W. Richard (Sheerness); J. J. Newton (Bridgewater); H. Robinson (Sheerness); and others. The second question was solved by H. Robinson (Sheerness); John Bates (Copley Mill); G. W. C. (Wigtonshire); Dawson (Knareborough); J. S. (Ayrshire); J. J. Newton (Bridgewater); and others.

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CAUTION the power of speaking and writing these infantile languages. It is universally acknowledged that the Lessons and Vocabulary of the Latin, French, and English Languages are unrivalled for simplicity and clearness as well as for the extensive information they convey and the ardent student cannot be limited to these; he must be furnished with a copious Dictionary of the Language he desires to master, and which the Lessons in THE PORTABLE EDUCATOR have taught him he is able to master, if he desires only the suitable instrumentality. As it is the high price of Dictionaries which has hitherto prevented the march of improvement thus happily begun, JOHN CASSELL has determined to publish a good and useful Dictionary of each Language, on a plan that will enable the student to obtain it upon terms equally easy with those on which he has obtained the Lessons themselves.

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were purchased at once. The first volume, which will be published will be that of French and English, and English and French, with a complete Treatise on French Pronunciation. This Dictionary will embrace a greater number of Scientific, Mythological, Geographical, and Historical Names than is to be found in any other Dictionary published in this country. The price of the work complete will be Eight Shillings and Sixpence, or twenty-six weekly Numbers, price Three-pence, of thirty-two pages, or sixty-four columns. Covers for binding the volumes, when completed, will be issued at 6d. Proprietors will be glad to receive orders from all liberal and able assistants, will superintend the Work during its progress through the Press. The First and Second Numbers are now ready.

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Printed and Published by JOHN CASSILL, La Belle Sauvage-yard, Ludgate-hill, London.—May 14. 1853.

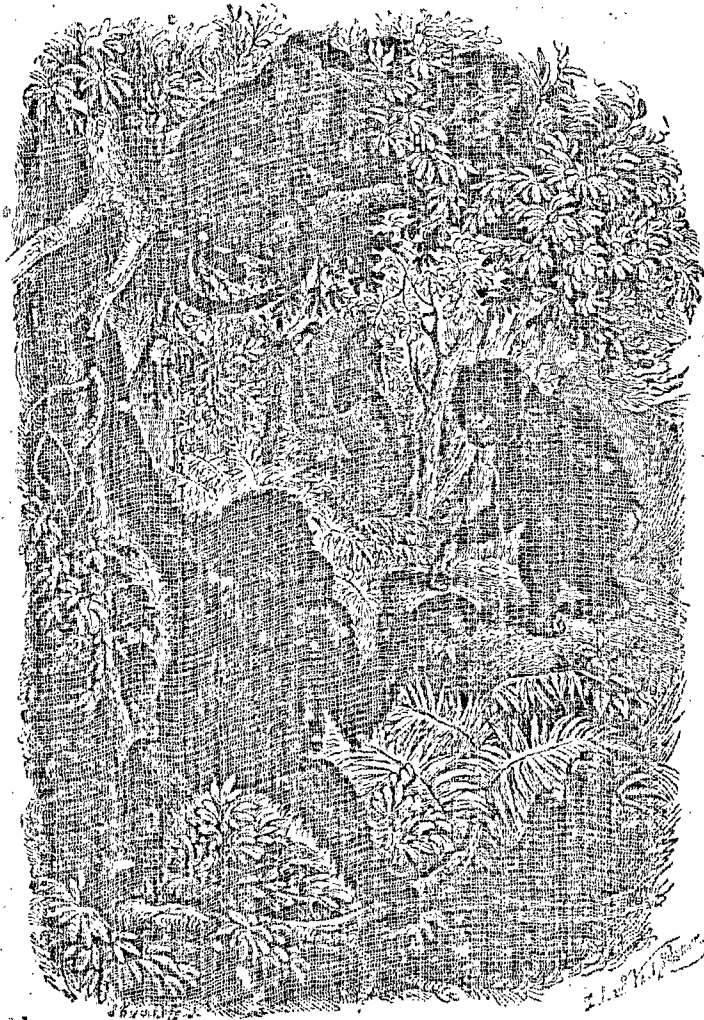
Am. London.—May 11, 1855.

QUADRUMANA--THE MONKEY TRIBES.

No genus of the lower animals has excited so much interest, or given rise to so much speculation, as the monkey tribes, composed of races having some resemblance to man. The manners and habits of monkeys in a wild state being shy and retired, their investigation requires a large expenditure of time and patience on the part of those who wish to obtain a knowledge of them. Hence much of the information we possess is

and general proportions to man, and assuming positions and grimaces resembling the human? Under the influence of fear and terror, many a tale has been told of the individuals of this race naturally enough exaggerated in all its details.

Superstition has been another cause of distorted representation. In India, where it has imposed such extraordinary self-



THE MONKEY TRIBE.

derived, not from actual observation, but from report, and that under circumstances by no means favourable to the accuracy of science.

What must be the conclusions of the untutored mind of one who has had but occasional glimpses of an animal covered with shaggy hair, possessing a hideous resemblance of countenance

torture, and led so frequently to the awful sacrifice of human life; there has been presented to view a singular example of the most abject idolatry. In Ahmedabad, the capital of Guzerat, hospitals have been erected for the benefit of apes, where thousands of monkeys are kept in fancied ease and indulgence; and when another city of that country was taken by general Goddard, in

1780, he found it to contain as many monkeys as inhabitants, and these amounted to 10,000. Animals of this race have even been raised to the rank of gods, and made objects of worship to human beings; yea, gorgeous temples have been reared "a monkey to ensnare." One temple was granted by a portion for receiving victims sacrificed to a monkey, and frequented by no fewer than 700 columns. It is stated that when the Portuguese plundered one of these monkey palaces in the island of Ceylon, they found the tooth of an ape in a small gold casket; and in such veneration was the relic held by the natives, that they offered 75,000 ducats to redeem it; but it was burnt by order of the viceroy. Such instances of gross superstition are too numerous and too deplorable to be further noticed.

A lamentable perversion of mind is apparent on the part of those who have contended that men and monkeys belong to the same species, and are no otherwise distinguished from each other than by circumstances which can be accounted for, on the principle of the different physical or moral agencies to which they have been exposed. Such was the theory of the late Lord Monboddo one the judges of the Court of Session, in Scotland. Estimable in the various relations of life, and for his high character as a lawyer and a judge, his works, (in no fewer than twelve volumes,) show that this was not his Lordship's only "crotchet;" for it is evident that he had an exclusive and somewhat intolerant admiration of the language, literature, and philosophy of the ancient Greeks; a preference for the imaginary virtues and happiness of the savage state; and a general credulity in favour of the marvellous.

In reference to his theory as to monkeys, we need only quote the language of Lawrence, one of our most eminent anatomists: "Such persons (as maintain this theory) are equally unacquainted with the structure of men and monkeys; they are not conversant with zoology and physiology, and therefore entirely destitute of the principles which alone a sound judgment can be formed concerning the nature and capabilities and destiny of animals, as well as the laws according to which certain changes of character, certain departures from the original stock, may take place."

Other strange notions have been entertained in relation to monkeys. Bontius, a physician, gives a description of an ape, to which he assigns every grace and virtue, and affirms that these animals would speak were they not afraid of being compelled to labour. Gassendi states that one species of these creatures had an ear for music, and a capacity for learning the flute or the guitar. And even Linnaeus, to whom the world is greatly indebted in the studies both of plants and animals, fancied that a monkey was not far below a man, and that he might be progressively refined.

Many errors may be avoided if we will only consent to bridle our imaginations; and much information may be gathered by a careful examination of the monkey tribes, which form so attractive a part of our zoological collections. A glance will show the accuracy of the term applied to them by naturalists - that of *QUADRUMANA*, and of their being described as *Quadrumanous* animals, from their being *four handed*. These animals generally possess thumbs, or members opposable to the fingers of both the fore and hind limbs, which enables them to grasp any object firmly with either, and renders them expert climbers.

A casual stroller through a menagerie must be exceedingly struck with their surprising agility, the powerful leaps they take, the modes in which they spring hither and thither, and the ease with which all these motions are performed; and from these circumstances it might be promptly inferred that the home of these creatures is among trees, and that they abound in the luxuriant forests of the tropics. Had any other termination of the arm been given them, such gambols could not have been performed; while their *quadrumanous* character is no less observable in the rapid action of their hands, and in the various purposes to which they are appropriated.

To see them in their usual state, we must visit the regions a portion of which our engraving represents. The richly-clothed and trackless forests of the tropics are filled with animals, but "afraid to glitter in the noon-tide beams," they court the grateful shade, and it is therefore only in some deep

glade, that we can witness the gambols of a monkey at that period of the day.

But no sooner does the sun sink beneath the horizon, and the evening breezes reduce the temperature of the air, than these animals come forth, with a multitude of others, and display qualities which may amuse as well as inform. As the observer looks in one direction, he detects numerous little heads, with bright searching eyes, just protruding from behind the thick boughs and foliage—a sufficient proof that they are at once conscious and afraid. Others, meanwhile, are busy among the trees; they do not merely peep out, for they have no apprehension; they force themselves on observation, as showers of rotten branches, with fruit, flowers, and nuts, are falling all around. He may notice, too, not only the grotesque attitudes of this singular assemblage, but their grimaces, with the half threats of those in his immediate vicinity; and it may be, he may have dropped upon him whatever these creatures may find come readily "to hand." But the season of activity in a tropical forest is short; a few mornings and evening hours of a genial heat are sufficient to satisfy all the wants of monkeys; and the blaze of a vertical sun, or a short twilight, again obliges them to seek the shade, or a place of rest.

Some tribes of South America are, on the contrary, nocturnal in their habits, remaining in complete inactivity during daylight, coming forth at night, and making the forest resound with their yells and howlings. Of one of these, called the "Red Howler," Waterton says: "Nothing can sound more dreadful than its nocturnal howlings. While lying in your hammock in these gloomy and insuperable wilds, you hear their howling at intervals from eleven o'clock at night till day-break. You would suppose that half the wild beasts of the forest were collecting for the work of carnage. Now it is the tremendous roar of the jaguar, as he springs on his prey; now it changes to the terrible deep-toned growlings, as he is pursued on all sides by superior forces; and now you hear his last dying moan, beneath a mortal wound."

Monkeys are seldom seen at any distance from woods, and the species which inhabit craggy precipices, such as those in the neighbourhood of the Cape of Good Hope, in Barbary, and about Gibraltar, deviate from the type, become more quadrupedal in their form and actions, and have therefore been always placed last in our systems.

Mr. Waterton, the intelligent naturalist just cited, says, that monkeys, commonly so called, may be divided into three grand classifications: the *apes*, which have no tail; the *baboons*, which have only short tails; and the *monkeys*, which have long tails. The latter may again be ranged under two divisions: those with hairy and bushy tails, and those whose tails, towards the extremity, are without hair underneath. The former climb like squirrels, and make no use of the tail to help them from branch to branch; while those that have the tail bare underneath towards the end, find it of immense advantage to them in climbing. They apply it to the branch of a tree as though it were a supple finger, and frequently swing by it with perfect security like the pendulum of a clock. We shall shortly give a further account of these varied and remarkable creatures.

LESSONS IN ENGLISH.—No. XLVIII.

By JOHN R. BEARD, D.D.

NUMBER.

REGARD to *number* causes nouns to undergo a change. *Number* relates to the question whether a noun indicates one object, or more objects than one. If a noun indicates one object, it is said to be in the *singular* number; if a noun indicates more objects than one, it is said to be in the *plural* number. The word *singular* comes from the Latin *singularis*, *one only*, and has its representative in our term *single*; as, a *single star*, a *single city*, a *single act*, &c. &c.

"No single man is born with a right of controlling the opinions of all the rest."

The word *plural* comes from the Latin *plus*, *more*, that is, *more than one*. The Greek, and some other languages, have what is called a *double number*—a form, that is, which specifically signifies two.

LESSONS IN ENGLISH.

The *plural* is formed by either a change in the noun, or by an addition to the noun.

1. *Plural formed by a change in the noun*, e. g., man, men; woman, women (pronounced *wimmin*). The changing of *a* in man into *e* in men, and the changing of *o* in woman into *e* in women, are agreeable to the usages of the German idiom, which changes *a, o, u*, in the singular, into *ä (æ), ö (ø), ü (ue)*, in the plural; as, man, a man; manner, men.

Words compounded with *man*, if of English origin, take *men* in the plural, e. g.,

Singular.	Plural.
Englishman	Englishmen
Scotchman	Scotchmen
Dutchman	Dutchmen
Frenchman	Frenchmen
Churchman	Churchmen
Statesman	Statesmen

There are, however, some exotic (or foreign) words ending in *man*, which take their plural in *s*, e. g.,

Singular.	Plural.
Cayman (an alligator)	Caymans
German	Germans
Mussulman (Moslem)	Mussulmans (Moslems)
Norman	Normans
Ottoman	Ottomans
Roman	Romans
Talisman	Talismans

The reason why these last-mentioned nouns change *man* into *mans*, and not into *men*, is, that in them *man* is not the noun *man*, but merely a terminating syllable. You may ascertain whether or not the *man* is a terminating syllable by sundering it from what precedes, and considering whether the part from which it is sundered is an independent word, that is, has signification in itself. If it is an independent word, then the plural form is *men*; if it is not an independent word, the plural form is *mans*; e. g., the plural form of *German* is *Germans*, because *ger* gives no sense; but the plural form of *Frenchman* is *Frenchmen* because *French* has a meaning.

The following are other nouns which form their plural by a change in the body of the word: e. g.,

Singular.	Plural.	Singular.	Plural.
Brother	brethren	Louse	lice
Cow	kine (cows)	Mouse	mice
Foot	feet	Tooth	teeth
Goose	geese	Die	dice

"Brethren has, another form, namely, brothers; the former is employed in sacred subjects, the latter is employed on ordinary occasions.

Brethren is a double plural; one form is *brether* (now obsolete) (in German *brüder*), to this is added *n*, making a second form in *brethren*. A similar formation is found in children, thus: *child*, *children* (still in use in the north of England), *child-cr-*.

The termination *n* or *en*, occurring in *oxen*, *brethren*, *children* was once common in English, and is still common in German and Anglo-Saxon. Ben Jonson, in his *English Grammar*, makes a separate (his second) declension of nouns which form their plural by taking *n* at the end. He gives, as examples, *oxe*, *oxen*; *hose*, *hosen*. Other nouns had in his time the termination *n*, which, however, seems then to have been yielding to *s*, as he states that both forms were in use, namely,

Singular.	Plural.
House	houses
Eye	eyes
Shoe	shoes

2. *Plural formed by addition to the noun*.—Instances have already been given in which nouns form their plural by taking a letter or two letters at their end. Other instances have been given, in which the plural is indicated in the two specified manners, that is, by change in the word, and by addition to the word.

The ordinary addition for the plural is the letter *s*, having the hard sound of *z*, e. g.,

Singular.	Plural.	Singular.	Plural.
Boat	boats	Knife	knives
Dog	dogs	Cake	cakes
Book	books	Table	tables

E final was formerly not as now silent, but pronounced with a soft sound as a distinct syllable, as in these lines from Chaucer:—

"So pray I to God that none mis-writte thee."
"The keye was a slender chynnyke man."

In some words, the *e* is in the plural still pronounced. We say *cage* in one syllable, but *cages* is a dissyllable:—

WORDS MONOSYLLABIC IN THE SINGULAR, DISSYLLABIC IN THE PLURAL.

Singular.	Plural.	Singular.	Plural.
Cage	cages	Maze	mazes
Face	faces	Pledge	pledges
Rose	roses	Nose	noses

If the singular ends in *ch*, *sh*, *s*, *ss*, or *x*, the plural takes *es* instead of *s*, e. g.,

Singular.	Plural.	Singular.	Plural.
Church	churches	Chorus	choruses
Arch	arches	Glass	glasses
Wish	wishes	Box	boxes

In some words of Greek origin the *ch* is pronounced like *k*; these words form their plural in *s*, e. g.,

Singular.	Plural.	Singular.	Plural.
Monarch	monarchs	Monarch	monarchs
Hierarch	hierarchs	Hierarch	hierarchs
Patriarch	patriarchs	Patriarch	patriarchs
Eunuch	eunuchs	Eunuch	eunuchs

Nouns ending in *o* have either *s* or *es*. The following with others take *s*:—

Singular.	Plural.	Singular.	Plural.
Domino	dominos	Seraglio	seraglios
Tyro	tyros	Octavo	octavos
Folio	folios	Quarto	quartos

From this, the general usage, the following deviate by forming the plural in *es*:—

Singular.	Plural.	Singular.	Plural.
Buffalo	buffaloes	Manifesta	manifestoes
Cargo	cargoes	Negro	negroes
Echo	echoes	Potato	potatoes
Grotto	grottoes	Volcano	vulcanoes
Hero	heroes	Wo	woes

The *e* in the plural is for the most part a relic of an *e* formerly used in the singular; this is still ordinarily retained in *woe*. Latham is not borne out by fact when he says that the *e* in the plural is "an orthographical expedient for the sake of denoting the length of the vowel *o*;" for *o* is as long in *folios* as in *potatoes*.

The ensuing fifteen words ending in *f*, *ff* and *fe*, change the hard *f* into the soft *v* before adding the *s*. This change is required by euphony; it would be difficult to pronounce *leafs*, therefore we say *leaves*.

Singular.	Plural.	Singular.	Plural.
Beef	beefes (nearly obsolete)	Self	selves
Calf	calfes	Sheaf	sheaves
Elf	elves	Shelf	shelves
Half	halves	Staff	staves
Knife	knives	Thief	thieves
Leaf	leaves	Wife	wives
Loaf	loaves	Wolf	wolves
Life	lives		

Other nouns in *f*, *ff*, and *fe*, are regular, that is, they form their plural in the ordinary manner by taking *s*. e. g.,

Singular.	Plural.
Roof	roofs
Ruff	ruffs
Chief	chiefs
File	files

Nouns ending in *g*, immediately preceded by a consonant, change the *y* into *i* before they take the *s* of the plural. e. g.,

Singular.	Plural.
Lady	ladies
Fly	flies
City	cities
Pruney	peonies, hence

"The English Language," by Robert G. Latham, M. D., F. R. S. Third edition, 1856; p. 225.

(2) In familiar style, certain prepositions are frequently contracted with the dative and accusative of the definite article into one word.

EXAMPLES.		
D. am,	for on rem,	as, am near, at the fire;
A. auf,	for on tad,	as, am light, to the light;
D. aufen,	for auf ten,	as, am upon, on the tower;
A. auf,	for auf tad,	as, am upon, upon the house;
D. sein,	for sei tem,	as, am with, with the father;
A. durch,	for durch tad,	as, am through, through the water;
A. für,	for für tad,	as, am for, for the money;
D. hinter,	for hinter tem,	as, am behind, behind the house;
D. im,	for in tem,	as, am in, in (the) heaven;
A. in,	for in tad,	as, am into, into the house;
D. von,	for von tem,	as, am from, from (the) evil;
A. vor,	for vor tad,	as, am before, before the window;
D. voran,	for vor tem,	as, am before, before the door;
D. über,	for über tad,	as, am over, upon the fire;
A. über,	for über tad,	as, am over, over (the) land;
D. unter,	for unter tem,	as, am under, under (the) water;
D. zu,	for zu tad,	as, am to, to the river;
D. zu,	for zu tad,	as, am to, to the honour;

§ 5. NOUNS.

(1) In German, as in English, the nouns, that is, the names of persons and things, are divided into two great classes: viz. *Common nouns*, which designate sorts, kinds, or classes of objects; and *Proper nouns*, which are peculiar to individuals.

The student will bear in mind the following rules:

a. In German all Nouns, as also all parts of speech when used as nouns, begin with a capital letter. Ex.: 1. Der Sohn, the son; die Tochter, the daughter. 2. Der Gute, the good (man); die Gute, the good (woman). 3. Das Singen, the singing.

b. Also: *The Indefinite Pronoun*. Ex.: Jemand, (any body, somebody). Jemand, (every body). Etwas, (anything, something), and Nichts, (nothing).

Note, that when *Ein* and *Wenig* are connected with a noun, or with an adjective used as a noun, they do not begin with a capital. Ex.: Er hat etwas Brot, he has some bread; er hat nichts Gutes, he has nothing good.

c. Also: *The Absolute Possession Pronoun* (when used substantively. Sect. 21. II). Ex.: Die Meinige, (my family); das Meinige, (my property).

d. Also: *The Indefinite Numerals*, when used without a substantive. Ex.: Alles, (all); Einige, (some); Vierzig, (many a); Viele, (many).

e. Also: *The Personal Pronouns*, Tu, Du, (thou, you), &c., when we would distinguish thereby the person addressed.

f. Also: *Ein*, when an adjective, and likewise, when a pronoun is distinguished from the article. Ex.: Ich habe nur einen Freund. Das eine Pferd ist blind, das andere ist lahm, the one horse is blind, the other is lame.

g. Lastly, Adjectives derived from names of persons. Ex.: Das Schiller'sche Haus. Observe that adjectives derived from the names of countries do not begin with a capital. Ex.: Der deutsche Bund, the German confederacy. Die französische Sprache, the French language.

(2) Under the head of common nouns are commonly included several subdivisions; as *Collective nouns*, which are the names of a plurality of individuals considered as unity; and *abstract nouns*, which are the names of certain qualities, or attributes regarded as separate from any given substance.

(3) The nouns, both common and proper, as before said, are regularly inflected: thus exhibiting by means of terminations the several modifications of gender, number and case. The numbers and cases will be made sufficiently clear under the head of declension of nouns.

Il ne faut pas avoir honte de demander ce qu'on ne sait pas — *Maxime des Orientaux*.

Il faut aimer à se cacher pour pouvoir se produire plus sûrement; il faut aimer à se faire pour pouvoir passer inaperçu; il faut aimer à apprendre pour pouvoir enseigner utilement; il faut aimer à obéir pour pouvoir commander sagement. — *Thomas à Kempis*.
L'homme est un être qui se fait à la vertu. — *Le Rochefortain*.

Il n'y a pas de métier ni de profession qui n'ait ses grâces et son charme. — *Christine*.

LESSONS IN FRENCH.—No. XIX.

By Professor Louis PASQUELLE, LL.D.

§ 56.—CONJUGATION OF REFLECTIVE VERBS [§ 43, (3.)]

MODEL VERB.

SE FLATTER, TO FLATTER ONE'S SELF.

INDICATIVE MODE.

PRESENT.

Je me flatte,	I flatter myself
Tu te flattes,	thou flatterest thyself
Il se flatte,	he flatters himself
On se flatte,	one flatters himself or one's self
Nous nous flattons,	we flatter ourselves
Vous vous flattez,	you flatter yourselves
Ils se flattent,	they flatter themselves

IMPERFECT.

Je me flattais,	I was flattering or used to flatter myself
Tu te flattais,	thou wast flattering thyself
Il se flattait,	he was flattering himself
On se flattait,	one was flattering one's self, himself
Nous nous flattions,	we were flattering ourselves
Vous vous flattiez,	you were flattering yourselves
Ils se flattaient,	they were flattering themselves

PAST DEFINITE.

Je me flattai,	I flattered or did flatter myself
Tu te flattas,	thou didst flatter thyself
Il se flattait,	he flattered himself
On se flattait,	one flattered one's self, himself
Nous nous flattâmes,	we flattered ourselves
Vous vous flattâtes,	you flattered yourselves
Ils se flattèrent,	they flattered themselves

PAST INDEFINITE.

Je me flattais, m. flattée, f.	I have flattered myself
Tu t'es flatté or flattée,	thou hast flattered thyself
Il s'est flatté,	he has flattered himself
On s'est flatté,	one has flattered himself or one's self
Nous nous sommes flattés or flattées,	we have flattered ourselves
Vous vous êtes flattés or flattées,	you have flattered yourselves
Ils se sont flattés, m.	they have flattered themselves
Elles se sont flattées, f.	

PAST ANTERIOR.

Je me flattais, m. flattée, f.	I had flattered myself
Tu t'es flatté or flattée,	thou hadst flattered thyself
Il s'était flatté,	he had flattered himself
On s'était flatté,	one had flattered himself
Nous nous étions flattés or flattées,	we had flattered ourselves
Vous vous étiez flattés or flattées,	you had flattered yourselves
Ils se fussent flattés, m.	they had flattered themselves
Elles se fussent flattées, f.	

PLUPERFECT.

Je m'étais flatté, m. flattée, f.	I had flattered myself
Tu t'étais flatté or flattée,	thou hadst flattered thyself
Il s'était flatté,	he had flattered himself
On s'était flatté,	one had flattered himself, one's self
Nous nous étions flattés or flattées,	we had flattered ourselves
Vous vous étiez flattés or flattées,	you had flattered yourselves
Ils s'étaient flattés, m.	they had flattered themselves
Elles s'étaient flattées, f.	

FUTURE.

Je me flatterai,	I shall or will flatter myself
Tu te flatteras,	thou shalt or wilt flatter thyself
Il se flattera,	he shall or will flatter himself
On se flattera,	one will flatter himself, one's self
Nous nous flatterons,	we will flatter ourselves
Vous vous flatterez,	you will flatter yourselves
Ils se flatteront,	they will flatter themselves

FUTURE ANTERIOR.

Je me serai flatté, m. flattée, f.	I shall have flattered myself
Tu te seras flatté or flattée,	thou wilt have flattered thyself
Il se sera flatté,	he will have flattered himself
On se sera flatté,	one will have flattered himself
Nous nous serons flattés or flattées,	we will have flattered ourselves

LESSONS IN FRENCH.

Vous vous serez flattés or flattées, you will have flattered yourselves.
Ils se seront flattés, m. they will have flattered themselves.
Elles se seront flattées, f. they will have flattered themselves

CONDITIONAL MODE.

PRESENT.

Je me flatterais,	I should, would, could, might flatter myself
Tu te flatterais,	thou wouldst flatter thyself
Il se flattait,	he would flatter himself
On se flattait,	one would flatter himself or one's self
Nous nous flatterions,	we would flatter ourselves
Vous vous flatteriez,	you would flatter yourselves
Ils se flatteraient,	they would flatter themselves

PAST.

Je me serais flatté, m. flattée, f.	I should, would, could, might have flattered myself
Tu te serais flatté or flattée,	thou wouldst have flattered thyself
Il se serait flatté,	he would have flattered himself
On se serait flatté,	one would have flattered one's self
Nous nous serions flattés or flattées,	we would have flattered ourselves
Vous vous seriez flattés or flattées,	you would have flattered yourselves
Ils se seraient flattés, m.	they would have flattered themselves
Elles se seraient flattées, f.	

IMPERATIVE MODE.

Flatte-toi,	flatter thyself
Qu'il se flatte,	let him flatter himself
Qu'on se flatte,	let one flatter one's self, himself
Flattons-nous,	let us flatter ourselves
Flattez-vous,	let them flatter themselves
Qu'ils se flattent,	

SUBJUNCTIVE MODE.

PRESENT.

Que je me flatte,	that I may flatter myself
Que tu te flattes,	that thou mayest flatter thyself
Qu'il se flatte,	that he may flatter himself
Qu'on se flatte,	that one may flatter himself
Que nous nous flattions,	that we may flatter ourselves
Que vous vous flattiez,	that you may flatter yourselves
Qu'ils se flattent,	that they may flatter themselves

IMPERFECT.

Que je me flattasse,	that I might flatter myself
Que tu te flattasses,	that thou mightest flatter thyself
Qu'il se flattât,	that he might flatter himself
Qu'on se flattât,	that one might flatter himself
Que nous nous flattassions,	that we might flatter ourselves
Que vous vous flattassiez,	that you might flatter yourselves
Qu'ils se flattassent,	that they might flatter themselves

PAST.

Que je me fusse flatté, m. flattée, f.	that I may have flattered myself
Que tu te sois flatté or flattée,	that thou mayest have flattered thyself
Qu'il se soit flatté,	that he may have flattered himself
Qu'elle se soit flattée,	that she may have flattered herself
Qu'on se soit flatté,	that one may have flattered himself
Que nous nous soyons flattés or flattées,	that we may have flattered ourselves
Que vous vous soyez flattés or flattées,	that you may have flattered yourselves
Qu'ils se soient flattés, m.	that they may have flattered themselves
Qu'elles se soient flattées, f.	

PLUPERFECT.

Que je me fusse flatté, m. flattée, f.	that I might have flattered myself
Que tu te fusses flatté or flattée,	that thou mightest have flattered thyself
Qu'il se fût flatté,	that he might have flattered himself
Qu'elle se fût flattée,	that she might have flattered herself
Qu'on se fût flatté,	that one might have flattered himself
Que nous nous fussions flattés or flattées,	that we might have flattered ourselves
Que vous vous fussiez flattés or flattées,	that you might have flattered yourselves
Qu'ils se fussent flattés, m.	that they might have flattered themselves
Qu'elles se fussent flattées, f.	

INFINITIVE MODE.

PRESENT.

Se flatter, to flatter one's self | S'étant flatté, to have flattered one's self

PARTICIPLES.

PRESENT.

Se flattant, flattering one's self | S'étant flatté, having flattered one's self

COMPOUND.

PAST.

Flatté, m. flattée, f. flattés, m. p. flattées, f. p. flattered

§ 57.—NEGATIVE FORM OF THE REFLECTIVE VERB.

NE PAS SE FLATTER, NOT TO FLATTER ONE'S SELF.

INDICATIVE MODE.

PRESENT.

Je ne me flatte pas,	I do not flatter myself
Tu ne te flattes pas,	thou dost not flatter thyself
Il ne se flatte pas,	he does not flatter himself
On ne se flatte pas,	one does not flatter himself
Nous ne nous flattons pas,	we do not flatter ourselves
Vous ne vous flattez pas,	you do not flatter yourselves
Ils ne se flattent pas,	they do not flatter themselves

We will add a compound tense and the imperative conjugated in this form.

PAST INDEFINITE.

Je ne me suis pas flatté, m. flattée, f.	I have not flattered myself
Tu ne t'es pas flatté or flattée,	thou hast not flattered thyself
Il ne s'est pas flatté,	he has not flattered himself
On ne s'est pas flatté,	one has not flattered one's self
Nous ne nous sommes pas flattés or flattées,	we have not flattered ourselves
Vous ne vous êtes pas flattés or flattées,	you have not flattered yourselves
Ils ne se sont pas flattés, m.	they have not flattered themselves
Elles ne se sont pas flattées, f.	

IMPERATIVE MODE.

Ne te flatte pas,	do not flatter thyself
Qu'il ne se flatte pas,	let him not flatter himself
Qu'on ne se flatte pas,	let one not flatter one's self
Ne nous flattons pas,	let us not flatter ourselves
Ne vous flattez pas,	let them not flatter themselves
Qu'ils ne se flattent pas,	

§ 58.—INTERROGATIVE FORM OF THE REFLECTIVE VERB.

INDICATIVE MODE.

PRESENT.

Me flatte-je? or* en-toi-que je me flatte?	do I flatter myself?
Te flattes-tu?	dost thou flatter thyself?
Se flatte-t-il?	does he flatter himself?
Se flatte-t-on?	does one flatter himself?
Nous flattons-nous?	do we flatter ourselves?
Vous flattez-vous?	do you flatter yourselves?
Se flattent-ils?	do they flatter themselves?

PAST INDEFINITE.

Me suis-je flatté, m. flattée, f.	have I flattered myself?
T'es-tu flatté or flattée?	hast thou flattered thyself?
S'est-il flatté?	has he flattered himself?
S'est-elle flattée?	has she flattered herself?
S'est-on flatté?	has one flattered himself?
Nous sommes-nous flattés or flattées?	have we flattered ourselves?
Vous êtes-vous flattés or flattées?	have you flattered yourselves?
Sont-ils flattés? m.	have they flattered themselves?
Sont-elles flattées? f.	

§ 53.—THE REFLECTIVE VERB CONJUGATED NEGATIVELY AND INTERROGATIVELY.

INDICATIVE MODE.

PRESENT.

Ne flattere-je pas? Est-ce que je do I not flatter myself?	
Ne flatteres-tu pas? Ne flatteres-tu pas?	doest thou not flatter thyself?
Ne se flatter-il pas? Ne se flatter-il pas?	does he not flatter himself?
Ne se flatter-elle pas? Ne se flatter-elle pas?	does she not flatter herself?
Ne nous flatterons-nous pas? Ne nous flatterons-nous pas?	do we not flatter ourselves?
Ne vous flatterez-vous pas? Ne vous flatterez-vous pas?	do you not flatter yourselves?
Ne se flatteront-ils pas? Ne se flatteront-ils pas?	do they not flatter themselves?
Ne se flatteront-elles pas? Ne se flatteront-elles pas?	do they not flatter themselves?

PAST INDEFINITE.

Ne me suis-je pas flatté, m. flat. have I not flattered myself?	
Ne t'es-tu pas flatté ou flattée? Ne t'es-tu pas flatté ou flattée?	hast thou not flattered thyself?
Ne s'est-il pas flatté? Ne s'est-il pas flatté?	has he not flattered himself?
Ne s'est-elle pas flattée? Ne s'est-elle pas flattée?	has she not flattered herself?
Ne s'est-on pas flatté? Ne s'est-on pas flatté?	has one not flattered himself?
Ne nous sommes-nous pas flattés or flattées? Ne nous sommes-nous pas flattés or flattées?	have we not flattered ourselves?
Ne vous êtes-vous pas flattés or flattées? Ne vous êtes-vous pas flattés or flattées?	have you not flattered yourselves?
Ne se sont-ils pas flattés? Ne se sont-ils pas flattés?	have they not flattered themselves?
Ne se sont-elles pas flattées? Ne se sont-elles pas flattées?	have they not flattered themselves?

LESSONS IN LATIN.—No. LII.

By JOHN R. BEARD, D.D.

VERBS WHICH GOVERN THE ACCUSATIVE.

The simplest form of the accusative case, as governed by verbs, is that which is found in connexion with transitive verbs of the active voice, in which the action is directed by the verb passed directly from the subject to the object, e. g.,

Deus creavit mundum.
God created the world.

Practice, aided by rule, will teach the student what verbs in Latin take an accusative case, but he has need to be on his guard against mere English analogy. It is from in English would not give him the idea that the corresponding Latin verb required its object in the accusative case; yet so it does, e. g.,

Andromeda audentis aspectum moesta parentis.
Saw Andromeda flying from the sight of her father.

The accusative is sometimes not expressed but understood,

e. g.,
Non sine summo labore scribo.
Not without the greatest labour (difficulty) do I write.

Intransitive verbs become in some sort transitive by taking a noun of the same meaning as the action which they signify, as *ludere ludum*, to play a play.

The noun may be similar in meaning instead of the same; thus *aleam ludere* to play (at) dice. Hence arise some forms which require special attention, e. g.,

Bacchanalia vivere.
To live in a bacchanalian manner.
Nunc Batyrum nunc agrestum Cyclopium movetur.
He dances now the Satyr dance, now the Cyclopium.
Olympia vincere.
To conquer at the Olympic games.
Coronari Olympia.
To gain a chaplet at the Olympic games.
Vincere judicium.
To succeed in a law-suit.

Intransitive verbs may have an accusative of the neuter pronoun, as *hec lator*, I am glad of that.

Verbs in themselves intransitive acquire a transitive accipitation by receiving a preposition into combination; thus *latrare*, to bark, is intransitive, but *adlatrare*, to bark at, is transitive. And here you may observe a marked difference between the Latin and the Saxon-English; in Latin the preposition enters into the substance of the verb, and takes its place at the beginning; in English the preposition is loosely appended to the end of the verb, and is connected in construction

not so much with the verb as with the noun it governs. Intransitive verbs in general cannot be used in the passive voice; but those intransitive verbs which are made transitive by prepositions may be used in the passive voice; as *fossa transitur*, the ditch is leaped over.

The preposition found in the verb is sometimes repeated with the noun for the sake of emphasis, as *ad urbem advolavit*, he flew to the city.

Occasionally there is a difference of meaning between the verb with and the verb without the preposition; thus *adire ad regem* is to go to the king, but *adire regem* is to address, to entreat the king.

Two accusatives are found with transitive verbs. The first instance is where one of the accusatives is an adjective, e. g.,

Euphrates efficit Mesopotamiam fertilem.
The Euphrates renders Mesopotamia fertile.

The verb *efficit* governs *Mesopotamiam*. It does more, its force extends to *fertilem*. *Fertilem* here is not mere epithet, as you may learn by so rendering it in the passive voice,—the fertile Mesopotamia is produced by the Euphrates. This is not the sense; what is meant is, that the Euphrates causes Mesopotamia to be fertile; and as in this English sentence the verb *causes* has two objects, namely *Mesopotamia* and *to be*, so the Latin sentence has two objects, namely, *Mesopotamiam* and *fertilem*. The phrase and the construction are different from what appears in *laudo discipulum diligentem*. Where *diligentem* is an epithet simply qualifying *discipulum*. If, however, we write *efficio discipulum diligentem*, *diligentem* becomes a second accusative.

This second accusative is indeed the predicate to the object of the verb. That predicate may, as we have just seen, be an adjective; it may also be a noun. The predicate of the double accusative may be a noun after verbs of naming or calling, such as *appello*, *clamo*, *nominio*, *saluto*. As in the active voice two accusatives go with these verbs, so in the passive have they two nominatives, e. g.,

Act. *Summum concilium majores nostri appellaverunt senatum.*
Our ancestors called the highest council, senate.

Pass. *Summum concilium a majoribus nostra appellatus est senatus.*
The highest council was called senate by our ancestors.

In a similar way any two accusatives are taken by the verbs which signify to make, render, declare, appoint, account, such as *facio*, *efficio*, *reddo*, *creo*, *declaro*, *designo*, *constituo*, *duco*, *puto*. Another class of verbs having the same construction are such as signify to give, ascribe, &c., as *do*, *tribuo*, *adjungo*, *sumo*, *peto*, *tribuo*. If the student will look carefully into the verbs which have been so far described as taking two accusatives, he will find that they are verbs which in themselves do not fully express the intended idea. For instance, to *nominio*, I name thee, the question occurs what? What do you name, appoint, or make me? I name thee *Cicero*, to *Ciceronem* *nominio*. Accordingly, you see that the second accusative is supplementary to or explanatory of the first; it is indeed an indispensable part of the idea; as such it must of course be in the same case as the noun which it qualifies. These two accusatives may then be called the principal and the accessory, e. g.,

PRINCIPAL ACC. ACCESSORY ACC.
Athenienses Miltiadem imperatorem sumpserunt.
The Athenians took Miltiades as (or for) their commander.

By the rendering of this sentence the student will learn that in English the particle *as* or the preposition *for* must be inserted in order to make sense. This construction, however, must not be confounded with another, e. g.,

Romulus trecentos armatos ad custodiam corporis habuit.
Romulus had three hundred armed men as a body guard.

The last construction points out more emphatically the object or purpose.

Different again is the phrase *pro amico aliquem habere*, which means to treat a person as a friend, whereas *aliquem amicum habere* is to have a friend in some one. The *pro*, however, may signify simply *instead of*, no less than *as*, and is sometimes omitted in the English translation.

Verbs which signify to teach, to learn, to ask, as *doceo*, *disco*, *rogo*, take two accusatives, one of the person, the other of the thing. In the passive voice these verbs have one accusative, e. g.,

Active. *doceo te artem*, I teach thee an art.
Passive. *tu doceris artem*, thou art taught an art.

Celo, I conceal, *hide from*, has the same construction.

The accusative is used after verbs of motion to denote the place whither a person proceeds. The construction may be without a preposition, or with a preposition; first, without a preposition, when the place or object is the name of a city or a small island, or when the noun is *domus* or *rus*; thus, *eo Athenas*, I go to Athens; *eo domum*, I go home; *eo rus*, I go into the country; *eo Delum*, I go to (the island) Delos. In all other cases, a preposition is required to denote the place whither you go; such as *ad*, *in*, *versus*, *adversus*, *contra*, *ob*, *sub*, *super*, *circum* and *circae*, *extra*, *intra*, *ultra*, *trans*.

A double accusative is found also with verbs compounded with the prepositions *trans* and *circum*:

Copias flumen transduxit Caesar.
Caesar led his forces over the river.

Pompeius eos omnia sua praefidis circumdedit.
Pompey led all his forces round them.

From the use of an accusative to signify direction towards an object comes the use of an accusative to signify breadth, or the distance through which you pass in making your way to an object. This is called the accusative of breadth; it answers to the question how far? and may be equally used of length or distance, e. g.,

Milites aggerem latum pedes trecentos exstruxerunt.
The soldiers raised a mound three hundred feet broad.

As length of place, so length of time is expressed by the accusative, e. g.,

Alexander Magnus tredecim annos regnavit.
Alexander the Great reigned thirteen years.

Hence is explained the accusative with *natus*, e. g.,

Dionysius quinquē et viginti natus annos dominatum occupavit.
Dionysius seized supreme power when five and twenty years old.

Somewhat similar is the construction of the so-called accusative of the part, as,

Miles fractus membra labore.
A soldier broken as to (by) his members by labour.

The accusative case is also used in exclamations and direct addresses, e. g.,

Me caecum, qui haec ante non viderim!
Blind that I am not to have seen these things before.

The accusative is produced by the effect of words now no longer in use. This is therefore a case of ellipsis. *Me miserum!* may originally have been *me miserum dico!* If analysed, the phrase in full is *quam ego sum miser! how wretched I am!*

The vocative also is employed in exclamation, e. g.,

O miser, quod non sentis, quam miser sis!
O wretched man, in that thou knowest not how wretched thou art!

The nominative too may be employed when it suffices to mention an object in order to refer to it, e. g.,

O fortunata mors, quae pro patria est reddita.
O fortunate death which is undergone for one's native land.

After *en* and *ecce* (=ence) the nominative generally stands, e. g.,

Ecco tuae litterae!
En dentro fidesque!

More seldom the accusative occurs with *en* and *ecce*; *en* quatuor aras! *ecce* duas tibi, *Daphne!* *ecce* me! *ecce* illum! *ecce*! *ecce*! are common in the comic poets.

The dative may accompany an exclamation, when the object is a personal one to whose advantage or disadvantage any thing happens, e. g.,

Vae tibi! heu misero mihi!
Woe to thee! alas, wretched me!

VOCABULARY.

Aequo, I. I equal, keep pace with; *trux*, *civ*, fierce; *rufus*, a, urn,

* Compare what is said on the subject under the head of verbs governing the dative.

red, tawny; *consimilis*, epistolar, like; *jurandum*, i, n. an oath; *sonnis*, i, I dream; *hereditas*, *atis*, f. an inheritance; *fratricida*, ac, o. a brother-slayer; *recordatio*, *onis*, f. recollection; *perceptus*, a, um, (perceptio) perceived, enjoyed; *nilum*, i, n. nothing; *triduum*, i, n. a journey of three days; *imperator*, *oris*, m. a commander, an emperor.

EXERCISES.—LATIN-ENGLISH.

Operam tuam multam! Eheu me miserum! O fallacem hominum spem, fragilemque fortunam, et inanes nostras contentiones! pro deorum hominumque fidem! quae res unquam, pro sancte Jupiter, non modo in hac urbe, sed in omnibus terris est gesta major? O frustra suscepti mei labores! O spes fallaces! O cogitationes inanis mentis! en causam cur lex ferretur; huius tibi talentum argenti! scribo epistolam; verbero canem; filius patrem amat; Iordanus Carthaginienses vicerunt; Scipio delevit Carthaginem; equum velocissimum pedibus cursu aequare poterant; candida par homines, trux decet ira feras; rufus crisis apud Germanos vicem non dedecet; prudentia nunquam deficit oratore; Themistocles non effugit civium suorum inviam; Ulysses militum subterfugere voluit; fortes fortuna juvat; me Agamemnonem accusari putas; gloria virtutem tanquam umbra sequitur; fortes et sapientes viri non tam praemia sequi solent recte factorum, quam ipsa recta facta; Marius in ea parte curabat; consilium luserat jam olim ille ludum; mirum somnivi somnium; ego vestros patres vivere arbitror, et eam quidem vitam, quae est sola vita nominanda; juravi verissimum pulcherrimumque jurandum; Sicius Dentatus triumphavit triumphos novem; non possum idem gloriar; illud non dubito; illud tibi assentior; Pythagoras Persarum magos adiit; consules consulatum ineunt; Pythagoras multas regiones barbarorum pedibus oblit; neminem conveni; omnia nos undique fata circumstant; mox Carthaginem circumsidebant Romanae legiones; Scipio colloquium haud abhuit; historia non debet egredi veritatem; optima consilia ineuntur; hoc oppidum obsidetur; hereditas adiut maxima; per epistolam aut per nuntium quasi regem adiri eum aient; Caesar colonias patrias adiit; eas quoque nationes adire et cognoscere volebat; magna spe ingreditur in reliquam orationem; mater filium fratricidam compellavit; item bene Bonius initium dixit insaniae; nutritum plebis Romanae Sicillam nominavit; voluptatum perceptarum recordatio vitam beatam efficit; homines caecos reddit cupiditas et avaritia; Pueri Hannibalem imperatorem fecerunt; Aeneas Martium regem populus creavit; Socratem Apollo sapientissimum iudicavit; Socrates totius mundi se incolam et civem arbitrabatur; Ariovistus Caesari respondit sese illum non pro amico sed pro hoste habiturum esse; quid stultius quam incerta pro certis habere, falsa pro veris? unus Cato mihi est pro centum millibus; Artaxerxes Iphicratem ab Atheniensibus petivit ducem; an pro nihilo id putas? Achaei Philippum auxilia orabant; verres parentes pretium pro sepultura laborum poscebat; quotidie Caesar Aeduo frumentum flagitabat; quis musicam docuit Epaminondam? non te celavi sermonem; scito me non esse rogatum sententiam; Marcus omnes militiae artes edoctus fuerat; an sum etiam nunc vel Graece loqui vel Latine docendus? illud me praeclear admones; discipulos id unum moneo; Apollo poscitur verba; via tibi est roganda; Epaminondas docetur musicam; Cato rogatus est sententiam; legiones per Italiam, Rhegium atque Sicillam, porta ex Sicilia in Africam transvectae sunt; Miltiades pervenit Chersonesum; domos omnes concursant; Mithridates ad Cneium Pompeium legatos usque in Hispaniam misit; milites Caesaris sub montem succedunt; Hellespontum copias trajecit; exercitum Rhenum transportare jussit; flumen transmittitur ponte; ab hora octava usque ad vesperem colloenti sumus; dormiet in lucem; septingenta milia passuum ambulavit; Ariovistus tridui viam a suis finibus processit; campus Marathon abest ab oppido Atheniensium circiter milia passuum decem; turres pedes octoginta inter se distabant; Arabes gladios habent tenues, longos quaternaria cubita; milites aggerem latum pedes trecentos triginta, altum pedes octoginta exstruxerunt; Atticus annos triginta medicinam non indiguit; Appius caecos multos annos fuit; Saguntum tertium jam annum sub hostium potestate est; multa saecula vixit Pythagoraeum nomen; Nestor tertiam iam aetatem hominum vivebat; equidem quartum annum ago et octogesimum; tota mihi dermitur hiems; omnia Mercurio similis, recemque coloremque.

ENGLISH-LATIN.

They beat a dog; the son loves his father; thou writest a letter; the English will conquer the enemy; the enemy has been conquered by the English; Carthage was destroyed by Scipio; peace becomes the brave; the English have made Wellington a duke; the French have named Napoleon emperor; I am twenty years

* The subjunctive mood for the infinitive—let forthought never fail (be wanting in) the orator. The subjunctive present is used instead of the imperative when it is wished to put the command in a gentle manner. The perfect subjunctive is sometimes used with a yet more mild and considerate tone, e. g., *ne feceris*, I wish you would not do it.

old; I am in (age) my thirtieth year; my brother has been blind many months; the ditch is ten feet broad; he led his army over the river; Joseph dreamed a dream; they play at dice; dost thou doubt that? they grant me that; I am going to the king; good men never depart from truth; avarice makes men blind; Scrooge was accounted wise; the consul was asked his opinion; they teach this music; the boys must be taught Latin; O wretched me! 'Woe to the husband!

LESSONS IN MUSIC.—No. XVIII.

By JOHN CURWEN.

The subject of "transition" or "modulation," on which we have now to speak, will be deeply interesting to those who have studied the "mental effects" of notes as developed in the preceding lessons. We shall first describe this musical change, and then show our pupils how to test our description by their own ears. If we had them under oral instruction, we should first make their ears conscious of the change, and then persuade them to analyse it, trace its origin, and describe it. As we cannot compel our pupils to pass through this discipline, we trust that they will be their own masters in this respect, and remember that music is not to be learnt by the eye, but by the ear. If you do nothing but read a verbal description of a musical fact, you can only be said, then, to have learnt the description; the musical fact itself you can know nothing of until you have heard it.

Sometimes, in the course of a tune, the notes are so ordered as to direct the ear to a new governing or key-note,—diverting the mind for a time from considering the original key-note as the principal key-note or the principal note of rest and close. The music is then said to have passed into a new key, and the several notes exchange the mental effects which they possessed as members of the old key for those which are proper to their position in the new key. This is called TRANSITION, and is usually effected, by an alteration in the or more of the notes.

"Modulation" is another name commonly given to this magical change of musical intention and effect,—which, at the call of some single new note characteristically heard as it enters the music, causes all the other sounds to acknowledge a

new ruler and sovereign, and, suddenly assuming the new offices he requires, to minister in their places around him. Modulation means, more properly, simply singing in "mode" or key, which of course includes the singing which passes into various "modes" or keys, but is also applicable to correct performance in one mode. See Mr. Graham's article "Music," in the Encyclopædia Britannica.

The note *soh*, frequently chosen to become a new governing (or key) note is *soh*, the fifth of the common scale. The ear is usually made to feel that *soh* (the fifth) is treated as the key-note, by the introduction of a new note instead of the *rah* of the original key. This new note occupies the same position in respect to *soh* which *ra* holds to *soh*,—and *soh* having become the new *soh*, it would be properly called *ra*. When, however, it is desirable to indicate the new note alone, and to distinguish it from the rest of the original key, it is named *ru*.

In the following diagram, we have endeavoured to illustrate the consequences of this change in the new effects produced on the mind. The central column represents the principal key of the tune in which you are singing, with those adjectives by which we have, in previous lessons, designated the mental effects of the notes of the scale placed on either side of each note. These descriptive words, however, must be taken with all the limitations arising from rate of movement, harmonic accompaniment, &c., to which we before referred. With this understanding, the right-hand column will show how the notes change their mental effect at the call of the new note *ru*, and direct the ears to what before was *soh*, as a new key-note,—a new *soh*. The "steady, calm" note begins to produce the effect which we describe as "weeping and sorrowful." The "hopeful, rousing" note changes to the "grand and clear" effect, and so on. Let the pupil sing the tune "Mélodie" to the figures "one, two, three, four, five, six, seven, eight,—one, two, &c.," or get it sung to him. Let him notice the effect of the second "eight" as compared with the first. Do you not feel that it has become, in mental effect, no longer *soh* but *ru*? Notice again the effect on your mind of the first two notes in the third line, immediately after the *ru* has been heard. Is not *me* softened and more sad? Is it not the "steady, calm" note, partaking of the "weeping, sorrowful" character? After the next paragraph we shall be able to pursue the tune a step farther.

THE MENTAL EFFECTS OF TRANSITION PROXIMATELY DESCRIBED.

grand	SOH	clear	STRONG	DOH	FIRM	desolate	FAH	awe-inspiring
desolate	FAH	awe-inspiring	SENSITIVE	TE	PIERCING	sad	ME	calm
steady	ME	calm	WEEPING	LAH	SORROWFUL	hopeful	RAY	rousing
hopeful	RAY	rousing	GRAND	SOH	CLEAR	strong	DOH	firm
strong	DOH	firm	DESOLATE	FAH	AWE-INSPIRING	sensitive	TE	piercing
sensitive	TE	piercing	STEADY	ME	CALM	weeping	LAH	sorrowful
weeping	LAH	sorrowful	HOPEFUL	RAY	ROUSING	grand	SOH	clear
grand	SOH	clear	STRONG	DOH	FIRM	desolate	FAH	awe-inspiring

The note *FAH*—the fourth in the common scale—is also very frequently taken, by transition, as a key-note. The whole "intention" of the music is diverted to *FAH* as its new centre, and the tune is said to have passed into the *FAH* key. This transition is indicated to the ear by the introduction of a new note instead of the *ra* of the original key. This new note stands in the same relation to *FAH* (the fourth) which *FAH* holds to *ME*. It is the *FAH* of the new key, but is called *ru* when it is wished to distinguish it from the *FAH* of the previous key. This *FAH* key is represented by the left hand column of the diagram above. Let the pupil put these remarks to the test in connexion with the tunes "Oberlin" and "Saul," or by studying the following phrase.



The second method of solfing need not at present be noticed. Only ask yourselves, in connexion with the first method of solfing, "do *LAH* really sound like the weeping, and *FAH* like the desolate notes they were?" The note *soh* is called in books of musical science the dominant, and the new key first described is called "the key of the dominant." *FAH* being

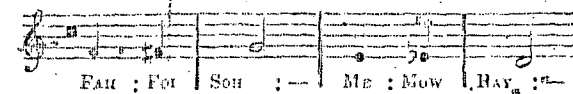
called the "subdominant," the second of the new keys described is called "the key of the subdominant." It may also be noticed that *ru*—the distinguishing note of the dominant key—is often called "the sharp fourth," as though it were only the fourth of the original key made "sharper" or higher. So indeed it appears in the old notation, but it is not truly the fourth of any key, but the seventh of a new key. So also *ru*—the distinguishing note of the subdominant key—is often called "the flat seventh," as though it were merely the seventh of the original key made "flat" or lower, whereas it is, in truth, the fourth of a new key.

The pupil will have noticed, in the third line of the first example, that immediately the *FAH* of the original key is heard instead of *ru*, the music is felt to have returned to the original key, and the *soh* is instantly restored to its more brilliant character. Thus the "return" from the *soh* key is made by a transition, which has the same effect as passing into the *FAH* key,—and you will also notice that a "return" from the *FAH* key has also the same effect as transition into a *soh* key.

In simple music, the tune is seldom carried, by transition, more than one remove from the original key, and soon returns to it. In lengthened pieces of music, however, the tune sometimes passes from key to key, in this manner, till it is several removes from the original key, and then returns, through the same keys, till it reaches the original key again. And sometimes, though rarely, it passes immediately into a distant key.

It will be observed that the notes *ru* and *ru* produce on the mind the effects proper, respectively, to the *ru* and *FAH* of the original key,—but somewhat softened. "It is clear," says M. de Berneval, "that the whole artifice of these two modulations depends on the properties of the subdominant (*FAH*) and sensible (*ru*) which exchange their respective offices." In other words, these transitions present *ru* to the ear where it was expecting *FAH*,—and *FAH* where it expected *ru*.

Occasionally, in the course of a tune, a note is introduced which is somewhat less than half a tone higher or lower than some given note of the scale. It is called a chromatic (the Greek for colouring) note, and the interval between it and the note of the scale from which it springs is called a chromatic degree. When a note is thus raised a chromatic degree we distinguish it by the diaphong *ra*. Thus *ra* becomes *ro*, and *ra* becomes *ro*. When a note is lowered a chromatic degree, the diaphong *ow* is given to the syllable. Thus *ru* becomes *row*, *me*, *row*, &c.



There is some difficulty in distinguishing these chromatic notes, in the old notation, from the characteristic notes of transition,—but they may generally be marked as following immediately the notes from which they spring. Thus *ro* generally follows *FAH*, *row* *me*, &c.

Such notes give a colouring to the music, as the name indicates, but do not produce on the mind the effect of transition. For, instead of supplying the "desolate note" where we expected the "piercing note" (or vice versa) as in transition, they give to the ear a new note where it expected nothing. For, for instance, though it may be regarded as the same sound with *ru*, produces a very different effect on the mind. For, being immediately preceded by *FAH*, the note which distinguishes the original key from that of its dominant (*soh*), the mind refuses to be led, by it from the original key. *ru*, however, is put instead of *FAH*, and the effect is different.

The chromatic semitone (half-tone), as it is sometimes incorrectly called, is described as that part of a tone which is left when a "diatonic semitone" (a tone of the ordinary scale) has been taken from it. If so, it must sometimes contain three degrees of the scale of fifty-three, and sometimes four, as it is taken from the greater or the smaller tone.

It is often asked—do the "sharp" and the "flat" in the old notation represent more or less than half a tone? It is strange that authorities should differ. It is obvious enough, from our article on the scale, that the "diatonic semitone" is more than half a tone. The "sharp" in the old notation always has a

diatonic, or larger semitone above it (for example *ra* sharp, in the key of *ra*, which has between itself and *ra* the "diatonic semitone" *re* non). Therefore the "sharp" raises the note before which it is placed less than half a tone. In the same way it will appear that the "flat" in the old notation always has a "diatonic" or larger semitone below it (as *ra* flat in the key of *ra*, with the interval *ra* *me* below it), and therefore flattens the note before which it is placed less than half a tone. These intervals are the chromatic semitones.

It is usual, in elementary works, to treat this chromatic interval as the foundation of a scale, called "the chromatic scale," in which each tone of the common scale is divided into a chromatic degree and a "tonule" (or "diatonic semitone"). In one form of this "scale" (that with "sharps" in the old notation) the chromatic note leaves the larger interval above it, and in the other below; but the real musical fact is—that these chromatic notes are only occasional variations from the common arrangement of notes. Why then puzzle us with a whole scale of them? "No piece of music," says Dr. Bryce, "is ever composed in the chromatic scale." Then how could Dr. Bryce, as a philosopher, elevate these exceptions to the dignity of a rule? Why should they be called a scale at all?

It may be well to mention here another minute interval spoken of in musical works. It is described as that which is left of a tone when a chromatic degree has been taken from each end,—or that which is left of a "tonule" (diatonic semitone) when a chromatic degree has been taken from it. So that it must be equal to about one degree of the "scale of fifty-three" described in our early lessons. It is called the "diesis," and sometimes most unreasonably the "enharmonic semi-tone." This too is made by our theorists into a scale!

The piano, as at present constructed and tuned, does not exhibit any difference between these three smaller degrees,—the "tonule" (diatonic semitone), the chromatic degree, and the diesis. It makes a soft of compound between the two first, named, and insists on unnatural half-tones. The last, on the piano, is a mere nominal change,—a certain black key, on the finger-board, is called a flat instead of a sharp, or it is called a sharp instead of a flat. The student who wishes to know the reality or otherwise of this "diesis" may notice the difference which the scale of nature gives between *LAH* of the original key and *RAY* of the *soh* key, by drawing the two keys side by side in the "scale of fifty-three." Now an ordinary ear might not be able to mark the distinction between the two notes, or to tell if the voice had been singing *LAH* when it passed into *RAY* of the dominant key;—but let harmony be brought in to help the judgment, let the *ru* or *soh* of its own key be sounded along with the *RAY*, and even the common ear will require its sharpened position. In the same way,—if the eye were presented successively with two lines very slightly different, but each of which assumed to be perpendicular, it might be difficult to see any difference between them,—but if a horizontal line were placed beneath, with which to compare them, then an eye but little cultivated would be able to choose the more upright. A singer with good intonation will make these distinctions by instinct, though he is unconscious of any change in his vocal organs,—and a good violinist (if not accompanying a keyed instrument) will satisfy his ear in a similar manner, though he may not be able to show that he puts his finger on a different place, or even know that he gives it a pressure to the one side or the other. These distinctions may be seen carefully marked in the large sheet "Modulator" published by Ward and Co.

In transition, the music usually passes into the new key through some note, which, as far as relates to its pitch, is common to both keys. Thus you will see, from the diagram above, that we can pass into the key of *soh* (the dominant) through the note *me* which is convertible into *LAH* of the new key, or through *soh* (convertible into *DOH*), as well as through other notes which have a corresponding pitch in both keys. But if we were to pass directly from *FAH*, which cannot form part of the new key, to *ru* (which "distinguishes" it), the note *ru* would then seem to spring as a chromatic note from *FAH*, and would not suggest to the mind the formation of a new key. For the same reason, we could not produce the proper effect of transition by passing into the key of *FAH* (the "subdominant") from *ru* to *fi*. Nevertheless, in modern music, many cases occur of a more "sudden" or "irregular" transition, in which

the music passes directly from *FA* to *RE* or from *RE* to *FA*. See two cases in tunes well-known,—one in the "May Fly," and the other in "Lightly Tread." Both are solfaed in the "Tonic Solfa Reporter," No. 4, (Ward and Co.) "Natural modulation," says Dr. Goss, "that is, modulation into related keys, may be performed either *gradually* or *suddenly*. The gradual method is that in which we take some *doubtful chord* (or chord which may be considered to belong either to the key we are in or to that into which we are going), and from this chord proceed to a *modulating chord*, or chord which clearly marks the change of key, by exhibiting a new sharp or flat." Dr. Marx calls this preparatory chord the "mediating chord." See also Dr. Crotch and Mr. Hickson.

This "convertible" note, from which transition is taken, should be indicated, in solfaing, by pronouncing the syllabic name it bears in the old key together with that which it takes in the new. Thus *re* converted into *lah* of the new key would be pronounced *re-lah*, *don* converted into *son* would be pronounced *don-son*, and so with the rest. The mention of the first syllabic name gives help to the ear (by association) in striking the note, and the sliding i. to the new syllable prepares the ear for the interval by which we leave the note, and makes us feel our place in the new key. In writing, this "convertible" note may have the initial of its first syllabic name placed before and above that of its second and new name. Thus *re-lah*, or *re-lah*. When music is solfaed in this, the more perfect way of denoting transition, *re* of course becomes the new *re*, and *re* is the new *FA*. As the old notation, however, does not mark the "doubtful" or "convertible" note, and leaves us unprepared for the change until we come actually upon a distinguishing note of the new key, we are often obliged to translate that distinguishing note by the syllables *re* or *re*, and con-

tinue solfaing as though we were still in the old key. This, however, is very unsatisfactory, except where the transition is only momentary, and there is an immediate return to the old key.

Transition may be indicated, without the occurrence of the "distinguishing" notes to which we have referred, by the marked use of those notes of the scale which are not the "bold and strong" notes, as though they were meant to be bold and strong. In the second part of the following phrase, for instance, the ear naturally supposes *son*, *re*, and *re* to have become "bold and strong" notes—in other words, to have become changed into the *don*, *re*, and *son* of a new key. The "modulator" will show you that that new key is the key of *son*—the dominant.



And in the phrase given below, you are compelled to feel that the peculiar use of *lah* and *re* has made them "bold and strong" notes, or, in other words placed you in the key of *FA*—the "subdominant."



EXERCISE 39.

MELCOMBE.

KEY F. M. 50.

See	how	be-	neath	the	moon	- beam's	smile,	you	lit-	- the
Thus	MAN,	the	sport	of	bliss	and	care,	Ris-	es	on
m	m	r	d	t	d	f	m	m	m	r

l	s	s	t	s	m	m	f	s	m
bil	low	heaves	its	breast,	And	foams	and	spar	kles
d	t	t	t	t	d	d	l	t	d

r	-m	f	f	m	r	s	f	m	r	d
for	a	while,	And	my	- m'ing	then	sub-	sides	to	rest.
t	-d	r	r	d	t	d	l	d	t	d

The rest of the exercises will be given in the next lesson.

LESSONS IN GEOGRAPHY.—No. XXIV.

MAP OF NORTH AMERICA.

NORTH and South America form but one vast irregularly shaped continent, being connected with each other by the Isthmus of Panama or Darien; it occupies a part of four zones, extending from the north frigid zone, across the north temperate and the torrid zones, and stretching into the south temperate zone. North America is bounded on the north, by the Arctic Ocean; on the south, by the Gulf of Mexico and the Pacific Ocean; on the east, by the Atlantic Ocean; and on the west, by the Pacific Ocean. This continent extends from Latitude $76^{\circ} 45' N.$ to Latitude $8^{\circ} 1' N.$, and from Longitude $52^{\circ} 18' W.$ to Longitude $163^{\circ} W.$ The most northerly point of North America is considered to be Cape Clarence, in North Somerset (Arctic Regions), in Lat. $76^{\circ} 45' N.$ and Long. $77^{\circ} 40' W.$; the most southerly, is Burica Point, Costa Rica, in Lat. $8^{\circ} 1' N.$ and Long. $82^{\circ} 50' W.$; the most easterly point

is Cape Charles, Labrador, in Lat. $52^{\circ} 18' N.$ and Long. $55^{\circ} 31' W.$; and the most westerly point is Cape Prince of Wales, Russian America, in Lat. $65^{\circ} 16' N.$ and Long. $163^{\circ} W.$ The latter point, situated in Behring's Strait, is said to approach the easternmost point of Asia, within a distance of 36 miles, a short enough sail for European migration to accomplish even in an open boat, and, having done so, to people the new world. Within the limits above mentioned the greatest length of North America is 4,817 miles from north to south; and its greatest breadth, from east to west, is 3,614 miles. The surface of this continent, including that of the West Indies and other islands belonging to it, may be reckoned about 10 millions of square miles, and the population about 30 millions; thus giving on an average about 3 inhabitants to every square mile.

The great inland seas and gulfs of North America are the following:—Hudson's Bay, which runs through Hudson's Strait into the British territory, and is connected with the Arctic Seas by Fox Channel, Fury and Hecla Strait, Prince

LESSONS IN GEOGRAPHY.

Regent's Inlet, Barrow Strait, and Wellington Channel; it is also connected with Baffin's Bay by Lancaster Sound; Hudson's Bay terminates in James's Bay to the south. Baffin's Bay is connected with the Atlantic Ocean by Davis's Strait, Lancaster Sound, and other sounds and inlets on the north. The Gulf of St. Lawrence is the broad estuary of the river of the same name, having the large island of Newfoundland with other smaller ones at its embouchure (river mouth). The area of Hudson's Bay is reckoned at 350,000 square miles; its length from north to south, being about 1,000 miles, and its breadth about 500 miles. Baffin's Bay is about 1,500 miles long, and about 300 miles broad; its surface is not less than that of Hudson's Bay, being at least 400,000 square miles. The Bay of Fundy runs from the Atlantic between Nova Scotia and New Brunswick. It is remarkable for its high tides, which have been known to rise 90 feet. The Gulf of Mexico, which is about 1,100 miles long, and about 500 miles broad, washes the southern shores of the United States, and the western shores of the Mexican States; it is connected with the Caribbean Sea, which washes the shores of the West India Islands, and of the northern part of South America; the latter sea is about 1,800 miles, and on an average about 1,000 miles broad. The Bay of Campeachy is the southern part of the Gulf of Mexico. The gulf stream rushes from the Gulf of Mexico through the strait of

Florida, between Cuba and the peninsula of Florida, and crosses the Atlantic in an easterly direction, preserving its higher temperature in the middle of the ocean, and being sensible in this respect when it reaches the Azores. In the Caribbean Sea, to the south-east, are the Gulf of Bay of Honduras, the Mosquito Gulf, and the Gulfs of Darien and Venezuela. On the Pacific side of North America are the Gulfs of Panama, Tehuantepec, and California; and a variety of small bays and sounds stretching to Behring's Straits, and even beyond that strait into the Arctic Ocean. The most important straits have been already mentioned in the preceding remarks; besides these, there are: Frobiisher Strait leading from Davis's Strait to Fox Channel; Sir Thomas Roe's Welcome, between Southampton Island and the main land; the Strait of Belle Isle between Newfoundland and Labrador; the Gut of Canso between Cape Breton Island and Nova Scotia; and others of less importance.

The following is a list of the countries, kingdoms, empires, and states of North America, similar to our former lists of the old continents. Many of the Latitudes, and Longitudes are only approximate, having been taken from maps; but they were taken from the latest published. In islands, where a town or capital is not given, the Latitude and Longitude is that of some known point in the island.

COUNTRIES, KINGDOMS, EMPIRES, AND STATES IN NORTH AMERICA.

Countries.	Capitals.	Latitudes.	Longitudes.	Present Ruler.	Form of Government.	
BRITISH AMERICA.						
Continent.	Upper Canada	Toronto	42° 47' N.	79° 25' W.	Victoria I.	" Limited Monarchy.
	Lower Canada	Quebec	46 49	71 10		
	New Brunswick	Fredericton	45 55	66 40		
	Nova Scotia	Halifax	44 39	63 31		
	Hudson's Bay Ter- ritory	York Fort	57 0	92 26		
	Labrador	Nain	56 24	61 45		
Islands.	Honduras	Belize	17 29	88 11	Frederick VII. Nicholas I.	Limited Monarchy. Absolute Monarchy.
	Cape Breton	Sydney	46 5	60 16		
	Prince Edward's	Charlottetown	46 16	63 10		
	Newfoundland	St. John's	47 35	62 39		
	Arctic Archipelago	Fort Bowen	73 14	88 55		
	Vancouver's	Fort Victoria	48 31	124 8		
Greenland	Hamilton	32 0	65 30			
Russian Territory	Godthaab	64 10	51 50			
	New Archangel	57 0	135 45			
UNITED STATES.						
New England.	Maine	Augusta	44 10	70 0	President Pierce	Republican.
	New Hampshire	Concord	43 0	71 30		
	Vermont	Montpelier	44 17	81 19		
	Massachusetts	Boston	42 22	71 4		
	Rhode Island	Providence	41 51	71 25		
	Connecticut	Hartford	41 30	72 30		
Middle States.	New York	Albany	42 33	73 45		
	New Jersey	Trenton	40 25	74 45		
	Pennsylvania	Harrisburg	40 15	76 40		
	Delaware	Dover	39 10	75 29		
	Maryland	Annapolis	38 59	76 30		
	Columbia District	Washington	38 52	77 1		
Southern States.	Virginia	Richmond	37 34	77 30		
	North Carolina	Richmond	34 50	78 40		
	South Carolina	Raleigh	34 0	81 3		
	Georgia	Columbia	34 10	83 10		
	Florida	Milledgeville	30 30	83 50		
	Alabama	Tallahassee	32 53	86 26		
South-Western States.	Tennessee	Montgomery	36 0	86 45		
	Mississippi	Nashville	32 15	90 28		
	Arkansas	Jackson	34 11	92 17		
	Louisiana	Little Rock	30 27	91 18		
	Texas	Baton Rouge	30 25	98 0		
	Misouri	Austin	38 30	92 3		
North-Western States.	Kentucky	Jefferson	38 12	84 53		
	Ohio	Frankfort	40 0	82 57		
	Indiana	Columbus	39 45	85 0		
	Illinois	Indianapolis	39 45	89 37		
	Michigan	Springfield	42 46	84 35		
	Wisconsin	Lansing	43 3	89 17		
New Territories.	Iowa	Madison	41 30	91 30		
	New California	Lowa City	37 15	121 50		
	Minnesota	San José	44 53	93 8		
	New Mexico	St. Paul	36 12	104 53		
	Utah	Santa Fé	40 31	111 56		
	Oregon	Salt Lake City	45 28	122 30		

Countries, Kingdoms, &c., continued.

Countries.	Capitals.	Latitudes.	Longitudes.	Present Ruler.	Form of Government.
MEXICAN STATES.					
Eastern States.	Tampico	23° 33'	100° 0'	Native President	Republican.
	Vera Cruz	19° 32'	96° 7'		
	Tabasco	17° 55'	93° 25'		
	Oaxaca	17° 0'	100° 30'		
Western States.	Guadalajara	20° 20'	103° 30'		
	Tlalcala	19° 42'	100° 32'		
	Mexico	19° 26'	99° 6'		
	Puebla	18° 30'	98° 30'		
Interior States.	Oaxaca	16° 55'	95° 40'		
	Chiapas	16° 44'	93° 38'		
	Morelos	16° 30'	100° 50'		
	Durango	24° 50'	103° 55'		
Peninsula of California.	Zacatecas	22° 40'	102° 30'		
	Cochiquila	23° 56'	106° 8'		
	New Leon	26° 0'	100° 0'		
	San Luis Potosi	22° 4'	101° 40'		
Peninsula of Yucatan.	Guamuxato	21° 0'	100° 55'		
	Quereqato	20° 37'	100° 10'		
CENTRAL AMERICA.					
Independent States.	Guatemala	11° 7'	91° 20'	Native President.	Republican.
	San Salvador	13° 40'	89° 10'		
	Honduras	15° 51'	86° 2'		
	Nicaragua	12° 20'	86° 45'		
	Mosquito Territory	San Jose	11° 0'		
INSULAR WEST INDIES.					
The Bahamas.	Great Bahama	26° 28'	78° 40'	Victoria P.	Limited Monarchy.
	Lucia	25° 51'	77° 11'		
	Eleuthera	25° 0'	76° 12'		
	New Providence	25° 5'	77° 22'		
The Great Antilles.	San Salvador	24° 8'	75° 18'	Isabella II.	Limited Monarchy.
	Jamaica	18° 8'	77° 30'		
	Cuba	23° 8'	82° 22'		
	Porto Rico	18° 29'	66° 7'		
The Little Antilles.	Hayti	18° 29'	70° 0'	Native President.	Republican.
	Orinba	12° 24'	70° 0'		
	Curacao	12° 16'	69° 5'		
	Buen Ayres, &c.	12° 19'	68° 30'		
Virgin Islands.	St. Croix	17° 41'	64° 44'	Frederic VII.	Limited Monarchy.
	St. Thomas	17° 20'	64° 67'		
	St. John	18° 19'	64° 44'		
	Tortola	18° 31'	64° 35'		
Leeward Islands.	Virgin Gorda	18° 31'	64° 21'	Victoria I.	Limited Monarchy.
	Anguilla	18° 44'	64° 17'		
	Antigua	17° 10'	61° 57'		
	Anguilla	18° 13'	63° 3'		
Windward Islands.	St. Christopher	17° 20'	62° 49'	William III.	Limited Monarchy.
	Montserrat	16° 48'	62° 17'		
	Nevis	17° 11'	62° 43'		
	Barbuda	17° 43'	61° 52'		
Leeward Islands.	Dominica	15° 18'	61° 28'	Oscar I.	Limited Monarchy.
	St. Martin	18° 2'	63° 14'		
	Saba	17° 39'	63° 19'		
	St. Eustatius	17° 20'	63° 5'		
Windward Islands.	St. Bartholomew	17° 61'	62° 53'	Napoleon III.	Absolute Monarchy.
	Guadalupe	16° 0'	61° 43'		
	Dominica	16° 20'	61° 7'		
	Marigalante	15° 52'	61° 22'		
Windward Islands.	Martinique	14° 35'	61° 8'	Victoria I.	Limited Monarchy.
	St. Lucia	13° 57'	61° 14'		
	St. Vincent	13° 9'	61° 15'		
	Grenada	12° 3'	61° 50'		
Windward Islands.	Barbados	13° 6'	60° 43'	William III.	Limited Monarchy.
	Tobago	11° 0'	60° 45'		
	Trinidad	10° 35'	61° 34'		
	British Guiana	5° 47'	59° 1'		
Continent.	Dutch Guiana	5° 55'	55° 39'	Napoleon III.	Absolute Monarchy.
	French Guiana	4° 56'	53° 15'		

The peninsulas and capes in North America are the following:—Melville Peninsula, Boothia, and North Somerset, in the Arctic Regions; East Main and Labrador in the British territory; Nova Scotia, east of New Brunswick; Florida, in the United States; Yucatan, in Central America; Lower California, and Alaska in the Russian territory. In the northern regions, projecting into the Arctic Ocean, Icy Cape, and Point Barrow, in the Russian territory; Cape

Bathurst, Cape Parry, and Cape Felix, in the British territory; also Cape Reginald, Cape Clarence, Cape Hay, Cape Adair, Cape Roper, Cape Walsingham, and Cape Enderby; Cape Chudleigh, in Labrador; Cape Sable, in Nova Scotia; Cape Cod, Cape Charles, Cape Hatteras, Cape Look-out, &c., along the east coast of the United States; Sable Point, in Florida; Cape Catoche, in Yucatan; Cape Gracias-a-Dios on the Mosquito coast; Cape Blanco, Central America; Cape Corrientes, Mexican States; and Cape St. Lucas, Lower California.

UNIVERSITY OF LONDON.—No. III.

London, 14th May, 1853.

This day we had the pleasure of witnessing the ceremony of the presentation of the students of the various colleges and institutions in connection with the University of London, to the Chancellor of the University, the Earl of Burlington, for the conferring of degrees, and for the reception of scholarships, exhibitions, medals, and prizes. This ceremony took place in the large hall of King's College, Somerset House, at 2 P. M. and was attended by a considerable number of spectators, consisting of ladies and gentlemen, professors and students from the different colleges and institutions, and the office-bearers of the University. The proceedings went on with very great order, and many a student's heart then bounded with becoming joy at the reception of the honours gained by their unselfish labours in the acquisition of knowledge. Not a few would also be stimulated by the rewards which they saw conferred on their fellow students, to go and nobly endeavour to deserve the same honours at no distant period, by giving fresh vigour to their studies, and by fanning the flame of honourable ambition for lasting distinction among men. The impetus thus given to climb the hill of science among the students of the different colleges and institutions of the University, we desire to communicate to our students in the Popular Educator, and we hope that the perusal of the following list of those who reaped the honours of this day will have the desired effect. We shall continue to watch the proceedings of the University, and we shall rejoice to find the names of many of our self-taught and other students, in the lists of the honourable and honoured men of future presentations at the University.

The registrar having read a short report, the presentation for degrees then took place. The students were generally presented by one of the professors of the college or institution to which they belonged.

The registrar having read out the name of the candidate to be presented, the gentleman appointed to present him addressed the chancellor in these words:—"My lords and gentlemen,—in the name of ——— College, I present to you [A. B.] to be admitted to the degree of ———." Each candidate, after presentation, immediately proceeded to the table on the left of the chancellor, and there inscribed his name in the register. The order for presentation for degrees was as follows:—

GRADUATES.

DOCTOR OF LAWS.	BACHELORS OF LAWS.
University College.	University College.
Thomas Trevelyan Spicer	Edward Housfield Dawson
DOCTORS OF MEDICINE.	William Thomas Greenhow
University College.	Francis Gardiner
John Charles Backhill	Philip Meadows Martineau
Charles Cowdell	King's College.
Alfred Jackson	Richard Wright
John Russell Reynolds	Manchester New College.
Charles James Shearman	John Hutton Taylor
William Thomas G. Woodforde	Leinster College, Bristol.
King's College.	Thomas Spencer Baynes
Thomas Rhodes Arncliffe	BACHELORS OF MEDICINE.
Samuel Griffith	University College.
St. Thomas's Hospital.	Thomas Armstrong Gammon
John Syer Birtney	William Thomas Gaye
St. George's Hospital.	Joseph Lister
James Samuel Drury	Thomas Littleton
MASTERS OF ARTS.	John Henry Trauener
University College.	King's College.
Robert Braithwaite Batt	Thomas Bridgwater
John Bridge	Robert Coane Roberts Jordan
John Gilling Fitch	Henry Parfitt
William Giles	Guy's Hospital.
Edward Seane Jackson	Frederick William Pavv
Robert Ainslie Redford	Thomas Morley Rooke

St. Bartholomew's Hospital.	Campbell Mackintosh Keir
Bernard Rice	Thomas Herbert Suter
St. George's Hospital.	St. George's College.
Thomas King Hornidge	Charles Alayias Bowring
Richmond Hospital, Dublin.	Henry Lawson
Edgar Jones Roberts	Manchester & New College.
BACHELORS OF ARTS.	Robert Crompton Jones
University College.	Rev. George Hoop Scamling
Samuel Ralph Asbury	St. Patrick's College, Carlow.
Alfred Barnes	Thomas Doucett
Samuel Augustine Courtauld	St. Paul's College, Prior Park
Joseph Fernandez	Edward Williams
Samuel Giles	Airedale College.
Frederick Guthrie	David Burns
William Leach	Evan Lewis
Frederick Leonard	Caleb Scott
George Hayter Macaulay	New College.
John Mettler	Edward May Davis
Charles Jeron March	Benjamin Gray
Eustace Henry Olive	David Lawson Matheson
William Stevenson Owen	John Miller
Henry Enfield Roscoe	Richard Thompson
William Fletcher Satchell	Robert Thomas Verral
James Savage	Thomas Theodore Waterman
William Frederick Tecvan	Spring Hill College.
Charles Topham	Henry Nicholas Culler
Frederick Vavasseur	Stepney College.
King's College.	George McMichael
Charles Linton	Leeds Independent College.
William Evans	James Cameron
Frederick William Farrar	Wesley College, Sheffield.
George William Hewitt Fletcher	Henry William Bly
Bartholomew Gibson	Wesley College Institution.
Walter Batherwell Gill, M.B.	Henry French
Frederick Alfred Johnson	

The Graduates having been severally presented to the Chancellor, the presentation of Scholars, Exhibitioners, Medalists, and Pensioners then took place. The names of all Candidates who obtained Honours in the course of the past year were read out, but those gentlemen only who obtained Scholarships, Exhibitions, Medals, and Prizes, were presented to the Chancellor in the following order:—

PRIZEMEN.

Robert Braithwaite Batt, M.A. University College, Medal in Mathematics, &c.

Robert Ainslie Redford, M.A. Spring Hill College, Medal in Moral Philosophy, &c.

Francis Guthrie, LL.B. University College, Law Scholarship.

John Hutton Taylor, LL.B. Manchester (New College), Law Scholarship.

Thomas King Hornidge, M.B. St. George's Hospital, Scholarship and Medal in Physiology and Comparative Anatomy.

Robert Coane R. Jordan, M.B. King's College, Medal in Physiology and Comparative Anatomy.

Joseph Lister, M.B. University College, Scholarship and Medal in Surgery.

Thomas King Hornidge, M.B. St. George's Hospital, Medal in Surgery.

Thomas Morley Rooke, M.B. Guy's Hospital, Scholarship and Medal in Medicine.

Frederick William Pavv, M.B. Guy's Hospital, Medal in Medicine.

James Savage, B.A. University College, Scholarship in Mathematics.

Frederick William Farrar, B.A. King's College, Scholarship in Classics.

Henry Enfield Roscoe, B.A. University College, Prize in Chemistry.

George McMichael, B.A. Stepney College, Prize in Animal Physiology.

The following have passed M.B. First Examination:—

Henry Power, St. Bartholomew's Hospital, Exhibition and Medal in Anatomy and Physiology.

John Zachariah Laurence, University College, Medal in Anatomy and Physiology.

George Buchanan, B.A. University College, Medal in Chemistry.

Frederick Nyon, Guy's Hospital, Medal in Materia Medica.

John Zachariah Laurence, University College, Medal in Materia Medica.

Henry Power, St. Bartholomew's Hospital, Medal in Botany.

The following have passed Matriculation:—

Thomas Savage, University College, Exhibition in Mathematics.

Alfred Bach, Blighston Grammar School, Exhibition in Classics.

Robert James Donne, King's College, Exhibition in Classics.

William Turner, St. Bartholomew's Hospital, Prize in Chemistry.

William Newman, St. Bartholomew's Hospital, Prize in Zoology.

William Stanley Jevons, University College, Prize in Botany.

ANSWERS TO CORRESPONDENTS.

H. W. K. informs us that Alison's "History of Europe" is being issued in weekly numbers at three-halfpence each. Every separate subject in a letter should have a separate paragraph. His poetry and handwriting will both bear very considerable improvement.—W. HORTH, we cannot insert his poetry verbatim.

R. N. wishes to become a good speaker; this is right; but we can give him no advice such as he wants from us unless we know his aim or object in being a good speaker. There are various sorts of eloquence; which of them does he mean to choose? There are—1st. The eloquence of the Bar; 2^d. The eloquence of the Pulpit; 3^d. The eloquence of the Senate; 4th. The eloquence of Democratic Assemblies; 5th. The eloquence of Debating Societies; 6th. The eloquence suited to street mobs; and 7th. (According to his account). The eloquence of Godger's Hall! We have some notion of all the preceding eloquences, except the last. Who Godger is, or what his Hall is for, we don't know; but we hope that, as is his name, so is not the man. R. N. has mentioned the names of Burke, Canning, and Brougham, among the modern orators, and those of Demosthenes and Cicero among the ancients; such names are reckoned towers of strength among men; but we know not whether any of these orators attended a Godger's Hall, or anything approaching thereunto. We have heard that Demosthenes studied in the great hall of nature, under the glorious canopy of heaven, and that his first orators were the mighty billows of the deep; 'twas thus that he

Wielded at will, the fierce democracy,
And fulminated over Greece, to Macedon
And Artaxerxes' throne."

H. T. B. (Horton): Hebrew! Yes. Grammar! Bagster's, Paternoster-row.—T. CARRER (Barking): His idea of good French authors is in contemplation.—E. J. R.: The annotations on the glass objects exhibited in Class 24, in the Illustrated Catalogue of the Great Exhibition, will most likely answer your purpose, *sergeantly* there by W. C. A.—J. E. G. (Hastings) and J. M. E. (Gunks)—J. F. (Plymouth): Of Joseph we have even only two translations, L'Estrange's and Whitton's; of these the latter is the best. Mallet and Scott's Greek Lexicon, price 10s. 6d.—T. H. (Hastings) (Salford): The answer to the query about the 1000 which he sent us is wrong. The question worked by the rule for finding the sum of any number of terms in Geometrical Progression (See Cassell's Arithmetic, p. 112), is found to be 41,321,469,375,237,738,569,892,393,172 6s. 3d., as sent to us by S. H. R. (Paisley), and N. B. (Hastings) (Falkirk).—F. M. WHITE (Cambridge): In the answer to the questions in Cassell's Arithmetic, p. 32, Ann. 2, the space should be between 6 and 1, instead of between 1 and 6.—AN ANXIOUS INQUIRER (Bridgewater): This little boy must wait till he grows a man, before he assumes so much importance as to request a young lady's name and residence.—FACTORY OPERATIVES (King's Cross): Such questions as he has proposed will come soon under the head of Lessons in Algebra.—CONSTANT SUBSCRIBER (Tunbridge): asks too much; we cannot be supposed to have time or space to give translations of long passages out of Cassell. Besides, there are many translations for the use of schools easily to be had.—UN ERUDITE (Southwark): His inquiry is answered in a previous number.—H. J. READING: Every vowel that comes before two consonants, like the first *a* in *summa*, is pronounced or reckoned long.—Maze instead of *uari* is an error; the other matters are quite right.—C. H. F. (Petersfield): We really cannot give advice in the matter to which he refers.—E. W. (Bristol) must not be in a hurry, but allow nature to take its course. Lessons in English by all means, and Geometry if he has time.—P. GOODHART (Smithfield) will do better than his own on the same subject in "Young's Night Thoughts," a work well known, and universally admired.—A. STUBBS (Paisley) whose name we cannot make out, has the merit of so completely puzzling us with his bad writing on some question in book-keeping, that we cannot really answer him, although we are humbly of opinion that we know something of that art.—W. LEITCHSTONE (Alexandria): His algebraic exercises are very nearly correct.—J. MURPHY (Tromore): His note is not too polite certainly; but we shall give the wished for information immediately.—P. LOMAX: His question is a very curious one; we shall insert it when we can get an opportunity.—SCHUTTER (Scarborough): We regret that we cannot give him exact information on the subject as to money matters; we think that he should matriculate in the University of London, whether he changes his profession or not; the latter is a grave consideration and should not be attempted without great reflection and inquiry of those who are better able to give it than we are.—W. ROBERTS (Exeter) wishes to know who was the author of the papers in the Spectator signed R.—TILSDEN (Broadstairs): His questions are really more curious than useful; as to the position of the Equator, were the whole of the water drained off the earth's surface, who can tell? As to the crown of Hanover ever reverting to England, we can't tell; but we hope that it never will, lest we should get embroiled in continental quarrels.—VOTER ECCLIF (Bromley): see pp. 183, and 359 vol. II., for answers to his questions.—WEST QUAY (Greenock): How does he know that the coals of a vessel found with their lungs upwards in the vessels on landing have not had them blown upwards in the course of the voyage?—A. (Leeds) should study the 6d. Lessons for pronunciation in French; and the Popular Educator's lessons for a knowledge of the language. Let your eye alone; to meddle with it is very dangerous.—E. COLLINS (Love Cough): As much again and twice as much,

both means the same thing.—A WORKING MAN (Leeds) who wants the solution of the equation $x^2 - 41x + 2430 = 0$, will find that if he begins with unity as the first value of x , and tries on the values 1, 2, 3, 4, &c., that the number 6 will satisfy the equation as one of the values of x ; and that by dividing the equation by $x - 6$, he will get a quadratic equation, viz. $x^2 - 35x + 405 = 0$, which gives the other two values of x , viz. $x = 17.347$ nearly, and $x = 23.347$ nearly.—T. BROWN (Bath): The answer to the small query is that the animal reached the top of the wall on the sixteenth day; a solution given by ISAK (Leicester), A YOUTH TEN YEARS OF AGE (Easington Lane) and many others.—TRY: His views are very good indeed, but we fear the trial; we have more work already than we can get through.—D. FREEMAN (Dublin): We shall keep his suggestion as to the Irish tongue in view.—SOCIUS (Kirkdale) and M. MOXON (Ashford) already answered.—G. C. (Banbury) will find an abstract of Galvano-Electricity in Peachell's Physics; see also Smee's Electro-Metallurgy.—H. B. (Stockbridge): CASSALL'S LIBRARY COMPANION, consists of "History of England," 4 vols.; "History of Scotland," 2 vols.; "History of Ireland," 3 vols.; "History and Greatness of the British Empire," 2 vols.; "History of France," 4 vols.; "Biographical Dictionary," 4 vols.; "History of Man," 2 vols.; "Wonders of the Universe," 1 vol.; "History of the Steam-Engine," 1 vol.; "Sailings over the Globe," 2 vols.; and "Footprints of Travellers," 2 vols., making in all 26 vols., which may be had for one pound sterling, less six pence. The whole may be had in a mahogany case, with glass face and key, for one pound five shillings.

ERRATUM.

Vol. II. p. 353, col. 2, line 35, *dele and a*.

LITERARY NOTICES.

IMPORTANT EXTENSION OF JOHN CASSALL'S SYSTEM OF NATIONAL EDUCATION.

BY THE PUBLICATION OF VALUABLE DICTIONARIES.

To meet the want of masses of the People, and the wishes of the numerous readers and students of THE POPULAR EDUCATOR, JOHN CASSALL has just commenced publishing a series of the most valuable and useful Dictionaries in different Languages, upon a plan which will place them within the reach of the humblest individual.

The publication of THE POPULAR EDUCATOR, and the wonderful success which has accompanied it from its first appearance, twelve months since, has led a vast number of its subscribers to study the Latin, French, and German Languages. As a natural and necessary result, a demand has immediately been made for Dictionaries in each of these Languages at a moderate price. But where were they to be obtained? The high prices at which good Dictionaries of these Languages are published was found to be an insuperable bar to progress in learning, and especially to such a desirable progress as would give the students of the Lessons in THE POPULAR EDUCATOR the power of speaking and writing these different Languages. It is universally acknowledged that the Lessons and Vocabulary of the Latin, French, and German Languages are unequalled for simplicity and clearness, as well as for the extent of information they convey; but the student cannot be limited to these; he must be furnished with a copious Dictionary of the Language he desires to master, and which the Lessons in THE POPULAR EDUCATOR have taught him he is able to master, if he has only the suitable instrumentality. As it is the high price of Dictionaries which has hitherto prevented the march of improvement thus happily begun, JOHN CASSALL has determined to publish a good and useful Dictionary of each Language, at a price that will enable the student to obtain it upon terms equally easy with those on which he has obtained the Lessons, &c.

The Dictionaries will be published in Weekly Numbers, Three-pence each, and in Monthly Parts, One Shilling each. They will be printed in demy octavo; each Number will contain thirty-two pages, and each Part one hundred and twenty-eight pages. Though these Dictionaries are thus published in periodical positions, to suit the convenience of a majority of purchasers, it will be found that the entire volumes will cost no more than if it were purchased at once.

The first Dictionary which will be published will be that of French and English, and English and French, with a complete Treatise on French Pronunciation. This Dictionary will embrace a greater number of Scientific, Mythological, Geographical, and Historical Names than is to be found in any other Dictionary published in this country. The price of the work complete will be Eight Shillings and Sixpence, or twenty-six weekly Numbers, price Three-pence, of thirty-two pages, or sixty-four columns. Covers for binding the volume, when completed, will be issued at 6d. The French department carefully edited by Professor De Lorme, and the English department by Professor Wallace and H. Bridgeman, Esq.

The German Dictionary will shortly follow upon a similar plan of publication. Also the Latin Dictionary, which will be edited by Dr. Beard. Orders for the French Dictionary in Numbers ought to be immediately given. CASSALL'S LESSONS IN FRENCH (from the "Popular Educator"), are just issued in a neat volume, price 2s. in stiff covers, or 2s. 6d. neatly bound in cloth. The German Lessons (uniform with this volume) will follow in a few days.

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LESSONS IN GEOLOGY.—No. XXXII.

By THOMAS W. JENKYN, D.D., F.R.G.S., F.G.S., &c.

CHAPTER III.

ON THE INFLUENCE OF ATMOSPHERIC AGENTS ON THE EARTH'S CRUST.

SECTION I.

ON THE WEATHERING OF ROCKS.

FIG. 73.



Weathered Rocks at Capri, near Naples.

In the lessons embraced by the preceding chapters and sections, I have endeavoured to explain to you the parts, which fire and running water have acted, in effecting changes on the crust of the earth. Our new chapter brings us to another class of powerful agents, which exert an unwearied agency in changing the surface of the globe. We have now to examine the decomposition, disintegration, and decay produced in the earth's crust by meteoric agents or atmospheric influences.

By these atmospheric agents and influences, I mean the gases of the air, heat and cold, dryness and moisture, rains and winds, light and electricity. The operations of these slow but incessant agents, assisted by the laws of gravity, form a wide-spread system of disintegration and destruction which may be traced over the whole surface of the earth, from the pinnacles of the highest mountains down to the level of the sea.

There is no rock, however hard, that does not bear some marks of what is termed *weathering*, or some traces of the action of the atmosphere upon it. All the mineral substances of which any rock is composed are well known to have greater or less tendency to combine with the oxygen of the atmosphere, especially when under the favourable circumstances of changes of heat and moisture, and probably of light and electricity. Carbonic acid and water, also, are perpetually absorbed by rocks in considerable quantities.

The change which the atmosphere produces in the surface of rocks is exceedingly variable, and depends much upon local circumstances. A rock of the same mineral composition which may undergo complete decay in one situation, will in another suffer but a trifling disintegration. The result of these combinations between meteoric agents and rocks, whether the action be chemical or mechanical, is to loosen the coherence between the particles on the surface, and to produce a tendency to decomposition and destruction, or what is commonly called, *crumbling*.

It is impossible to contemplate the surface of mountains and valleys, of continents and islands, without being struck with the stupendous effects of the slow but constant and long progression of atmospheric agency. These effects, by the slowness of their operation, and comparative diminutiveness of their day's work, attest a lapse of time and ages far beyond all calculation.

The operations of atmospheric agents upon rocks are, perhaps, best studied in granite countries, or in districts of red sandstone and shales. The Tors and the Logan stones of Devon and Cornwall may be mentioned as excellent specimens of the weathering of rocks. These specimens become the more striking by the circumstance, that granite is so little subject to change as to be proverbially used as a symbol of endurance and immutability, and is on that account selected as the material for the erection of bridges and great national works of architecture. Nevertheless, granite, under particular circumstances of texture, climate, and exposure, is remarkably liable to disintegration.

The Tors of Dartmoor and the Logan stones of Cornwall are composed of granite, which, as you may see in the blocks of Waterloo Bridge, are divided into masses of cubical or prismatic shape. Through the influence of the atmosphere or weather, the particles in the hard surface of the granite, which are most exposed to the air and rain, become loosened and separated, and the masses, which were originally prismatic, acquire an irregular shape. In short, the rock crumbles into shapeless gravel.

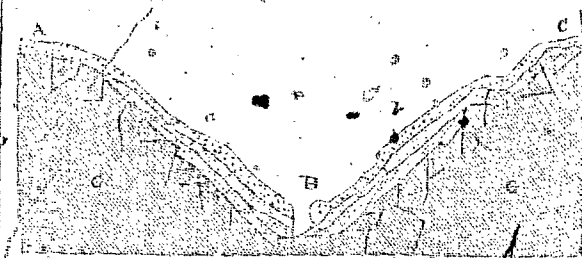
The amount of the disintegration, and the immense lapse of time which the atmospheric operation occupies, is indicated by the depth of the crumbled surface of all the districts around these Tors and Logans. Indeed, in any area, whatever may be the nature or the mineral character of the rock, whether porphyry, slate, compact sandstone, or trap, the surface is found shattered, and crumbled to a considerable depth.

The phenomena of this weathering and crumbling throws light upon other operations which have taken place in the early history of these disintegrated rocks. They evidently prove that the valleys of the neighbourhood had been formed by other agents, long before the process of decomposition by weathering commenced on the surface; for they show that the general outline and form of the land, in hill and valley,

must have been, at the time of their upheaval from the sea, much the same as they are now.

Our next diagram will assist you to understand the geological facts which I have just stated.

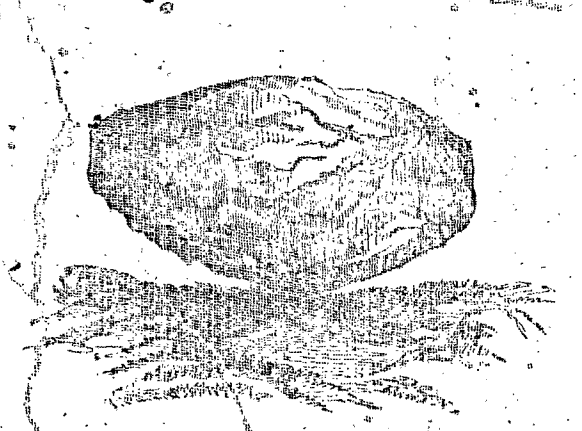
Fig. 69.



The Disintegration of Granite by Weathering.

In the above diagram, the curved line A-B-C shows the disintegration of the granite rock, following a line of previous elevation and depression. A part of the rock, from x to y, on account of some peculiarity of lithological composition, has been able to resist the influence of the atmosphere so as to show very little weathering. The influence of moisture and frost is seen to have entered the body of the rock somewhat deeply, and to have crumbled much of its mass under the surface soil. In the valleys below A and C, the accumulation of the detritus is greater than on other parts of the line. This was to be expected. It is obvious that the weather-worn particles, disintegrated on inclined planes, will very often fall by their own gravity from their original position, and their downward progress towards the valley will be increased by the action of showers of rain or that of melted snow. As this process goes on for years and ages, the quantity of detritus accumulates in some instances to a very great depth. When this accumulation of weathered materials has been cut through by a rivulet, or in making a new road, it sometimes has a stultified appearance, as if the loosened and crumbled fragments from the hill sides had slid or slipped over each other at the bottom of the valley, as is faintly represented under A and C. Such is the extent of this disintegration in granite, that it is found in the quarries at Dartmoor to the depth of fifty or sixty feet, as represented by the cracks in the diagram.

Fig. 70.



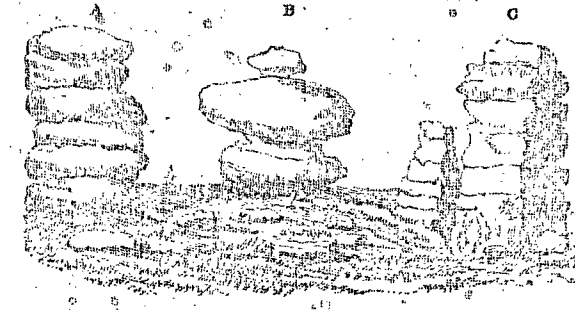
A Logan Rock, Cornwall.

In Cornwall, and other places, this action of the weather has, in several instances, worn away part of the jointings of large blocks of granite, which are, consequently, left resting on a kind of central pivot. From this circumstance, these masses of weathered granite can, notwithstanding their enormous bulk and weight, be easily moved.

called Logans, or rocking-stones, and are said to have been objects of superstition among the Druids.

Our diagram, fig. 71, represents two natural piles or combinations of rock, A and C, shattered and disintegrated by the atmosphere. The centre stone B is a Logan or Rocking-stone.

Fig. 71.



Disintegration of Granite and formation of Logan Stones by Atmospheric Influence.

This disintegration of granite is common to most countries. The results of it form a striking feature of large districts about Clermont in Auvergne and about the Eastern Pyrenees, where the surface is in many places, so much decomposed, that the traveller may imagine himself to be in large tracts of gravel beds. This process, under favouring circumstances, is very rapid. On one occasion a hollow way or cutting had been blasted through a granite rock in the Eastern Pyrenees, and in six years it was found that the upright sides or walls of the cutting had been so much disintegrated by the carbonic acid of the atmosphere, that the solid rock to the depth of three inches was in a crumbling condition. In other districts, large masses of granite rock are found which look quite solid, yet when touched by the hand or trodden by the foot shiver to powder.

In some parts of England, the granite is so liable to decomposition, that an enormous block of it may be seen with a weathered hole in it large enough to admit the passage of a horse and cart. These blocks rest upon surfaces of the underlying granite rock, which, from a short distance, look as if they would last for ever; and yet when you apply a knife or a chisel to it, you can cut it and shatter it to any form you please, as if it were a piece of loaf sugar.

This decay of granite is called by French geologists the granite sickness, and it is a consumptive disease from which there is no recovery when it has once entered the rock. The walls of the prison at Dartmoor are built of surface or weathered granite, and the result is that such blocks have become a spongy mass, continually absorbing a moisture that rusts the iron bars intruded into it. By this means the cells of the prison are so damp that they can be used only by covering the walls inside and out with Roman cement or with tiles. On the other hand, the granite used for the Nelson Monument in Trafalgar-square, is obtained from a depth to which atmospheric decomposition had not reached. It will, therefore, be the more enduring.

On the surfaces of some granite rocks are frequently found strangely-faceted holes, which are called Rock-basins, which some antiquarians have ascribed to the hand of the ancient Druids, but which, in fact, are due to the silent and slow chisellings of the invisible gases of the atmosphere. These holes consist of several basins, apparently hewn out of the rock, some of which are eighteen feet in circumference and six in depth.

At Peninnis Point, in the Scilly Islands, there are curious examples of these basins. In that locality they are called by the peasants, "the Kettle and Pans." They occur in the surface of immense blocks of granite on the top of the promontory, and are about three feet in diameter and two in depth. Most of them are nearly circular, but many of them have awrying curves on the edges, some of them have their sides perfectly perpendicular and their bottoms flat. The granite blocks in which these rock-basins are found are six or seven yards high, with surfaces of eight or nine yards square. In some

cases the basins are exceedingly large, as if they had been formed by a junction of three or more other basins by advancing decomposition.

All these basins hold water after rain. One would be in-

Fig. 72.



The Kettle and Pans at Peninnis, Scilly Islands.

clined to ascribe their formation to the chemical agency of the water, were it not that similar indentations or basins are found in the sides of blocks as well as on their surfaces. One of the blocks at Peninnis Point has, on one of its sides, such a cavity or basin six feet long, five feet wide, and four feet deep.

These and similar facts, not limited to granite, but developed in all kinds of rocks, must excite in your mind the inquiry, what elements can there be in the atmosphere capable of such destructive operations? The principal agent, apparently very feeble and almost contemptible, is moisture, considered partly as the chemical solvent of various substances, and partly as the medium by which carbonic acid and oxygen in a dissolved state are applied to the rocks which are being changed. The two invisible and powerful agents in the weathering and the disintegration of rocks are carbonic acid and oxygen.

Chemists inform us that carbonic acid is capable of being largely dissolved by the moisture of the atmosphere, and becomes thus peculiarly fitted for the work of a chemical agent. Though the Feldspar, which forms a great part of the hardest rocks such as granite and porphyry, will withstand for some time the corrosive action of even muriatic acid, it will readily give way before moisture charged with carbonic acid. This affects the feldspar rapidly, causes it to decompose, and shivers its most obdurate masses into crumbled powder and soft clay. The reason is this, granite is largely composed of feldspar. Feldspar contains in its composition a great quantity of alkali, for which carbonated water has an affinity; which means, that it tends to unite with it and to dissolve the alkali out of it. As the alkali dissolves out of the feldspar, the granite crumbles in pieces, and turns into powder or clay.

Another invisible and mighty agent of destruction contained in the atmosphere is oxygen gas, which acts powerfully upon different rocks according to the elements of their composition. This gas is peculiarly destructive to rocks which have iron in their composition. Whenever you see reddish brown stains on the surface of weathered rocks, you may be sure that such rocks contain some compound of iron. The reddish stains are occasioned by the efforts of the moisture of the atmosphere to decompose the iron and to cause it to be dislodged and removed. The oxygen unites with the iron, and by this combination loosens the particles of the rock. The result of this operation is, that the hard rock becomes crumbled, crumbled, and softened, until, at last, it becomes pulverized dust. As this gas is soluble in water, though it be but slightly, it may, in its dissolved state in rain water, exert a destructive power over the surface of rocks which are pelted or moistened by the winter shower.

This atmospheric agency in weathering and disintegrating the surface rocks of the earth's crust has produced great benefits to the world.

The effects of the combined operations of all these atmo-

pherie and gaseous agencies are finely illustrated in the holes, caverns, arches, and avenues, sometimes of most grotesque shapes, which are found in rocks of all descriptions. One of the rocks in Capri, an island near the coast of Naples, furnishes a good illustration. The rock consists of lava, weathered into crevices and passages of the most fantastic forms.

It is to this silent but powerful agency that we are indebted for all our porcelain clays. Your earthenware jug and flower-pot, and your splendid and costly china dishes and vases, are produced from a material which is formed by the combined influences of moisture, air, and carbonic acid. The rocks from which these different clays were derived may have been of various mineral character, but they all agreed more or less in the chief ingredients of their composition.

About Dartmoor and in Cornwall there are rocks of a fine white granite, which present striking examples of the disintegration effected by the weather. On their surface, and to a considerable depth in their substance, the rock is altered to a soft matter resembling mortar. This soft matter is disintegrated granite, and is collected together and washed. The water that washes it is conducted into tanks, where it deposits a white earthy matter which constitutes the beautifully white fine clay employed in the manufacture of porcelain. Not less than ten thousand tons of this white clay, the produce of the weathering of granite, is exported every year from Cornwall for the use of the English potteries. The facts are the same as to the clays employed by the Chinese in their exquisite porcelain.

What I have said of porcelain clay is, in a measure, true of all other clays. Porcelain clay is white, but earthenware clay is more or less yellowish, brown, and even red. This difference in the colour does not essentially depend upon any difference in the formation of the clay as clay, for each clay is derived from the decomposition of feldspar. The reason of the difference is this. Some rocks which contain feldspar contain also iron, or some colouring matter which communicates its stain to the clay derived from it.

The signal fact, however, which makes this atmospheric action upon rocks more important than any other instance of it, is the disintegration of the surface of rocks which contain silver and gold, a fact that has charmed thousands in California and Australia.

Many have wondered how silver ore came to be discovered in such out-of-the-way situations as the bleak and craggy summits of the Andes of South America. Atmospheric agents will answer all the questions upon these topics. Granite, porphyry, and slate are hard rocks, but silver ore is harder still. While the rocks which contain veins of silver are readily decomposed and crumbled away by air and weather, the sturdy metal will resist these influences. The consequence is, that as the surface rock weathers and moulders away in the cliff, the veins of silver will come at last to project and stick out from the side of the rock, and these jutting masses will be seen and marked by the first visitor. One of these valuable mines was discovered by a driver, who had to throw a stone at one of his loaded donkeys while passing over the Cordilleras. Finding that it was heavy in the throw, he picked it up when he came to its place, and found that it was full of pure silver.

The diggings of gold, delved in the sands of rivers and valleys in California and Australia, furnish other examples of the disintegrating influences of the weather. Gold is scattered in small particles through the substance of various ancient rocks. By the incessant wearing down of the surface of these rocks, these gold particles are set loose, and then, either fall from the sides of the rock, or are washed away and transported by rains and mountain torrents, to valleys at a distance from their native rock.

In this lesson I have spoken of atmospheric action upon rocks as being much modified by favourable circumstances, which means circumstances of climate favourable to disintegration. This fact can be verified in any country or district for all parts supply illustrations of granite, porphyry, limestone, &c., disintegrating rapidly in one place, while their decomposition is almost imperceptible in another. In no country, perhaps, can we find examples of this so palpable and so decisive as in Egypt. The operation of these causes of decay, rapid where the atmosphere is charged with moisture, or where rains and winds are prevalent, but imperceptible where moisture is absent, is clearly illustrated in Egypt. In Lower Egypt, espe-

cially in the district called Delta, the atmosphere is filled with exhalations from the neighbouring Mediterranean Sea. Here the ancient cities, Memphis, and Heliopolis, built of massive granite, are now mere heaps of ruins. Not only do not the stones lay one on another, but the very blocks are crumbled by the weather. Even the proud granite obelisks at Alexandria are becoming more and more unreadable through the corroding action of the weather upon the inscriptions.

If you leave the Delta, and travel on to Upper Egypt, you find that there, in an atmosphere not favourable to disintegration, the monuments, the tombs, and the inscriptions, exhibit no signs of decay, but appear as well defined and as fresh as if they had just come from the artist's chisel. Even the black bricks, made of the mud of the Nile and dried in the sun, and exposed to the atmosphere for three or four thousand years, still retain their hardness, and firm position in the temples, pyramids and tombs, and present their hieroglyphics and architectural ornaments as distinct in outline as in the first year.

LESSONS IN ENGLISH.—No. XLIX.

By JOHN R. BEARD, D.D.

NUMBER (continued.)

Sole is an old Saxon plural from *sol*. Like *codfish*, we say in the singular and in the plural haddock, pike, ray, salmon, sole, sturgeon, trout, mackerel, turbot. *Sole* has, however, a plural form in *s*, as *soles*, e. g., "send me three pair of *soles*." *Fish*, too, has a specific plural form, *fishes*, used in the older states of our language, as in the authorized translation of the Bible.

Some words singular in form are used in the plural without any change, e. g.,

Singular.	Plural.
cannon	as, ten cannon.
head	forty head (of cattle).
horse	twenty horse (power).
foot	a two foot (rule).
pound	six pound (of beef).
sail	forty sail (of ships).
shot	a hundred shot.
stand	fifty stand (of arms).
stone	twelve stone (in weight).
brace	three brace (of partridges).
couple	four couple.
leash	five leash (of hounds).
dozen	twenty dozen (of eggs).

These deviations from analogy, though strictly proper, inasmuch as they are justified by authority, are not to be extended analogically, and there seems to be a disposition to bring some of them into conformity with rule. Thus we say, "the chimney is twenty feet long and ten feet high," also, "I have paid you four pounds;" whereas the phrase used to be *four pound*.

Some words in their nature do not take and others do not admit of a plural form. Collective nouns, such as *fleet*, *sail*, &c., having in the singular a plural import, do not take a plural form. Abstract nouns, such as *whiteness*, *innocence*, *progress*, being in their nature restricted to unity of idea, do not admit of a plural form. Sometimes, however, the idea which an abstract noun conveys, is considered as distributed, and then it may assume a plural form, as *truths*, *virtues*, *conscience*. This use is to be strictly limited by a regard to authority. A latitude here gives either an affected or poetic air to composition, e. g., as when a young writer speaks of "the frosts of winter," "the rains of spring," "the heats of summer," "the chills of autumn," or "the sanctities of the hearth."

The following words are used exclusively in the plural, namely, such as, consisting of two parts, have before them the term *a pair*, as

A pair of be-lows.	A pair of nippers.	A pair of snuffers.
" " breeches.	" " nutcrackers.	" " spectacles.
" " braces.	" " pantaloon.	" " stays.
" " colours.	" " pliers.	" " tongs.
" " compasses.	" " scissors.	" " trowsers.
" " drawers.	" " shears.	" " tweezers.

When the words *a pair* is the subject of the proposition, the verb must be in the singular; but when *a pair* is dropped, and a word such as *breeches*, *drawers*, &c., is the subject, the verb must be in the plural, e. g.,

This pair of breeches is too small.
These breeches are too small.

LESSONS IN ENGLISH.

The following 91 nouns are used exclusively in the plural number:—

Acoustics, the science of sound.	Literati, men of letters.
Amends, reparation.	Lodgings, a temporary abode.
Ancients, the men of old.	Maps, the shades of the departed.
Annals, yearly histories.	Mathematics, the sciences of number, magnitude, and quantity.
Antipodes, the inhabitants of the parts of the globe opposite to our own.	Matins, morning prayers.
Archives, records kept in safety.	Miseries, a distress of childhood.
Arms, weapons.	Mechanics, the science of moving powers.
Ashes, remains of the dead.	Metaphysics, the science of mind.
Assets, property to one's credit.	Mnemonics, the science of memory.
Bettors, one's superiors.	Moderns, men of recent times.
Billiards, a game of skill.	Morals, character and principle.
Boardwages, wages for mere subsistence.	Nuptials, ceremony of marriage.
Bowels, the intestines.	Oats, a kind of corn.
Calendar, the reckoning of the month with the Romans.	Obsequies, funeral observances.
Cards, instruments of gambling.	Odda, inequality.
Cattle, the larger domesticated animals.	Optics, the science of vision.
Clothes, vestments.	Origins, branch and root.
Contents, what a book, &c., has or holds.	Physics, natural philosophy.
Customs, taxes levied as import duties.	Platons, the constellation of the Pleiades.
Downs, hillocks of sand on the sea coast.	Pneumatics, the science of atmospheric pressure.
Draughts, a game of skill.	Politics, the science of government.
Dregs, sediment.	Prognostics, means of foretelling.
Effects, a man's personal property.	Pyrotechnics, the art of making fireworks.
Embers, smouldering coals.	Quarterings, the coats of arms in heraldry.
Entrails, the internal parts of animal bodies.	Quarters, station for soldiers.
Environ, the places round a town or city.	Regimentals, military costume.
Ethics, the science of morality.	Rudiments, first principles.
Filings, particles rubbed off iron, &c., by rasping with a file.	Sessions, a tribunal sitting quarterly.
Fives, a game with balls.	Shackles, chains, impediments.
Goods, property, wares.	Shambles, place where butcher's meat is sold.
Grains, small after it has been threshed.	Shavings, that which is brought off wood or iron by the plane.
Greens, cabbage, &c.	Soundings, casting the lead; the sea-bottom where an anchor will hold.
Hatches, doors in a ship's deck.	Statistics, the science of facts founded on number.
Head-quarters, the post of the commander-in-chief.	Subsidies, supplies of men and money for war.
Hollands, a kind of gin.	Superiors, those who are above you.
Hydraulics, the science of the motion of water in pipes.	Tactics, modes of proceeding.
Hydrostatics, the science of water pressure.	Therapeutics, the science of healing.
Hysteries, fainting fits.	Tidings, news, information.
Idea, the 15th of the month with the Romans.	Trappings, ornaments for horses, carriages, &c.
Inferiors, those considered below you.	Vapours, low spirits.
Intestines, the bowels.	Vespers, evening prayers.
Italics, a species of letter-press.	Victuals, food.
Leading-strings, means for guiding infants in their trying to run alone.	Vitals, the parts of the body on which life depends.
Lets, the sediment in wine.	Wages, workmen's pay at stated periods.
Letters, literature.	Wares, merchandise.
	Waters, mineral water, or a medicinal spring.

Some nouns have in the plural a different signification from what they bear in the singular, e. g.,

Singular.	Plural.
Arm, a limb of the body.	Arms, weapons of war.
Ash, the name of a tree.	Ashes, the remains of anything burnt.
Cloth, woven flax, cotton, or wool.	Clothes, the dress or clothing of the body.
Compass, limited space, enclosure, apparatus for steering a ship by.	Compasses, an instrument for drawing circles.
Drawer, that which draws.	Drawers, things (a garment) drawn on; a dress.
Light, that which proceeds from a luminous body.	Lights, luminous bodies.
Moral, a didactic sentence.	Morals, the character, the principles of action.
Organ, a musical instrument.	Organs, parts of the body possessing functions.
Pain, the cause of uneasiness.	Pains, labour, trouble, toil.
Physic, medicine.	Physics, natural philosophy.
Quarter, a fourth part, a region.	Quarters, lodgings, depot.
Snuffer, one who snuffs.	Snuffers, an instrument for snuffing a candle.
Study, application to learning.	Studies, the subjects learned.
Vapour, aeriform matter.	Vapours, low spirits.
Wit, knowledge, ingenuity.	Wits, the senses, sound mind.

Of compound words there are two classes, one in which the signification of the plural is added to the former word, the other in which it is added to the latter word, e. g.,

Singular.	Plural.
Attorney-General	Attorneys-General
Solicitor-General	Solicitors-General
Knight-Errent	Knights-Errent
Cousin-German	Cousins-German
Court-Martial	Courts-Martial
Son-in-law	Sons-in-law
Power-of-Attorney	Powers-of-Attorney
Chancellor-of-the-Exchequer	Chancellors-of-the-Exchequer

COMPOUNDS IN WHICH THE *s* IS ADDED TO THE LATTER WORD.

Singular.	Plural.	Singular.	Plural.
A man-servant	man-servants	A cock-sparrow	cock-sparrows
A maid-servant	maid-servants	A spoonful	spoonfuls
A wine-glass	wine-glasses	A mouthful	mouthfuls
A man-trap	man-traps	A handful	handfuls

Names of persons may be in the plural when more persons than one are intended, as, the two Cates, the Scipios; also when a proper name is used descriptively, e. g., the *Ciceros* of the age are few; the *Ciceros*, that is, the great orators. Hence good English usages would require the *Miss Smiths*, the *Mr. Dobsons*. Regard to French idiom has, however, for some time required the *firm of Messieurs Potter and Norris*, or *Messrs. John Wilson and Sons*. There is, therefore, some excuse for the affectation now almost constantly seen, when two sisters open a ladies' school, namely, the *Misses Brown* or the *Misses Tinker*. Such deviations from pure English require to be checked.

EXERCISES.—COMPLETE.

The choruses were very fine. Leonidas was a hero. I have received two cargoes of cotton. A he-wolf and two she-wolves were killed. I recommend you to read Johnson's "Lives of the Poets." Do not kill flies. I have bought a pen-knife. The two armies met at day-break. In passing through the valley, I saw a monkey. The environs of London are very beautiful. How can I make amends for the harm I have done you? Paley is too highly esteemed as a teacher of ethics. Locke's metaphysics are despised by the scholars of Kant. The prime minister of England is the servant and the organ of the queen. Organs were introduced into Christian churches about the ninth century. Lord Brougham was the most ready but not the most learned of all our Lord Chancellors. Old Thomas Parr, who lived a hundred and fifty-two years, had eight sons-in-law and four daughters-in-law.

EXERCISES.—INCOMPLETE.

The tree is full of—. She is a lovely—. That child has the whooping-cough, it must not play with the other—. Yesterday I saw one black mouse and two white—. Our cook has bought a fat goose; are—cheap in this place? Have you a penny? Yes, here are six—which make six—. In London there are more than six hundred (church). In the United States of America the—are

Had we space, we might be able to assign the reason why these nouns severally are used in the plural only. One instance may be taken. There is a class of nouns, such as *acoustics*, *physics*, *metaphysics*, &c., which claims attention. These words are of Greek origin. They in each case denote a science, and they are in the plural because our English translators put into the plural the several corresponding Greek words, which are in the plural, which first they rendered the Greek terms into English. Thus, in translating Aristotle they found the science of material things, called *ta physica*, that is, Aristotle's treatise on material things, and so, in servile obedience to their Greek master's usage, they coined the word *physics*. Another treatise by the same authority was designated *meta ta physica* (things to be studied after physics,) which consequently they rendered *metaphysics*; that is, the science of mind, to which Aristotle thought the student should apply not till he had mastered the science of matter.

still slaves. Two—make a whole. London is the largest of all the—in the world. The French and English—like fools have often fought bloody—. All good—must go on a pilgrimage to Mecca. Nelson's fleet at the Nile consisted of eighteen—; that of the French was seven—stronger, and had besides much heavier—. Give me a—of bread; you may have as many—as you want.

PASSING.

Cherubim and Seraphim bow and worship around the throne of God, adoring his perfections in their inmost souls.

Cherubim, a common noun, of Hebrew origin, in the plural number, from cherub, forming together with *seraphim* the subject of the verb *bow*.

And, a conjunction coupling the nouns *seraphim* and *cherubim*.

Seraphim, a noun common, in the plural number, from the Hebrew noun *seraph*; *seraphim* is part of the compound subject to the verbs *bow* and *worship*.

Bow, an intransitive verb, present tense, third person plural number, agreeing with the subject *cherubim* and *seraphim*.

And, a conjunction uniting *bow* and *worship*.

Worship, an intransitive (sometimes transitive, as in *they worship God*) verb, present time third person plural, agreeing with the subject *cherubim* and *seraphim*.

Around, a preposition governing *throne*.

The, the definite article.

Throne, a common noun, singular number, forming its plural by the addition of *s*, and dependent on the preposition *around*.

Of, a preposition governing the noun *God*.

God, a proper noun, singular number, having, from its signification, no plural, though *gods* is used when false divinities or idols are meant.

Adoring, a present participle from the transitive verb *to adore* agreeing with *cherubim* and *seraphim*, and governing *perfections*.

His, a possessive pronoun, from the personal pronoun *he*, of the third person singular number, plural *their*, agreeing with *perfections*.

Perfections, a common noun from the Latin *per*, through, and *facio*, I make (E. R. perfect), in the plural number, singular *perfection*, the object to the participle *adoring*.

In, a preposition governing *souls*.

Their, a possessive pronoun, third person plural, singular *his*, agreeing with *souls*.

Inmost, an adjective in the superlative degree, made up of the Saxon elements *in* and *most*, and agreeing with *souls*.

Souls, a noun common, of Saxon origin, plural number, singular *soul*, dependent on the preposition *in*.

Words with their proper Prepositions to be formed into Sentences.

F. R.

Disappointed of, *dis, not, ad, to, punctum, a point*
Disapprove of, *dis, not, prob, I approve*
Discourage from, *dis, not, cour, heart*
Disgust at, *dis, not, gustus, taste*
Dislike to, *dis, not, licet, (Sax.), to like*
Dismissal from, *dis, not, mitto, I send*
Disparagement to, *dis, not, par, equal*
Dispense with, *dis, not, pendo, I pay*
Dispose of, *dis, in different ways, pono, I place*
Dispossess of, *dis, not, possideo, I possess*
Dispute with, *dis, differently, puto, I think*

LESSONS IN FRENCH.—No. LX.

By Professor Louis FASQUELLE, LL.D.

§ 60. TABLE OF THE REGULAR TERMINATIONS OF THE FOUR CONJUGATIONS.

Con- jugation.	Infinitive	Present Participle	Past Participle	Person.	Indicative.	Imperfect.	Past Definite.	Future.	Conditional.	Imperative.	Subjunctive.	Imperfection.
1st IR.	CHANT-	CHANT-	Sing. é, chant. é, chant. é, chant. é, chant. é, chant.	1 2 3 1 2 3	e, es, e, ons, ez, ent.	ais, ais, ait, ions, iez, aient.	ai, as, a, âmes, âtes, âmes.	erai, eras, era, erons, erez, eront.	erais, erais, erait, erions, eriez, eraient.	e, es, e, ions, iez, ent.	asse, asse, ât, assions, assiez, assent.	
2nd IR.	IR-	IR-	Sing. i, irai. ie, irai. i, irai. is, irai. is, irai.	1 2 3 1 2 3	i, is, it, issons, issez, issent.	issais, issais, issait, issions, issiez, issaient.	i, is, it, imes, ites, irent.	irai, iras, ira, irons, irez, iront.	irais, irais, irait, irions, iriez, iraient.	i, is, i, issions, issiez, issent.	isse, isse, ît, issions, issiez, issent.	
3rd OIR.	VOIR.	VOIR.	Sing. u, voir. ue, voir. u, voir. us, voir. us, voir.	1 2 3 1 2 3	ois, ois, oit, evons, eviez, oivent.	evais, evais, evait, evions, eviez, evaient.	us, us, ut, evons, eviez, urent.	evrai, evras, evra, evrons, evrez, evront.	evrais, evrais, evrait, evrions, evriez, evraient.	ois, ois, oive, evions, eviez, oivent.	isse, isse, ût, issions, issiez, issent.	
4th RE.	RE-	RE-	Sing. e, re. e, re. e, re. e, re. e, re.	1 2 3 1 2 3	e, e, e, ons, ez, ent.	ais, ais, ait, ions, iez, aient.	i, is, it, imes, ites, irent.	rai, ras, ra, rons, rez, ront.	rais, rais, rait, rions, riez, raient.	e, e, e, ions, iez, ent.	isse, isse, ât, issions, issiez, issent.	

§ 61.—FORMATION OF THE TENSES.

(1.) The tenses are simple or compound.
1. We call those simple tenses, which do not borrow one of the tenses of the auxiliaries *avoir* and *être*.

2. We call those compound tenses, which are composed of the tense of *avoir* and *être*, and the participle past of a verb.

(2.) Among the simple tenses, five are called primitive, because they serve to form the other tenses. They are—

1. The present of the indicative;
2. The past definite;
3. The present of the infinitive;
4. The participle present;
5. The participle past.

(3.) The other simple tenses, called derived tenses, are formed from the primitive.

(4.) The present of the indicative forms the imperative by suppressing the pronouns: *as, je chante, chante; nous chantons, vous chantez, chantez, chantez*. It will be seen that the third person of the singular and plural of the imperative, is properly the third person of the singular and plural of the subjunctive, used imperatively.

(5.) The past definite forms the imperfect of the subjunctive, by changing *i* into *se* for the first conjugation: *as, je chantais, que je chantasse*, and by adding *ss* for the other conjugations: *as, je finis, que je finisse; je regus, que je regusse; je vendis, que je vendisse*.

(6.) The present of the infinitive forms—

1. The future absolute, by adding *ai* for the first and second conjugations: *as, chanter, je chanterai; finir, je finirai; and by changing *oir* and *re* into *rai* for the other two conjugations: *as, recevoir, je recevrai; rendre, je rendrai*.*

2. The conditional present is by French grammarians formed from the future by the addition of *is*: *as, je chanterais, je chanterais; je finirais, je finirais; je recevrais, je recevrais; je vendrais, je vendrais*.

(7.) The participle present forms—

1. The imperfect of the indicative by changing *ant* into *ais*: *as, chantant, je chantais; finissant, je finissais; recevant, je recevais; vendant, je vendais*.

2. The present of the subjunctive by changing *ant* into *is*: *as, chantant, que je chante; finissant, que je finisse; vendant, que je vende*.

Exception: In verbs of the third conjugation the termination *ant* is changed into *ois*: *as, recevant, que je reçoive*.

(8.) This formation must not prevent the change of *y* into *i*, according to Rule (2) § 40.

(9.) The participle past forms all the compound tenses of verbs with the aid of the auxiliaries *avoir* and *être*: *as, j'ai chanté, je suis aimé, j'avais chanté, j'étais aimé*.

§ 61-2. PARADIGM OF THE UNIPERSONAL VERB Y AVOIR, TO BE THERE.

INDICATIVE MODE.

PRESENT.	PAST INDEFINITE.
Il y a, there is; there are Il y a eu, there has been, there have been	
IMPERFECT.	PLUPERFECT.
Il y avait, there was; there were Il y avait eu, there had been	
PAST DEFINITE.	PAST ANTERIOR.
Il y eut, there was; there were Il y eut eu, there had been	
FUTURE.	FUTURE ANTERIOR.
Il y aura, there will be Il y aura eu, there will have been	

CONDITIONAL MODE.

PRESENT.	PAST.
Il y aurait, there would be Il y aurait eu, there would have been	
IMPERATIVE MODE.	
Qu'il y ait, Let there be.	

SUBJUNCTIVE MODE.

PRESENT.	PAST.
Qu'il y ait, Qu'il y ait eu, that there may have been	
IMPERFECT.	
Qu'il y eût, Qu'il y eût eu, that there might have been	

INDICATIVE MODE.

PRESENT.	PAST.
Y a, to be there Y a eu, to have been there	
PARTICIPLE.	
Y ayant, there being Y ayant eu, there having been	
COMPOUND.	
PART OR PASSIVE.	
Eu,	

LESSONS IN NATURAL HISTORY. No. XX.

THE ORANG-OUTAN.

This celebrated species of the monkeys of the old world is a native of the islands of Sumatra and Borneo, and of the peninsula of Malacca. Battel, a Portuguese traveller, who resided in Angola, in Western Africa, nearly eighteen years, states that orang-outans are very common in that country. Of these animals he gives the following account. Their bodies were covered, but not very thickly, with a dun-coloured hair, and their legs were without calves. They always walked upright, and generally, when on the ground, carried their hands clasped on the higher part of the neck. They slept in the trees, among which they built a kind of houses, to shelter themselves from the weather. Their food was fruit and nuts, and in no instance were they known to be carnivorous. The inhabitants of Angola, when they travel in the woods, make fires around the places where they sleep, to keep at a distance the various species of voracious animals; at these fires the orang-outans would assemble in the mornings, sitting by them till the last of the embers had expired. He describes them as being so powerful that ten men would not have strength enough to hold one of them; and says that, consequently, the inhabitants are never able catch the old ones alive. Battel, like many in similar circumstances, must have been in some respects inaccurate; as, for instance, when he states, that when any orang-outans die, the rest cover up the bodies with great branches of trees, and that these heaps are frequently found in the forests.

The declaration—often made—that these animals are at least equal in height to man, has not as yet been satisfactorily established. It is supposed to the length of the skeletons and skins which have hitherto reached Europe. The largest preserved specimen with which we are acquainted does not much exceed four feet. The late Dr. Abel described one he had killed, some years ago, to the Asiatic Society at Calcutta, which must have stood when living seven feet high.

The body of the orang-outan is stoutly built, and very muscular; the chest is extremely capacious, and the belly round and protuberant. In early life, the forehead and skull appear well developed, and bear something of a human aspect; but as years advance, the bones of the face expand, and gaining their full dimensions, throw the skull backwards; while positive likeness succeeds to this very slight resemblance, in a projecting muzzle, a retreating chin, and lips which are strangely protruded.

The canine teeth are large and strong, the ears are small, the throat is swollen, the skin there being loose and folded. It is also especially observable that this skin envelopes a double membranous sac, which communicates with the windpipe, and extends even below the collar-bones. Naturalists have not hitherto discovered the use of these sacs, but they well know that when the animal expresses either anger or pleasure these sacs are inflated, at will, to an enormous extent.

The eyes are oval in figure, close, and dark, with large, well defined eye-lids fringed with lashes. The expression of the countenance is grave and melancholy, and accords well with the character of the animal. The orang-outan is free from the restlessness and petulance so commonly discoverable in the monkey tribes.

The arms are of great length, the hands long and narrow, the fingers slender, the thumbs very short. The feet are also long, and resemble hands; the heel projects, the hinder thumb is very short, and in the male animal only it is provided with a small or imperfect nail. The inferior extremities are very short, but they are singularly free in motion, from the hip-joint being so contracted that the head of the thigh-bone rotates at liberty in the socket. In most animals the head of the thigh-bone is tied down to the socket by a very strong ligament, the end of which is fixed on the

top of the bell, the other in the bottom of the cup or hollow. This ligament may be easily observed in the case of animals killed for food, as the ox or the sheep, and we recommend our readers, while the subject is before them, to avail themselves of a nearly opportunity of doing so. It will then be clearly seen that as it must be cut or broken before the bones can be separated, it adds to strength, and prevents dislocation, but it will also be apparent that it proportionately contracts the range of motion. The orang-outan, however, unlike the ox or the sheep, does not walk on the ground, and require to throw the weight of his body in leaping or running on that joint; it needs, on the contrary, the utmost liberty, and therefore the joint is free, and without the ligament. How admirable, then, is the adaptation in this instance to the circumstances of the creature.

The hair of the orang-outan is long, coarse, and of a brownish-red. It covers the body and limbs, but is thinly scattered over the feet and hands; on the fore-arms it is directed upwards. When the animal is young, the hair is sometimes very dark, approaching

The idea that the possession of hands, no fewer than four in number, raises the animals thus gifted nearly to the level of humanity, is equally untenable. The hand of the lowest of the quadrumana is but a slight advance on the foot of the carnivora, and even the hand of the highest grade is far inferior to that of man in complexity of structure and variety of movement. The structure of the hands, and especially the thumbs, show them to be fitted for grasping alone, while the great comparative length indicates their utility in climbing, and therefore their fitness for life among the trees.

The points of difference between the human and the monkey races are indeed numerous. In man, the limbs, the principal organs of progression and of maintaining the upright position, are equal in length to the head and trunk together, while the upper extremities are comparatively short. In all the monkeys the lower extremities are comparatively short, while the upper, or arms, are very long, so as to allow the knuckles to be applied to the ground when the animal is really erect. A red orang-outan described by Dr. A. Bell "performed the progressive motion by placing his bent



THE ORANG-OUTAN.

black, but it seems to become lighter as its age advances. Some parts are naked, as the forehead and face, and the palms of the hands and feet; the skin, when it is exposed, is of a somewhat lead colour.

This animal whom some would regard as little less than man, strangely falls short of the ideal even in its physical structure. The anatomical formation of the monkey tribes refutes the notion that the upright position is natural to them. Though they may be taught, in a state of captivity, to walk like men, it is certain that they usually support themselves by their anterior, as well as their posterior limbs. Nor should it be overlooked that those species which approach the nearest to man rest not on the sole of the foot, but only on its outer side when imitating his position, and that while they take it they are very insecure. And to those which are intermediate between the higher orders of quadrumana and the succeeding orders, the maintenance of an erect position, without support, is absolutely impossible for any length of time.

sits on the ground, and drawing his body between his arms." The *extensors* of the knee are much stronger in the human subject than in any other of the mammalia, as their extending the thigh forwards on the leg is a very essential part in man's mode of progression. The *flexors* of the knee are, on the contrary, stronger in animals, and are inserted so much lower down, even in the monkeys, so as to keep the knee habitually bent, and almost prevent the perfect extension of the leg on the thigh.

The superior maxillary bones in man and contain the whole of the upper teeth as in most other animals, they are set wedge shape, which contains the incisor says: "The brute face is merely an iron and prepare food, and often a weapon. human countenance is an organ of what passes in the brain."

valour; the river is difficult to pass over (of difficult passage); this house is not to be bought for (by) gold; the poems of Homer are not purchasable for gems; in summer birds sing and boys play; the general being slain, his soldiers fled; the sun arising, the night passes away; the wise are not always wise (sapio).

LESSONS IN GERMAN.—No. L.

§ 6. GENDER.

(1) Strictly speaking, the masculine gender belongs exclusively to words denoting males; the feminine to those denoting females; and the neuter to such only as, are neither male, nor female. And in English, accordingly, with very little exception, this is found to be actually the case.

(2) Not so, however, in German; for there the names of many things *without* life, from their real, or supposed possession of *qualities* pertaining to things *with* life, are considered and treated as masculine, or feminine. Often, moreover, words indicating things without life, are deemed masculine or feminine merely from some resemblance *in form* to those designating things properly male or female. Hence arises in Grammar, the distinction between the *natural* and the *grammatical* gender of words.

(3) Were the *natural* gender alone regarded, it would be necessary only to know the *MEANING* of a word, to know its gender; but since this is not the case, we are often obliged to determine gender chiefly by the *FORM*. We give below, therefore, the principal Rules for determining the gender in either way; suggesting only, as the best mode of learning the exceptions (which are numerous and here purposely omitted,) the custom of constantly and carefully noting them in reading and speaking.

§ 7. RULES FOR DETERMINING GENDER.

by the MEANING;

(1) To the *MASCULINE* belong

long names of

male beings; as, *der Mann*, the man; *der Herr*, the lord;

days; as, *der Montag*, Monday;

months; as, *der Januar*, January;

seasons; as, *der Frühling*, spring;

winds; as, *der Nordwind*, the North wind; *der Südwind*, the South wind.

points of the compass; as, *der Nord*, the North; *der Süd*, the South.

mountains; as, *der Berg*, the mountain;

stones; as, *der Diamant*, the diamond; *der Rubin*, the ruby.

fruit-trees; as, *der Apfelbaum*, the pear-tree; *der Birnbaum*, the apple-tree.

(2) To the *FEMININE* belong

the names of

female beings; as, *die Frau*, the wife; *die Tochter*, the daughter.

rivers; as, *die Elbe*, the Elbe; *die Weser*, the Weser; *die Rhein*, the Rhine.

fruits; as, *die Äpfel*, the pears; *die Nüsse*, the nuts.

trees, plants and flowers; as, *die Blume*, the flower; *die Birne*, the pear.

(3) To the *NEUTER* belong

the names of

places; as, *Berlin*, Berlin.

by the FORM.

(1) To the *MASCULINE* belong

long names of

male beings; as, *der Mann*, the man; *der Herr*, the lord;

days; as, *der Montag*, Monday;

months; as, *der Januar*, January;

seasons; as, *der Frühling*, spring;

winds; as, *der Nordwind*, the North wind; *der Südwind*, the South wind.

points of the compass; as, *der Nord*, the North; *der Süd*, the South.

mountains; as, *der Berg*, the mountain;

stones; as, *der Diamant*, the diamond; *der Rubin*, the ruby.

fruit-trees; as, *der Apfelbaum*, the pear-tree; *der Birnbaum*, the apple-tree.

(2) To the *FEMININE* belong

the names of

female beings; as, *die Frau*, the wife; *die Tochter*, the daughter.

rivers; as, *die Elbe*, the Elbe; *die Weser*, the Weser; *die Rhein*, the Rhine.

fruits; as, *die Äpfel*, the pears; *die Nüsse*, the nuts.

trees, plants and flowers; as, *die Blume*, the flower; *die Birne*, the pear.

(3) To the *NEUTER* belong

the names of

places; as, *Berlin*, Berlin.

metals; as, *das Silber*, silver.

materials; as, *das Holz*, wood.

letters; as, *das A*, the A; *das B*, the B, &c.

indefinites used as nouns; as, *das Leben*, life; *das Glück*, luck, &c.

riding.

many individuals taken together; (i. e. *collective* nouns); as, *das Volk*, the host; *das Heer*, the army; *das Land*, the land; *das Meer*, the sea; *das Gute*, the good; *das Schöne*, the beautiful.

Under the name of *male beings* must be included that of the *divinity* as also those of angels and other superior powers; those of mythological deities and of human beings; those of beasts, birds, reptiles, and fishes. The term *female beings* must have a like latitude of signification.

§ 8. GENDER OF COMPOUNDS AND FOREIGN WORDS.

(1) Compounds in general adopt the gender of their last component; as,

das Hofgericht, (from *das Hof*, court, or yard; and *Gericht*, church;) court church;

der Hofgarten, (from *der Hof*, the oak, and *der Garten*, tree;) the church yard;

der Eichenbaum, (from *der Eiche*, the oak, and *der Baum*, tree;) the oak-tree;

der Windmühle, (from *der Wind*, the wind, and *die Mühle*, mill;) the windmill;

das Rathhaus, (from *der Rath*, council, and *das Haus*, house;) the council-house.

(2) Foreign words, for the most part, when taken into the German language, retain their original gender. These however, that have become fairly *Germanized*, often take a different gender, as they take a different form; thus, *Corpus*, (the body,) which, in Latin, is *neuter*, becomes, in German, *der Körper*, which is *masculine*.

§ 9. DERIVATION OF NOUNS.

(1) To what has been already said (§ 2. (3)) concerning the derivation of nouns, we add here, before entering upon the subject of Declension, a brief view of the *secondary derivatives*, which are made by *significant* suffixes. For the sake of the learner we subjoin a list of the leading suffixes of this class: putting in brackets the equivalent *English* terminations, explaining severally their force and use, and illustrating the whole by suitable examples.

§ 10. SUFFIXES USED IN FORMING NOUNS.

SUFFIXES. *English* EQUIVALENTS. MEANING.

-er, -ter, -or, -er, -er, -er designates (male) persons; also, agents or instruments.

-ig, -ig, -ig, -ig, -ig, -ig denotes (often contemptuously) persons, animals and things.

-in, -in, -in, -in, -in, -in designates (female) persons.

-ig, -ig, -ig, -ig, -ig, -ig indicates the act, practice, or place of business.

-ig, -ig, -ig, -ig, -ig, -ig signifies the act or the continuing to act.

-ig, -ig, -ig, -ig, -ig, -ig denote qualities, or attributes;

-ig, -ig, -ig, -ig, -ig, -ig express rank, grade, office; also, a number of things taken collectively; often, merely the quality.

-ig, -ig, -ig, -ig, -ig, -ig denote the state or condition; also, the quality; sometimes the result.

-ig, -ig, -ig, -ig, -ig, -ig indicate divinity.

§ 11. EXAMPLES.

SUFFIXES.

SUFFIXES.	NOUNS.
er	Singer, a singer; Bürger, a citizen; Säger, a sawyer; Schneider, a tailor; Römer, a Roman; Leipziger, a resident of Leipzig; Wiener, a Viennese;
ing	Stumpfinger, a captain; Flüchtling, a fugitive; Nichtling, a naveling; Dichtling, a poetaster; Linsing, a linnet; Schöpfung, a shoot, or sprig; Gräfin, a countess; Heldin, a heroine;
in or im	Königin, a queen; Professorin, a professor's wife; Löwin, a lioness;
ci	Dieberei, thievery; Heuchelei, hypocrisy; Fischerei, fishery; Brauerei, brewery;
ung	Lehrung, teaching, i. e. the act of teaching; Gebäude, the building, or erecting; Kronung, the crowning, or coronation; Sitzung, the sitting, or session;
e	Güte, goodness; Stärke, strength;
heit	Krankheit, sickness; Dummheit, stupidity;
keit	Heiligkeit, holiness; Feuchtigkeit, humidity;
schaft	Freundschaft, friendship; Priesterschaft, priesthood, that is, the body of the priests;
thum	Reinheit, readiness; Heidenthum, heathendom; heathenism; Christenthum, Christianity; Christian; Eigentum, property;
sal	Wüßsal, the state of being in trouble; distress;
fel	Sackfel, that which has resulted from hacking and cutting; i. e. cuttings;
nig	Bedürfnis, the state of being in want; necessity; Gleichnis, quality or state of being like; likeness;
lein	Wüßlein, a little hook; * Knäulein, a little boy;
chen	Stühlchen, a little stool; Ei, a little egg.

Appellatives derived from the names of people often have the termination *e*: as, *ter Hoffe*, the Hessian; *ter Türle*, the Turk; &c.

Nouns derived from the name of a city or town, are often used indeclinably as adjectives. Ex.: *Das Leipziger Bier*, the Leipzig beer; *Gen. Des Leipziger Wirt*, of the Leipzig beer.

(8) It must be observed, in forming derivatives of the order illustrated above, that when *a*, *e*, or *u*, is contained in the radical part, it is modified into *i*, *ä*, or *ü*, upon receiving any one of the suffixes *er*, *ing*, *in*, *en*, *lein*, *e*, *nig*, and *fel*; as, in the case of *Singer*, (from *fang*.) *Bürger*, (from *Burg*.) and others of the like kind.

(2) Often, moreover, in forming secondary derivatives certain euphonic letters are inserted between the suffix and the word to which it is added; as, *ig* in *Feuchtigkeit*, humidity. Other letters employed in this way, are *en*, *n*, and *t*. These euphonic parts are easily distinguished from those having an influence on the meaning, by merely resolving the derivative into its elements.

(3) Here, too, may be noted the particle *ge*, which being prefixed to certain primary words, form a class of nouns denoting either frequency of action, or a collection of things. These words, also, most commonly suffix the letter *e*; as, *Gerete*, constant talk; *Geheul*, frequent crying; *Gebirge*, a range of hills, &c.

LESSONS IN ARITHMETIC.—No. XXVI.

VULGAR FRACTIONS.

The following are the answers to the exercises given in our last lesson:—

EXERCISES TO PROBLEM XI.

RULE 2.—Answers: (1.) $\frac{1}{2}$; (2.) $\frac{3}{4}$; (3.) $\frac{1}{4}$; (4.) $\frac{1}{2}$; (5.) $\frac{1}{2}$; (6.) $\frac{1}{2}$.

RULE 3.—Answers: (1.) 137; (2.) 544; (3.) 2000; (4.) 3200; (5.) 100; (6.) 100.

RULE 4.—Answers: (1.) $14\frac{1}{2}$; (2.) $17\frac{1}{2}$; (3.) $66\frac{1}{2}$; (4.) $11\frac{1}{2}$; (5.) $\frac{1}{2}$; (6.) $\frac{1}{2}$.

RULE 5.—Answers: (1.) $2\frac{1}{2}$; (2.) $8\frac{1}{2}$; (3.) $156\frac{1}{2}$; (4.) $42713\frac{1}{2}$; (5.) $55\frac{1}{2}$; (6.) $\frac{1}{2}$.

RULE 6.—Answers: (1.) $1\frac{1}{2}$; (2.) $5\frac{1}{2}$; (3.) $7\frac{1}{2}$; (4.) $168\frac{1}{2}$; (5.) $96\frac{1}{2}$; (6.) $\frac{1}{2}$.

In the answers at p. 74, col. 2, line 11 from bottom, for (3.) $1\frac{1}{2}$ read (3.) $1\frac{1}{2}$.

WEIGHTS AND MEASURES.

1. Our students having studied numbers in the abstract, it is now necessary to call their attention to the study of numbers in the concrete. Numbers are said to be abstract when no particular name is applied to them, as pounds, yards, hundred-weights, &c.; and concrete when such names are applied to them; and especially when the subdivisions of the standard of concreteness come into play. For example, when we speak of a sum of money, such as 5 pounds, 7 shillings, and 6 pence, the standard of concreteness here is the pound sterling, and its subdivisions are shillings, pence, and farthings. In like manner, when we speak of the weight of a package of goods, such as 5 hundred-weights, 2 quarters, and 7 pounds (weight), the standard of concreteness here is the hundred-weight, and its subdivisions are quarters, pounds, ounces, &c.

In proceeding to explain the nature of the moneys, weights, and measures of this country, it will be necessary to refer to some recent acts of Parliament, by which some important changes were effected in these matters—changes which we are now becoming more accustomed to, but which occasioned a good deal of trouble, and even disturbance, when they were first made imperative on the natives of the British empire. In an article written by us for the "Companion to the British Almanac for 1828," we gave some account of the acts of Parliament to which we have referred, and of the changes which would be produced by their introduction. The following is a modified retrospect of that article, and it will be as useful to our readers now as it was to the public then; for no alterations have yet been made upon the practical bearing of these acts, although we shall see in the sequel that some have been proposed.

An act of Parliament was passed on the 17th of June, 1824, (cap. 74. Geo. IV.), entitled, "an act for ascertaining and establishing uniformity of weights and measures," which was partially amended by clause (A) of an act to prolong the time of the commencement of that act to January, 1826.

In the first and second clauses of this act it is enacted, that the old standard yard of 1760, in the custody of the clerk of the House of Commons, shall continue to be the standard unit of extension or lineal, superficial, and solid measures, when the temperature is at 62° of Fahrenheit's thermometer. From this it is evident that no change is to be made upon these measures throughout the empire, and that all the measurements depending upon them are to remain the same as before. In various parts of the empire, however, very considerable changes were required to take place, especially in the measurement of land. For instance, this act of course abolished the use of the Scotch ell and of the Scotch and Irish acres.

In the third clause it is enacted, that if the standard yard should be lost or injured, it is to be restored by a reference to the length of the pendulum, vibrating seconds in the latitude of London, at the level of the sea, and in vacuum. This length has been found, and is by the act declared to be 39.1393 inches. Hence the length of the yard to that of the pendulum is in the proportion of 36 inches to 39.1393 inches, or of the number 360,000 to the number 391,393; so that if the length of the pendulum be divided into 391,393 equal parts, then will 10,000 of these parts be the length of an inch, and 360,000 of the same parts the length of a yard, according to the imperial standard.

In the fourth clause it is enacted, that the old Troy pound, of

1758, in the custody of the clerk of the House of Commons, shall continue to be the standard unit of weight; and that the Avoirdupois pound now in use shall contain 7,000 grains, of which the Troy pound contains 5,760, according to this act. Hence, contrary to the opinion of many writers, the weight of the Troy or standard pound to that of the Avoirdupois or common pound, is in the proportion of 5,760 grains to 7,000 grains; or of the number 144 to the number 175. In this case, also, no changes were required to take place in the transactions of business where such weights were used formerly; but throughout the whole empire changes of weights were required to occur in the sale of many articles of ordinary consumption. These changes were not only different in almost every county, but even sometimes different in various parts of the same county. The use of all local pound weights and stone weights, which varied with the locality, was utterly abolished, and all local enactments regarding them rendered nugatory.

In the sixth clause it is enacted, that if the standard Troy pound should be lost or destroyed, it is to be restored by a reference to the weight of a cubic inch of distilled water, which has been found, and is declared to be 252.458 Troy grains, at the temperature of 62° Fahrenheit; the barometer being at 30 inches. Hence the weight of a pennyweight Troy is to that of a cubic inch of distilled water, in such circumstances, in the proportion of 24 grains to 252.458 grains, or of the number 24,000 to the number 252,458; so that the weight of the cubic inch of water must be divided into 252,458 equal parts, and 24,000 of them will be the standard pennyweight, from which the ounce and the pound, with its multiples, can be easily derived.

In the sixth clause it is enacted, that the new standard measure of capacity for all liquids, and dry goods not measured by heaping, shall be a gallon containing 10 pounds Avoirdupois weight of distilled water weighed in air at the temperature of 60° Fahrenheit's thermometer, the barometer being at 30 inches; that the quart shall be the fourth part of this imperial standard gallon, and the pint one-eighth; that two such gallons shall be a peck, and eight shall be a bushel; and that eight such bushels shall be a quarter of corn, or other dry goods, not measured by heaped measure. To find the capacity of this new gallon, it is necessary to refer to the fifth clause of the act, where we have the standard weight of a cubic inch of water given in grains; hence we find the number of cubic inches in the gallon by the following proportion: As 252.458 grains: 1 cubic inch:: 10 lbs. or 70,000 grains: 277.274 cubic inches, which is consequently the content of the imperial standard gallon. Though the identification of this gallon is thus remotely connected with the standard of length, and still more so with the length of the pendulum, yet it may be proper here to point out a mode of verifying it, and restoring it, if ever the standards of weight or measure should be lost or destroyed. The content of the cube of the sixth part of the length of the pendulum vibrating seconds in the latitude of London at the level of the sea and in a vacuum, is so very near that of the imperial standard gallon, that the difference is only about $\frac{1}{10}$ of a cubic inch. For, one-sixth part of the length of the pendulum is 6.5232166 inches; and the cube of this is nearly 277.578 cubic inches, which differs from the contents of the gallon only by .304 of a cubic inch. Now this difference is so small, that the one may be reckoned a sufficient identification of the other—a circumstance which brings this gallon nearer to a fixed and invariable standard than perhaps was ever thought of. Another circumstance of considerable importance may be remarked, as it serves to render the standard of weight, determined by water, independent of thermometric gradations. The temperature (62° Fahrenheit's thermometer) at which the water has been fixed for the determination of the standards of weight and measure, is one which is situated above the freezing point, at exactly the sixth part of the distance between the freezing and the boiling points. The connexion of these two facts, therefore, rendered the standards of weight and of measure invariable in future, inasmuch as they are independent of artificial measurements and gradations, and can be easily referred to nature for their prototypes: 1. That the cube of the sixth part of the second's pendulum at London is so near the capacity of the imperial standard gallon as to be considered an identification; and, 2. That the tenth part of the weight of an imperial standard gallon of water, at a temperature above that of freezing (in the mercurial thermometer), which is exactly the sixth part of the distance between the freezing and boiling points, is an imperial standard Avoirdupois pound.

The changes which this alteration in the standard of capacity

produced was very great. By this clause, the old standard wine gallon of 231 cubic inches, the old standard ale and beer gallon of 284 cubic inches, the old standard corn gallon of 268.8 cubic inches, the standard Winchester bushel of 2150.42 cubic inches, the old standard Scotch pint of 103.494 cubic inches, and the old standard Scotch measures of corn, the wheat and barley firloths, with all other local measures of every description, were completely abolished.

In the seventh clause it is enacted, that the standard measure of capacity for goods sold by heaped measure, shall be the bushel, containing 8 imperial gallons, or 80 Avoirdupois pounds, of water at the above-mentioned temperature; and that it shall be made round, with a plain and even bottom, and be 19½ inches from outside to outside. In the eighth clause it is further enacted, that in using this bushel, it shall be heaped, in the form of a cone, to the height of six inches, and the outside of the bushel is to be the extremity of the base of this cone. In the clause appended to the act, it is enacted, that all such measures shall be made cylindrical, and that their diameters shall be at the least double their depths, and the height of the cone or heap shall be equal to $\frac{1}{3}$ of the depth of each measure, its outside being the extremity or base of the cone. On these principles, the standard weights and measures of Great Britain are the following:—

I. LONG MEASURE.

STANDARD.—The length of the pendulum vibrating seconds at mean time in the latitude of London at 62° of Fahrenheit's thermometer, and in a vacuum at the level of the sea, is equal to 39.1393 inches of the brass "Standard Yard of 1760," or "Imperial Standard Yard."

39.1393ths of the pendulum	= 1 inch	=	0.25550
12 inches	= 1 foot	=	30.6597
3 feet	= 1 yard	=	91.972
5½ yards	= 1 pole or perch	=	5.05854
40 poles or 220 yards	= 1 furlong	=	202.354166
8 furlongs or 1760 yards	= 1 mile	=	1618.83244

N.B.—The English land chain = 22 yards or 66 feet, and contains 100 links; 1 link = 7.92 inches.

II. SQUARE OR SUPERFICIAL MEASURE.

STANDARD.—The same as in long measure.

39.1393ths of the sq. pendulum	= 1 square inch	=	0.00653
144 square inches	= 1 square foot	=	0.94002
9 square feet	= 1 square yard	=	84.6017
30½ square yards	= 1 square pole	=	25.592063
40 sq. poles or 1210 sq. yds.	= 1 rood of land	=	1023.680107
4 roods or 4840 square yards	= 1 acre of land	=	1094.720426

N.B.—The square chain = 484 square yards, and 10 square chains = 1 acre.

III. CUBIC OR SOLID MEASURE.

STANDARD.—The same as in long measure.

39.1393ths of the cubic pendulum	= 1 cubic inch	=	0.000176
1728 cubic inches	= 1 cubic foot	=	0.283207
27 cubic feet	= 1 cubic yd.	=	778.1567

N.B.—A cubic foot of distilled water at 62° Fahrenheit, weighs almost exactly 997.126969 ounces Avoirdupois, and at the maximum density 999.2777 ounces Avoirdupois.

IV. TROY WEIGHT.

STANDARD.—One cubic inch of distilled water at 62° Fahrenheit's thermometer, the barometer being at 30 inches, weighs 252.458 troy grains. One pound = 5760 grains.

252.458ths of the weight of a cubic inch of water	= 1 grain	=	0.003901571428
24 grains	= 1 pennywt.	=	0.095063714286
20 pennyweights	= 1 ounce	=	1.901307142857
12 ounces	= 1 pound	=	22.815685714286

N.B.—A cubic inch of distilled water at the maximum density, weighs 253 troy grains.

V. AVOIRDUPOIS-WEIGHT.

STANDARD.—The same as in Troy weight; and one Avoirdupois pound = 7000 Troy grains.

	Wt. in cub. inches of water.	Wt. in new gallons of water at 62° F.
27 1/4 grains = 1 dram	1.0831015825	1/160
16 drams = 1 ounce	1.7330625	1/10
16 ounces = 1 pound	27.7274	1/7
25 pounds = 1 quarter cwt.	776.3672	2 1/4
4 quarters = 1 hundred wt.	3105.4688	11 1/4
20 cwt. = 1 ton	6210.9376	22 1/2

N.B.—175 Troy pounds = 144 Avoirdupois pounds; and 175 Troy ounces = 192 Avoirdupois ounces.

VI. IMPERIAL GALLON MEASURE.

For all sorts of liquids, Corn, and other Dry Goods.

STANDARD.—Ten pounds Avoirdupois, or 277.274 cubic inches of distilled water (at 62° Fahrenheit's Thermometer, the Barometer being at 30 inches) are the contents of the new imperial gallon.

	lbs. Av.	Cubic inches of water.
5 Avoirdupois of water = 1 gill	1 1/16	8.6643125 at 62° F.
4 gills = 1 pint	1 1/4	34.65925
2 pints = 1 quart	2 1/2	69.3185
4 quarts or 8 pints = 1 gallon	10	277.274
2 gallons = 1 peck	20	554.548
4 pecks or 8 gallons = 1 bushel	80	2218.192
5 bushels = 1 quarter	400	17745.366

N.B.—The proportion of the imperial gallon to the Wine gallon is as 6 to 5 nearly; to the Ale gallon as 59 to 60 nearly; and to the Corn gallon as 33 to 32 nearly; its proportion to the old standard Scotch pint is as 59 to 32 nearly.

VII. HEAPED MEASURE.

For Coals, Calks, Lime, Fish, Potatoes, Fruit, &c.

STANDARD.—Eighty pounds Avoirdupois, or 2218.192 cubic inches of distilled water at 62° Fahrenheit's Thermometer, the Barometer being at 30 inches, are the contents of the new bushel, which is to be made "round with a plain and even bottom, being 19 1/2 inches from outside to outside, and to be heaped in the form of a cone to the height of 6 inches.

	lbs. Av.	Cub. in. of water.
8 imperial gallons = 1 bushel	80	2218.192
3 bushels = 1 sack	240	6654.576
12 sacks = 1 chaldron	2880	79854.912

N.B.—The depth of the imperial bushel is required by the Act to be 8 inches, though this is not expressed; because the height of the heap or cone is 6 inches, and this must be equal to three-fourths of the depth.

N.B.—The proportion of the imperial bushel to the old Standard Scotch Wheat Firlet is as 106 to 105 nearly, and to the old Standard Scotch Barley Firlet as 92 to 133 nearly.

VIII. DIMENSIONS OF THE DRY MEASURES.

STANDARD.—The diameter shall be at least double the depth, and the height of the cone or heap shall be equal to three-fourths of the depth.

Imperial Dry Measures.	Depth.	Inside Diameter.	Outside Diameter at the mouth.	Breadth at the edge.	Height of the Heap.	Content when heaped.	Content when not heaped.
Bushel	8.00000	15.79225	19.50000	3.55333	6.00000	2218.192	2319.473
1 B. = 4 Peck	24.00000	47.37675	58.50000	10.65999	18.00000	6937.414	7318.414
Peck	8.00000	15.79225	19.50000	3.55333	6.00000	2218.192	2319.473
Gallon	4.00000	7.89612	9.75000	1.77666	3.00000	1109.096	1159.736
or 1 Peck	8.00000	15.79225	19.50000	3.55333	6.00000	2218.192	2319.473
Half Gallon	4.00000	7.89612	9.75000	1.77666	3.00000	1109.096	1159.736
Quart	2.00000	3.94806	4.87500	0.88833	1.50000	554.548	579.868

APPROXIMATE DIMENSIONS OF THE DRY MEASURES.

Imperial Dry Measure.	Depth.	Inside Diameter.	Outside Diameter at the mouth.	Breadth at the edge.	Height of the Heap.
Bushel	8 inches	15 3/4 inches	19 1/2 inches	3 1/2 inches	6 inches
Half Bushel	4 inches	7 3/4 inches	9 1/2 inches	1 3/4 inches	3 inches
Peck	8 inches	15 3/4 inches	19 1/2 inches	3 1/2 inches	6 inches
Gallon	4 inches	7 3/4 inches	9 1/2 inches	1 3/4 inches	3 inches
Half Gallon	4 inches	7 3/4 inches	9 1/2 inches	1 3/4 inches	3 inches
Quart	2 inches	3 3/4 inches	4 1/2 inches	7/8 inch	1 1/2 inches

TABLES OF EQUALIZATION.

In the following tables of equalization, the most exact proportions are adopted, viz. 277.274 English Wine Gallons = 231.000 Imperial Gallons; 277.274 Ale Gallons = 284.000 Imperial Gallons; 277.274 English Corn Gallons = 268.800 Imperial Gallons; 138.637 Standard Scotch Pints = 103.404 Imperial Half Gallons; 2218.192 Standard Scotch Wheat Firlets = 2197.335 Imperial Bushels; 2218.192 Standard Scotch Barley Firlets = 3205.524 Imperial Bushels; 7000 Troy Pounds = 5760 Avoirdupois Pounds; 7000 Scotch Troy Pounds = 7031 1/2 Avoirdupois Pounds; 7000 old Scotch Tonn Pounds = 10000 1/2 Avoirdupois Pounds; 360 Standard Scotch Ells = 372 Imperial Yards; and 3025 Standard Scotch Acres = 3844 Imperial Acres. These tables are also equalization tables of prices, as well as of weights and measures, but in the inverse ratio of the latter. Thus, for example, 1 lb. Troy = 822857 1/2 Avoirdupois; but when the price of a pound Avoirdupois is 1, the price of a lb. Troy is = 822857 1/2; also 1 lb. Avoirdupois = 1.215278 lb. Troy; but when the price of a lb. Troy is 1, the price of a lb. Avoirdupois is = 1.215278; the whole of the tables are calculated to the nearest millionth part of an unit.

English Wine Gallon	English Ale Gallon	English Corn Gallon	Scotch Pint
Imperial Gallon	Imperial Gallon	Imperial Gallon	Imperial Gallon
1	0.833111	1.017045	0.960438
2	1.666222	2.034090	1.920876
3	2.499333	3.051135	2.881315
4	3.332444	4.068180	3.841753
5	4.165555	5.085225	4.802191
6	4.998666	6.102270	5.762629
7	5.831777	7.119315	6.723067
8	6.664888	8.136360	7.683505
9	7.497999	9.153405	8.643943

Scotch Wheat Firlet	Scotch Barley Firlet	Imperial Gallon	Imp. Gallon
Imp. Bushel	Imp. Bushel	Wine Gallon	Ale Gallon
1	0.995597	1.445161	1.200220
2	1.991195	2.890321	2.400440
3	2.986792	4.335482	3.600660
4	3.982390	5.780642	4.800880
5	4.977987	7.225803	6.001100
6	5.973584	8.670963	7.201320
7	6.969182	10.116125	8.401540
8	7.964779	11.561285	9.601760
9	8.960377	13.006446	10.801980

Imperial Gallon	Imperial Half-Gallon	Imperial Bushel	Imperial Bushel
English Corn Gallon	Scotch Pint	Scotch Wheat Firlet	Scotch Barley Firlet
1	1.031520	1.540731	1.060492
2	2.063040	3.081462	2.120984
3	3.094560	4.622193	3.181476
4	4.126080	6.162924	4.241968
5	5.157600	7.703655	5.302460
6	6.189120	9.244386	6.362952
7	7.220640	10.785117	7.423444
8	8.252160	12.325848	8.483936
9	9.283680	13.866579	9.544428

Troy lb.	Scotch Troy lb.	Old Scotch Troy lb.
Avoirdupois lb.	Avoirdupois lb.	Avoirdupois lb.
1	0.822857	1.429091
2	1.645714	2.858182
3	2.468571	4.287273
4	3.291428	5.716364
5	4.114286	7.145455
6	4.937143	8.574545
7	5.759999	10.003636
8	6.582857	11.432727
9	7.405714	12.861818

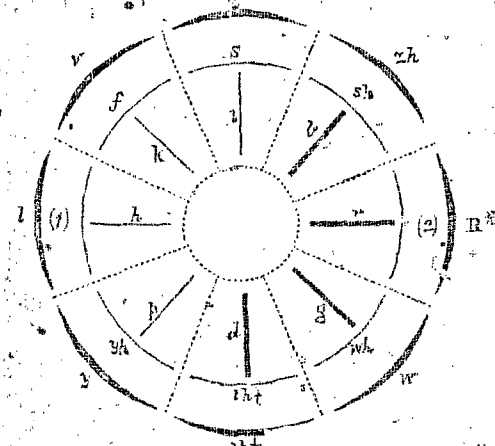
Scotch Ell	Scotch Acre	Avoirdupois lb.	Avoirdupois lb.
Imperial Yard.	Imperial Acre	Troy lb.	Scotch Troy lb.
1	1.033333	1.270544	1.215278
2	2.066667	2.541088	2.430556
3	3.100000	3.811632	3.645833
4	4.133333	5.082176	4.861111
5	5.166667	6.352720	6.076389
6	6.200000	7.623264	7.291667
7	7.233333	8.893808	8.506944
8	8.266667	10.164352	9.722222
9	9.300000	11.434896	10.937500

Avoirdupois lb.	Imperial Yard	Imperial Acre
Old Scotch Troy lb.	Scotch Ell.	Scotch Acre.
1	0.699746	0.067742
2	1.399491	0.135484
3	2.099237	0.203226
4	2.798982	0.270968
5	3.498728	0.338710
6	4.198473	0.406452
7	4.898219	0.474194
8	5.597964	0.541936
9	6.297710	0.609677

CORRESPONDENCE.

PHONETIC SHORT HAND.

MR. EDITOR.—I have commenced studying your Lessons in Phonetic Short-hand, and I am very well satisfied with the progress I have already made. I very much admire this system; it seems to be simple in its theory and very easy in its application; while at the same time it is free from the many objections raised against the previously existing systems of short-hand writing. The method which I adopted in learning the "articulations," I found to be very useful and convenient; as by its means I was able to commit to memory their forms and positions in about an hour. So effective was this plan that I was able to write them for myself the next day. I hope I shall not be trespassing on your time and patience by submitting the following scheme of the articulations to your attention. By means of this diagram, the relative positions of the articulations are easily determined and fixed in the mind, and re-



SCHEME OF ARTICULATIONS.

dered capable of being recalled at pleasure. I consider such a scheme highly advantageous to any person commencing the study of Phonetic Short-hand, as it presents at one view, and in their proper order, all the forms and positions of those characters with which he has to make himself acquainted.

The breath letters are represented by thin hair-stroke lines; and the voice letters by the same forms written comparatively thick and heavy.—I am, yours, &c.

J. S. ARBOTT.

[Our intelligent and ingenious correspondent having been able to commit to memory our Short-hand scheme of articulations with very little trouble by means of his circular arrangement of the characters, we have much pleasure in submitting it to our readers. The diagram has furnished not being quite so accurate in showing the articulations of the vowels as could be wished, although the design is both neat and effective, we have given a corrected drawing of the plan, as it may assist many of our students, and perhaps induce many others to commence the study.]

The following notes refer to the diagram:
* This character, the curve *r*, is always used for *r* at the beginning of a word; the other, or line *r*, is always used for *r* at the end of a word, and otherwise as most convenient.

(1) This is the breath correspondent, or whisper sound of *i*, the *i* of the Welsh language; it does not occur in English.

(2) This is the whisper sound of *r* = *rh*; it does not occur in English, except in the Galloway pronunciation of the words *gull* and *horseguards*, where the sound of *r* is so gentle that it is scarcely heard; these words being pronounced *gull* and *ass-guards*. We have heard the whisper sound of *r* also in the *faulx* pronunciation of the words *idea* and *deceit*, and that even in the pulpit; viz., *deceit* and *deceit*. Such errors ought to be carefully avoided.

+ This character, the thin curve *th*, is always used when the sound is like *th* in the word *thin*.

* This character, the thick curve *th*, is always used when the sound is like *th* in the word *then*.

Our correspondent suggests the use of *short* instead of full-sized characters, when "gu" or "wu" precedes, as in future, rebellious, &c., since, as he judiciously observes, the "gu" or "wu" implies a vowel after it; and he points out that by this arrangement the double vowels in "gu" would be indicated by simply writing a full-sized *u* with "ya" before it. But we must remind him of the fundamental principle of writing, which would thus be violated, viz.: that articulation with vowels before them require to be written full-size. The "yu" or "wu" merely shows that a *y* or *w* is to be pronounced as well as a vowel. A serious practical objection to the writing of short letters in this position, would be that they would not afford room for inserting the marks for *y* and *w*; and if these latter were omitted in quick writing—as they often must be—a needless ambiguity would be created in deciphering the Short-hand. [To the preceding communication we now add the following, received some time ago.]

MR. EDITOR.—I have examined a great many works upon short-hand, and give my opinion decidedly in favour of Taylor's system, which, with a few improvements made upon it by myself, I consider the best adapted for reporting. Having written the whole of the New Testament, and taken eight hundred sermons in short-hand, I can speak well as to the practical part of this art, and the benefit which is to be derived from the study of it. Twelve years ago I wrote a letter to the editor of a newspaper, stating that I owed all I knew to the study of short-hand. Being then a poor boy only earning a few shillings a week in the country, I had either to sit up very late or rise very early in order to learn what little I did know. To this letter, he gave only the following answer: "The letter of x. y. z. contains statements highly favourable to his industry and perseverance, but we hardly think that advantage could result from their publication." With this dictum I could not agree, for I am sure that great moral and spiritual advantages are to be derived from the study of short-hand.—I am, yours, &c.

J. S. ARBOTT.

[We have seen Mr. Arbott's New Testament in short-hand with his 800 sermons and various other productions, all written according to his improved Taylor's system, and they clearly show with what neatness and accuracy this system can be written; it is founded upon the most simple principles, and we believe it is the best adapted for reporting, although our own system is by far the most philosophical we have yet seen. Both in Bell's and Pitman's systems, the reporter is apt to make mistakes in quick writing, as the contrast in the form of many of the characters is not sufficiently great. The distinction between the thick and thin letters uttered by the same organ, it is almost sure to be overlooked in taking notes from a rapid speaker. Those of our readers who wish to learn Taylor's improved system should apply to JAMES S. ARBOTT, Fishmongers' Hall, City.]

The affectedly fine pronunciation of Londoners born within the sound of Bow bells.

ANSWERS TO CORRESPONDENTS.

J. S. BRADFIELD (Bradford): There is nothing better for him than the Lessons in English in the F. E.—W. H. X.: It is already so far done.—**A. SUBBOTSKA** (Bury-lane): For Lesson X, p. 145, read p. 143.—**W. A. G.** (London): The Latin "Church Services" may be had of Bagsters, Paternoster-row.—**RICHARD D. DOWLEY** (Sligo): His suggestions will be borne in mind.—**W. B. ROWE** (Boscastle): See our Literary Notices.

ELLEN ADA (Camden-town): We think her age ought to be a recommendation for the office of a Government schoolmistress, and her former experience should render her highly eligible; we regret that we cannot give her information how to proceed in order to obtain a qualifying certificate; but perhaps some intelligent correspondent will inform us, for the benefit of her and others. She can get her volumes bound at this office, about the price she mentions.—**W. T. BROOKSHANE** (Whitehaven): Brash up, and try what you can do. Get some of Arnold's elementary Greek books, or wait till the Lessons in Greek appear in the P. E.—**SOMERSET**: Received.

W. A. BLYSON (Edinburgh): may study French and Latin together with advantage. He should study our *course-book* in vol. II.—**F. K. S.** must plot a little more at the Lessons in Algebra, they will soon yield to determined study. Smart's Pronouncing Dictionary is very good. Cassell's Lessons in Latin are best.

A. SCHOOL ASSISTANT (Brighton): Cassell's Euclid contains all that is wanted for the Euclid test in the London University, and more too. For the Natural Philosophy test, when he tries for honours, Whewell's Mechanical Euclid is a very good book; and for the Chemistry, perhaps Thomson's School Chemistry would answer. His suggestions as to the P. E. are good.—**W. TAYLOR** and **A. ATKIN**: Not right in the 100 ship query.—**A. SCHWENKER** (Pentecost): His communication will be kept in mind.—**L. D. (Thrapston)**: Received.—**A. McALAN** (Glasgow): His suggestion as to Bagster is under consideration.

W. HARRISON (Newcastle): A lesson in Geography will soon be given to explain how the lines of latitude and longitude are drawn. Archimedes (*Curry-mee-dags*), Syracuse (*st-acu-re*), vieta (*ty-e'-ia*), metius (*me'-shu*), &c. Turn the triangle so as to make it appear to stand on the shorter side, and one of the other sides will evidently appear to be perpendicular to it.—**S. H. J. R.** (Paisley), and **W. and H. (Bristol)**, have sent us ingenious but laborious solutions of the 130 ship query, worked by the simple rules of doubling and adding until the whole price is accurately obtained. The latter states "that it would take more than a hundred and thirty thousand millions of cubic miles of standard gold coins into sovereigns to pay for them."

W. H. H.: Tytler's General History is very good, and is brought down by recent editors to the present day. We ourselves have contributed a chapter or two to one edition (Scott's), on chronology and early history. Keightley's Outline of History is also good for a beginner; and it is very well written. Rollin's Ancient History, though an old book, is still the best. Blackie, Taitston and Co.'s edition is the best; it contains some splendid specimens of deep, learned and valuable research, by our late much valued friend, James Mill, the editor, who lived in the *Clachan of Camphus*, in his latter days, and what we believe, is now enjoying his Divine Master's reward.—**J. R. C.** (Glasgow): wishes information as to the construction of the dredge which naturalists use for procuring shells, &c.

H. McCOMBS, Jun. (Liverpool): has discovered a mare's nest. There are some evident anachronisms in the history of Harrison; but could he not suppose these to be misprints? are there any reason to doubt our general care and accuracy?—**DUVRINA** (City-road): His French letter does give him very considerable credit; we rejoice in his success.—**T. THOMAS** (Chippendale): Great care will be taken with the Dictionaries.—**T. H. CORNOYER, Esq.** (Kidderminster) should endeavour to be an example of temperance to those not only in reference to drinking, but in reference to speech and behaviour. John Newton said that if a Christian were but a shop-black, he should endeavour to be the best in the parish.—**T. D. LEWIS** (Carmarthen): Yes; Whately's Logic is considered the best.

JAMES STONE (Clapham): We quite agree with all that she says in reference to history; we must stir ourselves up a little, in order to please the ladies. This subject will be resumed as soon as we can get an opening.—**A. CROGGAN** (Rochdale): The side of a cube inscribed in a globe or ball of 12 inches diameter is 16 $\frac{1}{4}$ or 6.928 inches.—**JOSEPH RICHARDS** (Newport): See Mr. Cassell's admirable introduction to Dr. Lyman Beecher's Lectures on Atheism.

F. VAN (Deal): Answered before.—**AMATEUR**: The words to his round for four voices are such as we could never approve of, containing, as they do, imitations to drinking, and untrue insinuations against female sincerity. If woman is properly treated, she is capable of greater sincerity and more lasting devotion than man.—**D. L. C.** (Preston, Lancs): We have seen his idea of a circular Gunter's scale carried into execution, in a book written by William Oughtred, and published more than 200 years ago. We doubt very much the practical utility of such an instrument.

T. W. (Leicester): We mean to go through all the languages, and ancient history too. As to the Arithmetic, is it not cheap enough, although the printer has made a small mistake in the advertisement?—**A. DEATMAN** (Kenilworth, King's Co.): As to cheap books, try Mr. Gladding, bookseller, Mile-end-road, London. Bagster's Analytical Dictionary is Hebrew and English, and contains all the words used in the Hebrew text with their roots.—**JAMES W.**: In studying the Lessons in English, it is sufficient to be able to answer the questions at the end of each lesson.

J. E. and **W. E. WILLIAMS** (Mercury Tydvil): There is a treatise on Algebra in the press; see Literary Notices.—**J. HOLLIS** (Lower House): **M. McINTYRE**, **B. BURN**, **E. J. DRENNEN** (Carlisle), and **W. GIBSON** (Pindicot): Received.—**DELTA** (Devonport): Hell and the grace are expressed by the same word in Hebrew; but how he could imagine that heaven is, we do not understand.—**A. SYSTONIAN**: Answered before.—**AUTODIDACTOS** (Knottingley): His ingenious suggestions have come to hand, and will be borne in mind. Pronounce *genus* as if *genus* and *figus*; the rule being that *g* sounds like *g* before *e*, and *y*.

ERRATA.

Vol. III., p. 37, col. 1, line 31 from bottom, for the read the; vol. III., p. 63, col. 1, line 33 from top, for *quise* read *qian*.

STERNS: His question does not appear to us adapted to instruct, but only to puzzle. Utility is our aim.—**YOUNG STERNS** need not puzzle himself about the *Philosophy of Study*, but rather attend to the *Study of Philosophy*, as he is doing, and we are glad to think, doing well.—**C. N.** (Gray's Inn-road): Cyclopaedias are always at a discount; for, if they are up to the mark to-day, they are sure to be down from the shelf to-morrow, in consequence of the perpetual changes in the Arts and Sciences, and the continual increase of all human knowledge. The "Encyclopaedia Britannica" is the oldest and the best; new editions are always being published; there is one going on now. Boyer's Dictionary, of 1816, will do very well for the standard literature of the French Language. It is certainly advisable to purchase some good standard works, if offered at a moderate price, whose ever publishes them, provided they are correct.—**J. H.** (St. James's): Apply to some of the Mechanics' Institutions, or Library Institutions, which abound in London. Try the classics at Crosby-hall, Bishopsgate-street.

MENSTRUUM (Hackney): See Literary Notices and Advertisements.—**X. K.** (Greenwich): We now live in the 19th century, and shall continue to do so till the end of the year 1900. The 2nd vol. of the P. E. may be had of the regular agents.—**R. S. A.** (Brighton): There is no given rule for the pronunciation of *h*; you must study the Lessons in English; see one or two numbers back of D. WILLIAMS (Salford): Under consideration.—**A. Z. S.** (Tudmorton): It is but a poor accomplishment to be able to string sentences together; we cannot give any rule for it, as we think it useless. If any one has anything to say on paper, let him just write as he would speak on the subject to a friend, and he will be sure to succeed. On the subject of the complaint in his head, he must consult a physician.—**S. Y. DEXLEY** (Tiverton) must consult medical men for an answer to his question; they are not in our line.

LITERARY NOTICES.

Cassell's French Dictionary, embracing a great number of Scientific, Mythological, Geographical, and Historical Names than is to be found in any other Dictionary published in this country, is now in the course of issue, in Weekly Numbers. The price of the work complete will be Eight Shillings and Sixpence, or twenty-six weekly Numbers, price Threepence, of thirty-two pages, or sixty-four columns. Covers for binding the volume, when completed, will be issued at 3d. The French department carefully edited by Professor De Lolme, and the English department by Professor Wallace and H. Bridgman, Esq. Part 3, price 1s., will be ready June 1st.

The German Dictionary will shortly follow upon a similar plan of publication. Also the Latin Dictionary, which will be edited by Dr. Beard.

The Dictionaries will also be published in Monthly Parts, *One Shilling* each. They will be printed in demy octavo; each NUMBER will contain thirty-two pages, and each PART *one hundred and twenty-eight pages*. Though these Dictionaries are thus published in periodical portions, to suit the convenience of a majority of purchasers, it will be found that the entire volume will cost no more than if it were purchased at once.

Cassell's Lessons in French (from the "Popular Educator"), are just issued in a neat volume, price 2s. in stiff covers, or 2s. 6d. neatly bound in cloth. The German Lessons (uniform with this volume) will be ready June 1st.

Cassell's Euclid.—THE ELEMENTS OF GEOMETRY. Containing the First Six, and the Eleventh and Twelfth Books of Euclid. Edited by Professor Wallace A.M., price 1s. in stiff covers, or 1s. 6d. neat cloth.

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Cassell's Elements of Arithmetic (uniform with Cassell's Euclid) is now ready, price 1s. in stiff covers, or 1s. 6d. neat cloth.

THE ANSWERS TO ALL THE QUESTIONS IN CASSELL'S ARITHMETIC, for the use of Private Students, and of Teachers and Professors who use this work in their classes, is just issued, price 3d.

Cassell's Elements of Algebra, uniform with Euclid and the Arithmetic is in the course of preparation, and will shortly appear.

THE AUTOGRAPHS FOR FREEDOM: Price 1s., in boards; or bound in cloth with Eight beautiful Engravings from designs by Gilbert and Willis, price 1s. 6d.

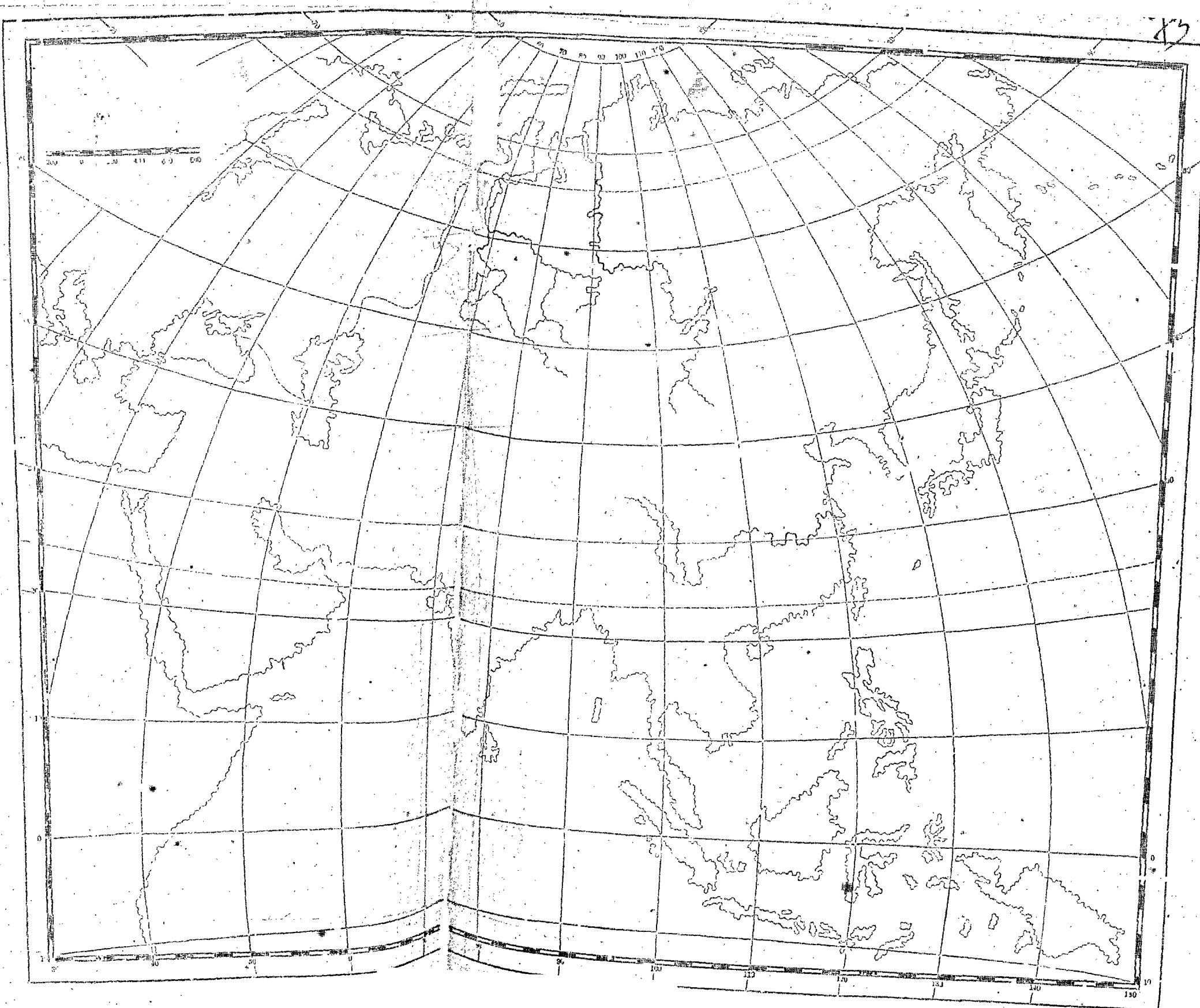
SPLENDIDLY ILLUSTRATED WORK.—THE ALPS, SWITZERLAND, SAVOY, and LOMBARDY. With an Account of the most recent Ascents of Mont Blanc, &c. By the Rev. Charles Williams. To be completed in Twelve Monthly Parts, price 1s. each.—This Work, when completed, will form a large, thick Volume in Imperial Octavo, containing upwards of Three Hundred beautiful Engravings, descriptive of the peculiar Scenery of those most interesting portions of Europe, the Occupations of the Inhabitants, &c. Part 2, now ready, contains the fullest particulars of the various ascents of Mont Blanc, with some most beautiful Views of various parts of the Mountain, from original Designs by Harvey, Gilbert, and other eminent artists, together with a highly finished Map of Switzerland, Savoy, Piedmont, and Lombardy. Part III. will be ready June 1st.

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Printed and Published by JOHN CASSELL, La Belle Sauvage-yard, Ludgate-hill, London.—May 23, 1853.

MAP OF ASIA.

Names of Places.	Latitudes.	Longitudes.
Acheen, Sumatra	5° 35' N.	95° 26' E.
Acro, Syria	32 55	35 6
Aden Cape, Arabia	12 44	45 14
Agimere, India	25 35	75 20
Amoy, China	21 31	115 17
Andaman Isle, Great	13 34	93 5
Arco, India	12 54	79 22
Ara, China-India	21 44	95 50
Bahia Island, East Indies	1 53	183 53
Bahia Island, East Indies	1 51	180 0
Bangalore, India	12 58	77 33
Bahar, Persia	29 0	50 52
Bahar, Turkey	39 29	47 10
Calcutta, India	11 12	75 59
Cambay, India	22 24	72 33
Cambodia R., China-India	9 55	106 20
Canton, China	23 7	113 14
Chia, n, China	30 14	122 7
Cochin, India	9 53	75 9
Comorin Cape, India	8 5	77 35
Damascus, Syria	33 20	36 45
Diarbekir, Turkey	37 54	39 54
Delhi, India	28 37	77 40
Formosa Isle, China	25 11	121 56
Formosa, China	26 0	116 2
Formosa, China	0 43	123 25
Goa, India	15 28	73 58
Gaza, Arabia	29 23	34 7
Hainan Isle, China	19 0	109 30
Harat, Afghanistan	34 43	62 25
Hou-fu R., Chin-India	18 36	107 16
Jassy R., India	29 0	70 0
Japahan, Persia	32 23	31 50
Jaffa, Syria	32 3	34 43
Jidda, Arabia	21 27	39 1
Kro Cape, Turkey	30 41	27 21
Ladrone Isles, Gay's	20 29	115 46
Lahore, India	31 25	77 1
Macao, China	22 11	113 32
Maldiva Isle, India	4 10	73 42
Manapur Pt., India	8 22	73 7
Mangalore, India	12 51	74 53
Martaban, Chin-India	16 32	97 37
Masulipatam, India	16 10	81 12
Medina, Arabia	25 0	39 40
Mineoy, Laccadives	8 17	73 19
Mocha, Arabia	13 19	43 17
Muscat, Arabia	23 37	58 41
Mussendom, Cape	26 23	36 35
Nagasaki, Japan	33 44	129 52
Nankin, China	32 5	118 47
Nicobar Isle	4 45	94 0
Ningpo, China	29 55	121 24
North Cape, Russia	68 56	179 12
Ochotok, Russia	59 20	143 13 W.
Orenburg, Russia	51 46	35 57 E.
Ormus, Fort	27 5	56 23
Padang Head	0 56 S.	99 58
Palmyra Point	9 49 N.	80 26
Pelew Isles	8 9	134 50
Pondicherry, India	11 56	79 54
Qu'lon, India	8 53	76 33
Romberg Cape	53 27	141 45
Ruttunpour, India	22 18	82 38
Saigon, Persia	10 53	106 43
Samarcand, Turkestan	39 47	66 50
Seringapatam, India	12 25	78 42
Shanghai, China	31 10	121 10
Shantung Promontory	37 26	122 45
Shiraz, Persia	29 30	52 35
Singapou, China	34 17	103 57
Sinope, Turkey	43 3	35 10
Suez, Arabia	29 57	32 37
Surat, India	21 11	73 3
Tar-zu, Turkey	37 1	34 52
Tellicherry, India	11 44	73 33
Tenasserim, Chin-India	12 35	97 49
Ternate Isle	0 50	127 32
Tomsk, Russia	56 30	85 10
Tonquin, Chin-India	20 57	105 50
Tranquebar, India	11 2	79 55
Trebizonde, Turkey	41 2	39 42
Trincamadé, India	8 34	81 21
Tripoli, Syria	34 28	35 51
Tzour, or Tyre, Syria	33 17	35 15
Vizagapatam, India	17 43	83 26
Yakutsk, Russia	62 2	129 43
Yentseis, Russia	58 27	91 58



LESSONS IN DRAWING.—No. XII.

ON TREES, AND THEIR APPENDAGES

(Continued from page 91.)

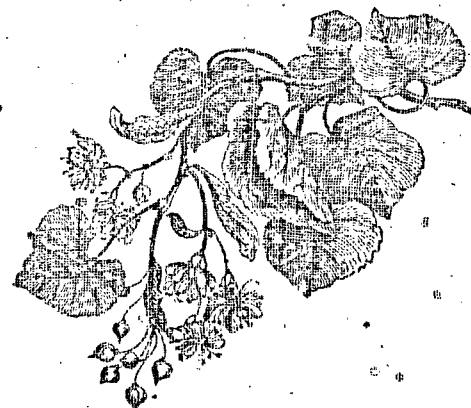


Fig. 100. — Blossom of the Lime Tree.



Fig. 101. — Leaves of the Lime Tree.

In this lesson we proceed to show our students how to draw the different parts of a lime-tree.

Fig. 100 represents the delicate and beautiful blossom of the lime tree, with the exception of colour. Fig. 101 shows more clearly the exact form and position of the leaves on the branches. Fig. 103 represents a cluster of leaves, which shows the peculiar formation and arrangement of the foliage. Fig. 102 represents a very aged trunk, in which the usual direction of the process of decay is exhibited. Fig. 104 represents the body of the tree, shewing its ramification, in which, near the larger boughs, the gnarled and twisted character of its ramification is distinctly seen.

In making a proper representation of the trunk of the lime tree, the directions already given respecting the drawing of the oak apply equally to this tree; adding to these directions, our last observations, and at the same time referring also to the smaller sketch of the trunk of the oak, the practical student will be greatly aided in tracing the leading characteristics of the subject in hand, and he will have no peculiar difficulty to surmount in making his drawing.

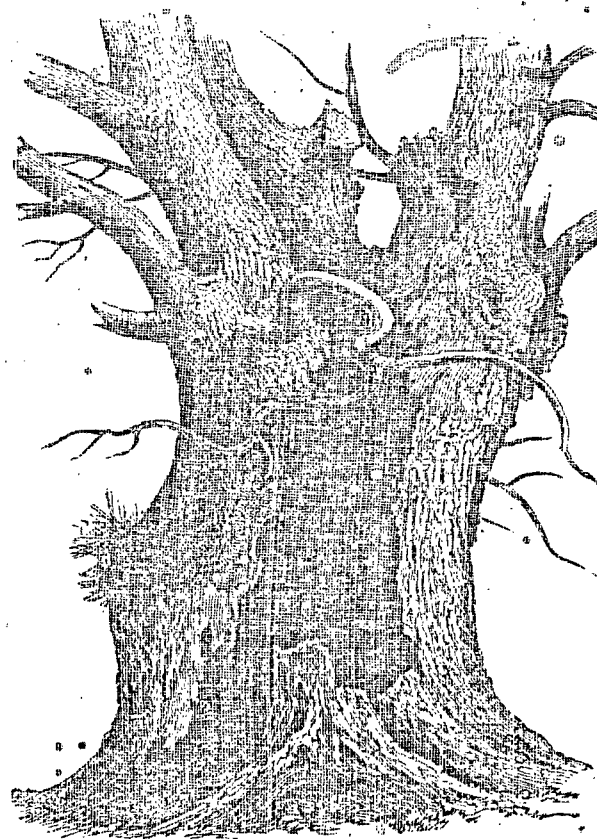


Fig. 102. — Trunk of the Lime Tree.

In fig. 104, which gives the characteristic ramification of the lime tree, the student will see that the same observations may be made as were given in reference to the body of the oak; but he will also observe by this figure, that the angle of ramification is much more acute in this tree than in the oak, and that in the first instance, the principal branches of the tree shoot upwards, but that they have a tendency to form a curved line; and that a characteristic look of flexibility is given to the extremities of the branches by a turn in the curvature, as if the weight of the leaves bent them downwards.

For the benefit of many of our readers, we extract the following account, of the Lime or Linden tree from the Magazine of Art. The trees of this genus belong to the natural order *Tiliaceae*, and are characterised by the possession of a five-parted deciduous calyx, five petals, numerous free or somewhat polyadelphous stamens, and a globose, villous, one-styled, five-celled ovary. Their leaves are alternate, heart-shaped, acute, serrated, and deciduous, with fragrant, yellowish paniced flowers. The wood of these trees is light, smooth, and white, and

the sap possesses a large quantity of sugar. The Lime tree is chiefly found in Europe and America. Botanists differ in their nomenclature of the varieties which compose the genus; the principal species, however, are *Tilia Europaea*, *Tilia Parvifolia*, *Tilia Rubra*, *Tilia Grandifolia*, which belong to Europe; and *Tilia Glabra*, *Tilia Laxiflora*, *Tilia Pubescens*, and *Tilia Heterophylla*, which belong to America.

Tilia Europaea, the European or common lime tree, is the most valuable. This variety, which grows very extensively in the middle and northern parts of Europe, is very common in England. Its petals are without scales, and its leaves, which are twice the length of the petioles, are cordate, acuminate, serrated, and smooth, with the exception of a tuft of hair at the origin of the veins beneath, the cymes are many-flowered, and the fruit is coarctate and downy. Its large size, handsome appearance, and profusion of sweet flowers, make it a very general favourite throughout this country and most parts of the continent, where it is extensively planted in parks and other places of public recreation. Its wood is well adapted for carving, being white, close-grained, and smooth. The carvings at Windsor Castle, those of Trinity College, Cambridge, and those at Chatsworth, are of lime wood, as, indeed, are most of the other fine specimens of this branch of art in England. The fibres of the bark, which is tough, form the material of an extensive manufacture of cordage and matting in Russia and Sweden.* Nor are these the only ways in which it is profitable. Its flowers secrete a large quantity of saccharine matter, and exhale a delicious scent, which render them a great favourite with bees. The honey procured from this tree is in great repute; and thus a celebrity has been given to the honey of Kowno, a small town on the Niemen, in Lithuania, which is surrounded by a forest of lime trees. Many specimens of this tree exist which are remarkable for their great age and size. At Nenstadt, in Wurtemberg, there is a prodigious lime tree, which adds its name to that of the town, this being called *Nenstadt an der Linden* (Nenstadt at the lime tree). The age of this enormous tree is said, probably with some exaggeration, to be one thousand years. According to a German writer, it required the support of sixty pillars so early as the year 1392, and attained its present size in 1541. It now rests its immense foliage, says the same authority, on above one hundred props, and spreads out so far that a market can be held under its shade. It is of this tree that Evelyn (writing in the middle of the seventeenth century) says that it was "set about with divers columns and monuments of stone (eighty-two in number, and formerly one hundred more), which several princes and noble persons have adorned, and which, as so many pillars, serve likewise to support the umbrageous and venerable boughs; and that even the tree had been much simpler, the ruins and distances of the columns declare, which the rude soldiers have greatly impaired." There is another colossal specimen of the same species in the church-yard of the village of Cadiz, near Dresden. The circumference of its trunk is said to be forty feet, and though completely

* The Lime tree is nowhere, perhaps, so subservient to the use of man as in the Russian dominions; and on account of its great value, it is commanded by law to be planted on the borders of many of the great roads; and these trees furnish the bees with a large quantity of honey in their frequent flowers. Garden-mats, so extensively employed in Britain, and called bast matting, are all imported from Russia, and are constructed of the inner bark of the *Tilia Europaea*. The same substance affords ropes, as has been already observed, which, though wanting the solidity of hempen cordage, yet being very cheap and not liable to rot, are commonly used in many places for drawing water from the wells. To bark the trees for this purpose, it is customary to grow the trees in rows, and cut them every ten or fifteen years, generally in the month of May, at the time when they are full of sap, which renders the removal of their bark easy, so that it is pulled off in long stripes, measuring from fifteen to twenty feet. As soon as the bark is dry, it is rolled up in bundles and kept in a cool place; and when required for use, it is steeped for several days in water, by which it becomes pliable. The part nearest the wood is the best, and is employed for making the ropes; the outer and coarser layers are made into stings for corn-sheaves, hay-bands, &c. In France, mats were formerly manufactured from the bark of the Lime-tree; but this appears to have been abandoned. A good sort of paper may also be obtained from this bark. When the trunks of these trees are stripped of their bark, they are, according to their size, useful for various purposes; the larger ones for turning, and the smaller ones for ladders, props, &c.

hollow through age, its inner surface is covered with a very fresh and healthy bark. Besides these trees, there are many other very old individuals of this species, both in England and on the continent. The principal street of Berlin is called *Unter den Linden* (between the lime trees), owing to the rows of these trees which grow on each side; it is said that the Electress Dorothea planted the first of them with her own hands, in the year 1680.

Tilia parvifolia, the small-leaved, or, as it is called in Germany, the winter lime tree. Its petals are without nectaries or scales, and its leaves very similar to those of the last species; like which, too, it grows in forests, both in lowland and mountainous districts. Its trunk grows perfectly upright, and is covered with a jagged, rough bark, which becomes smooth as it ascends to the upper branches. Trees of this species do not generally grow so large as those we have described. The greatest diameter of their trunk is about six feet, and their usual height eighty feet. This tree attains its full growth in one hundred and fifty years, and its age averages from two hundred to three hundred years. The wood is not so white as that of the European lime, but it is of a reddish yellow colour. Its trunk is not so round as that of the other, and it is more knotty. Its greatest peculiarity, however, is the smallness of its leaves, which are only from one inch and a half to two inches in breadth. It is a native of the subalpine districts in the north of Europe. In this country it is common in the woods of Essex and Lincolnshire.

Tilia rubra, the red lime tree, which many botanists consider merely a variety of the European lime, is a native of Taurida. It has, like all the other species, cordate leaves, unequal at the base, and hairy beneath; the fruit globose and smooth. When young, its branches are of a beautiful coral red colour, and thence it has been called by some botanists *Tilia coralina*.

Tilia grandifolia, or the broad-leaved lime. The peculiarity from which this variety takes its name, is its chief distinction. Its leaves, which, like those of the others, are hard-shaped and serrated, vary in breadth from three to six inches. It attains its full growth in about one hundred years, and then varies in height from sixty to one hundred feet; the diameter of its trunk varies from two to three feet. The bark of the young trees is of a dark green hue, and is covered with wart-like excrescences; in old trees it turns to a reddish grey colour. In Switzerland and the south of Europe this is the most common of all the varieties of the lime tree. Its source is in this country.

The species which have now been noticed are the most important of the European varieties of this tree. They all differ from those of North America in not having nectaries or scales at the base of their petals. A brief enumeration of the American varieties will be sufficient to render this sketch of the lime tree tolerably complete.

Tilia glabra, or black American lime. The leaves of this tree are deeply cordate, serrated, and somewhat coriaceous and smooth. The petals are truncate and crenate at the apex, and equal in length to the style; the fruit is ovate and somewhat ribbed. It is a native of North America, in Canada and the northern parts of the United States. It is only found in the southern states at a considerable elevation on the Alleghany mountains. It was introduced into England in 1752, but has not been much cultivated.

Tilia laxiflora, or loose-flowered American lime, is a native of America from Maryland to Georgia. It has cordate, serrated, smooth leaves; loose panicles of flowers; emarginate petals; and globose fruit. Loudon considers it and the other American limes as only varieties of the last species. It has been known in England only since the year 1820, and has been but little planted since that period.

Tilia pubescens, or pubescent American lime, is a native of the southern parts of the United States, from Virginia to Georgia, where it is principally found on the banks of rivers. Its leaves are somewhat cordate and oblique, truncate at the base, and pubescent beneath; the petals are emarginate, and shorter than the style; the fruit is globose. It is a much less vigorous tree than the last named; and has much smaller leaves and more slender branches.

Tilia heterophylla, or white American lime. This tree is very abundant in Maryland, Delaware, and the western states of America. Its leaves are ovate and downy beneath, sometimes cordate at the base and obliquely or equally truncate; its fruit is globose. The white American lime has been known in France for more than a century, but it was introduced into England only so late as 1811.

Thus the different varieties of this beautiful tree appear to be

rather varieties of the same species, differing only in some slight physiological details, than distinct species in themselves. A general description of all would correctly apply, with some few exceptions, to each individual variety.

In copying the different parts of the lime-tree as detailed in this lesson, the student should endeavour to seize the character of the forms, and aim at giving the easy flow which governs all the lines, applying the principle exemplified in the small sketch of the



Fig. 103.—Lime Tree Leaf Cluster.

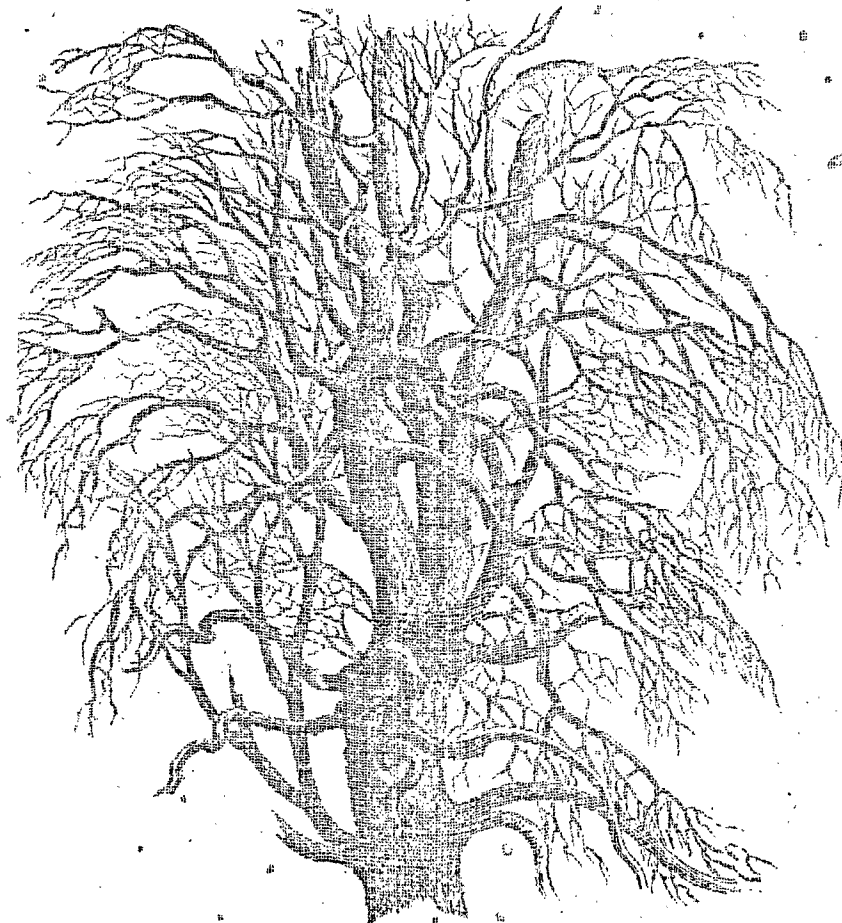


Fig. 104.—Ramification of the Lime Tree.

trunk of the oak, fig. 97. By leaving, as before directed, the minor details until the principal features are secured, the student may, at the finish, add force to the shadows, with a pencil which makes a strong mark. Black lead pencils are sold at all prices, from a penny upwards. Very suitable pencils may be had at three-pence each, and using the kind marked is for the commencement, the pencil marked is is sufficient for the shadows, although too soft for general purposes.

LESSONS IN FRENCH.—No. LXI.

By Professor LOUIS PASQUELLE, LL.D.

§ 62. ALPHABETICAL TABLE
OF THE IRREGULAR, DEFECTIVE, PECULIAR, AND UNPERSONAL VERBS.

SEE § 44, RULE (2.26) 43, RULE (7.) and § 49.

The figures placed after the infinitive of the verbs indicate the conjugations to which they belong.—The tenses not given in this Table are not used.

Infinitive.	Participles.	Indicative.	Imperfect.	Past Definite.	Future.	Conditional.	Imperative.	Subjunctive.	Imperfect.
ABATTRE , 4 to pull down aux. avoir negative.	abattant abattu, f. e. abattant abattu abattu abattu	abats see BATTRE abats abats abats abats	abattais abattais abattais abattais abattais abattais	abattis abattis abattis abattis abattis abattis	abattrai abattrai abattrai abattrai abattrai abattrai	abattrais abattrais abattrais abattrais abattrais abattrais	abats abats abats abats abats abats	abatte abatte abatte abatte abatte abatte	abattisse abattisse abattisse abattisse abattisse abattisse
ABSTRAYRE (a) to abstract aux. avoir negative.	abstrayant abstrait, f. e. abstrayant abstrait abstrait abstrait	abstrais see TRAIRE abstrais abstrais abstrais abstrais	abstrayais abstrayais abstrayais abstrayais abstrayais abstrayais	abstrayais abstrayais abstrayais abstrayais abstrayais abstrayais	abstrairai abstrairai abstrairai abstrairai abstrairai abstrairai	abstrairais abstrairais abstrairais abstrairais abstrairais abstrairais	abstrais abstrais abstrais abstrais abstrais abstrais	abstraise abstraise abstraise abstraise abstraise abstraise	abstraisse abstraisse abstraisse abstraisse abstraisse abstraisse
ACCOMPTER , 2 to settle aux. avoir negative.	accomptant accompté, f. e. accomptant accompté accompté accompté	accompte see COMPTER accompte accompte accompte accompte	accomptais accomptais accomptais accomptais accomptais accomptais	accomptais accomptais accomptais accomptais accomptais accomptais	accomptrai accomptrai accomptrai accomptrai accomptrai accomptrai	accomptrais accomptrais accomptrais accomptrais accomptrais accomptrais	accompte accompte accompte accompte accompte accompte	accompte accompte accompte accompte accompte accompte	accomptisse accomptisse accomptisse accomptisse accomptisse accomptisse
ACCOUILLIR , 4 to receive aux. avoir negative.	accueillant accueilli, f. e. accueillant accueilli accueilli accueilli	accueille see CUEILLIR accueille accueille accueille accueille	accueillais accueillais accueillais accueillais accueillais accueillais	accueillais accueillais accueillais accueillais accueillais accueillais	accueillirai accueillirai accueillirai accueillirai accueillirai accueillirai	accueillerais accueillerais accueillerais accueillerais accueillerais accueillerais	accueille accueille accueille accueille accueille accueille	accueille accueille accueille accueille accueille accueille	accueillisse accueillisse accueillisse accueillisse accueillisse accueillisse
ACHETER , 1 to buy aux. avoir § 49, (6) peculiar.	achetant acheté, f. e. achetant acheté acheté acheté	achète like CHANTER achète achète achète achète	achetais like CHANTER achetais achetais achetais achetais	achetais like CHANTER achetais achetais achetais achetais	achèterai achèterai achèterai achèterai achèterai achèterai	achèterais achèterais achèterais achèterais achèterais achèterais	achète achète achète achète achète achète	achète achète achète achète achète achète	achèterasse achèterasse achèterasse achèterasse achèterasse achèterasse
ACHEVER , 1 to complete aux. avoir § 49, (5) peculiar.	achevant achevé, e. achevant achevé achevé achevé	achève like CHANTER achève achève achève achève	achevais like CHANTER achevais achevais achevais achevais	achevais like CHANTER achevais achevais achevais achevais	acheverai acheverai acheverai acheverai acheverai acheverai	acheverais acheverais acheverais acheverais acheverais acheverais	achève achève achève achève achève achève	achève achève achève achève achève achève	achevassse achevassse achevassse achevassse achevassse achevassse
ACQUERIR , 2 to acquire aux. avoir irregular.	acquérant acquis, f. e. acquérant acquis acquis acquis	acquies like CHANTER acquies acquies acquies acquies	acquies like CHANTER acquies acquies acquies acquies	acquies like CHANTER acquies acquies acquies acquies	acquies like CHANTER acquies acquies acquies acquies	acquies like CHANTER acquies acquies acquies acquies	acquies acquies acquies acquies acquies acquies	acquies acquies acquies acquies acquies acquies	acquies acquies acquies acquies acquies acquies
ADJOINDRE , 4 to associate aux. avoir negative.	adjoignant adjoint, f. e. adjoignant adjoint adjoint adjoint	adjoins see JOINRE adjoins adjoins adjoins adjoins	adjoignais adjoignais adjoignais adjoignais adjoignais adjoignais	adjoignais adjoignais adjoignais adjoignais adjoignais adjoignais	adjoindrai adjoindrai adjoindrai adjoindrai adjoindrai adjoindrai	adjoindrais adjoindrais adjoindrais adjoindrais adjoindrais adjoindrais	adjoins adjoins adjoins adjoins adjoins adjoins	adjoins adjoins adjoins adjoins adjoins adjoins	adjoignisse adjoignisse adjoignisse adjoignisse adjoignisse adjoignisse
ALLER , 1 to go aux. être irregular.	allant allé, f. e. allant allé allé allé	alle like CHANTER alle alle alle alle	allais like CHANTER allais allais allais allais	allais like CHANTER allais allais allais allais	allerai allerai allerai allerai allerai allerai	allerais allerais allerais allerais allerais allerais	alle alle alle alle alle alle	alle alle alle alle alle alle	allasse allasse allasse allasse allasse allasse
AMENER , 1 to bring aux. avoir negative.	amenant amené, f. e. amenant amené amené amené	amène like CHANTER amène amène amène amène	aménais like CHANTER aménais aménais aménais aménais	aménais like CHANTER aménais aménais aménais aménais	amènerai amènerai amènerai amènerai amènerai amènerai	amènerais amènerais amènerais amènerais amènerais amènerais	amène amène amène amène amène amène	amène amène amène amène amène amène	amènassse amènassse amènassse amènassse amènassse amènassse
AMONCELER , 1 to heap aux. avoir negative.	amoncelant amoncelé, f. e. amoncelant amoncelé amoncelé amoncelé	amoncel like CHANTER amoncel amoncel amoncel amoncel	amoncelais like CHANTER amoncelais amoncelais amoncelais amoncelais	amoncelais like CHANTER amoncelais amoncelais amoncelais amoncelais	amoncelrai amoncelrai amoncelrai amoncelrai amoncelrai amoncelrai	amoncelerais amoncelerais amoncelerais amoncelerais amoncelerais amoncelerais	amoncel amoncel amoncel amoncel amoncel amoncel	amoncel amoncel amoncel amoncel amoncel amoncel	amoncelasse amoncelasse amoncelasse amoncelasse amoncelasse amoncelasse
APPARTENIR , 4 to appear aux. avoir negative.	appartenant appartené, f. e. appartenant appartené appartené appartené	appartiens see PARTENIR appartiens appartiens appartiens appartiens	appartenais appartenais appartenais appartenais appartenais appartenais	appartenais appartenais appartenais appartenais appartenais appartenais	appartenirai appartenirai appartenirai appartenirai appartenirai appartenirai	appartenirais appartenirais appartenirais appartenirais appartenirais appartenirais	appartiens appartiens appartiens appartiens appartiens appartiens	appartiens appartiens appartiens appartiens appartiens appartiens	appartenisse appartenisse appartenisse appartenisse appartenisse appartenisse
APPELER , 1 to call aux. avoir § 49, (4) peculiar.	appelant appelé, f. e. appelant appelé appelé appelé	appelle like CHANTER appelle appelle appelle appelle	appelais like CHANTER appelais appelais appelais appelais	appelais like CHANTER appelais appelais appelais appelais	appellerai appellerai appellerai appellerai appellerai appellerai	appellerais appellerais appellerais appellerais appellerais appellerais	appelle appelle appelle appelle appelle appelle	appelle appelle appelle appelle appelle appelle	appelasse appelasse appelasse appelasse appelasse appelasse
APPRENDRE , 4 to learn aux. avoir negative.	apprenant appris, f. e. apprenant appris appris appris	apprends see PRENDRE apprends apprends apprends apprends	apprenais apprenais apprenais apprenais apprenais apprenais	apprenais apprenais apprenais apprenais apprenais apprenais	apprendrai apprendrai apprendrai apprendrai apprendrai apprendrai	apprendrais apprendrais apprendrais apprendrais apprendrais apprendrais	apprends apprends apprends apprends apprends apprends	apprends apprends apprends apprends apprends apprends	apprenasse apprenasse apprenasse apprenasse apprenasse apprenasse
APPUYER , 1 to lean aux. avoir § 49, (3) peculiar.	appuyant appuyé, f. e. appuyant appuyé appuyé appuyé	appuie like CHANTER appuie appuie appuie appuie	appuyais like CHANTER appuyais appuyais appuyais appuyais	appuyais like CHANTER appuyais appuyais appuyais appuyais	appuyerais appuyerais appuyerais appuyerais appuyerais appuyerais	appuyerais appuyerais appuyerais appuyerais appuyerais appuyerais	appuie appuie appuie appuie appuie appuie	appuie appuie appuie appuie appuie appuie	appuyasse appuyasse appuyasse appuyasse appuyasse appuyasse
ASSAILLIR , 2 to assault	assaillant assailli, f. e. assaillant assailli assailli assailli	assaillie like CHANTER assaillie assaillie assaillie assaillie	assaillais like CHANTER assaillais assaillais assaillais assaillais	assaillais like CHANTER assaillais assaillais assaillais assaillais	assaillirai assaillirai assaillirai assaillirai assaillirai assaillirai	assaillirais assaillirais assaillirais assaillirais assaillirais assaillirais	assaillie assaillie assaillie assaillie assaillie assaillie	assaillie assaillie assaillie assaillie assaillie assaillie	assaillisse assaillisse assaillisse assaillisse assaillisse assaillisse

List of Irregular Verbs, continued.

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LESSONS IN ENGLISH.—No. I.

By JOHN H. REARD, D.D.

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Our grammatical forms are derived from the Latin. In Latin grammar, *case* denotes the change of changes which nouns and pronouns undergo in their terminations corresponding with certain changes in signification. Thus *cubus* is a *board*; but *cubi* is to a *board*; where the termination *us* what is called the case-ending *us*, is changed into the case-ending *i*. The case-endings of the plural vary from the case-endings of the singular. I present this Latin *accus* in full, together with the English meanings:—

SINGULAR.		PLURAL.	
CASE.	Latin.	Latin.	English.
NOMINATIVE.	nubes	nuvola	clouds.
GENITIVE.	nube	a cloud	clouds
DATIVE.	nubi	to a cloud	clouds
ACCUSATIVE.	nubem	a cloud	clouds
VOCATIVE.	nubes	a cloud	clouds
ABLATIVE.	nube	by a cloud	by clouds

Now here you see what is expressed by the English of *is* is in the Latin expressed by the letter *e* (the *i* belongs to the stem or root of the word); so our *is* is represented by *i*, and our *by* is represented by *e*. In general, then, we may say that the changes of meaning which the Romans represented by variations in the endings of nouns, we express by *prepositions*. Large variations in the endings of nouns are in Latin grammar termed *case-endings*, or *cases*. Instead of *case-endings* we employ *prepositions*. In the Latin sense of the terms, then, *cases* do not exist in English nouns. For the student will observe that *cloud* in the singular and *clouds* in the plural, remain through all the six Latin cases unchanged.

The Anglo-Saxon, however, the parent of the English, had *cases*, and a relic of its cases still remains in what may be called the Saxon *genitive*. Thus the Saxon *cynges dihtor* is our "*king's daughter*," where (the *c* is pronounced like *k*), *cynges* is in the *genitive* case. This *genitive* has been continued in the English, the *c* being dropped and represented by an apostrophe, thus we have *king's* for *cynges*.

This is the true origin of our form in 's, as for example in king's, queen's, boy's, girl's. It has, however, been conceived that this 's in this genitive arose from an abbreviation of *his*, and so we read in the Book of Common Prayer "for Christ *his* sake," which should be "for Christ's sake." If, after the exhibition of the real origin of our form in 's as a matter of fact, it was necessary to confute the theory just mentioned, we should do so by remarking that it does

not account for the given phenomena, inasmuch as we say "the Queen's majesty," which cannot be expanded into "the queen *his* majesty," the sense requiring "the queen *her* majesty;" but if *her* is here necessary, whence comes the *s* of the genitive?

is not necessary, whence comes the *s* of the genitive? This *Sacru genitive* is also represented in English by the preposition of. The words of the New Testament (John i. 29), "This is the lamb of God," stand in Luther's German translation, *Das ist Gottes Lamm*, properly, "This is God's lamb." Here the German *es* is represented by the English *of*.

It appears, then, that in English we have two ways of expressing what the Latin expresses by the termination *s* or *es*; for this purpose, we may use *s*, or *of*.

The *l* is of German or rather Saxon (say Teutonic, which includes both) origin. Whence comes the *of*? The preposition *of* is of French (Norman-French) origin, being the translation of the French *de* which means *of*. The words stand in the French Bible thus "*Tout le Peuple de Dieu*," i.e. *behold the lamb of God*. I put the several forms together, beginning with the Greek (in English characters) and the Latin, thus:—

GREEK	αἰνέω	Thou
LATIN	agnus	Di
ANGLO-SAXON	Godes lamb	
GERMAN	Gottes lam	
SPANISH GENITIVE	God's lamb	
FRENCH	agneau	de Dieu
FRENCH GENITIVE	lamb	of God

In the case of the Latin noun *nubes*, *s* (*is*) has the characteristic of the *genitive*. In the Greek noun *Theos* (*of God*), and in the Eastern noun *Dei* (*of God*), the terminations *os* and *is* are respectively the characteristics of the *genitive* in these languages. If, however, you bear in mind that *s* is one form of the *genitive* in Latin (as it is of the *genitive* of many nouns in Greek, also), you will then learn that the relation indicated by our preposition *of*, that is, a relation of origin or possession, is in English, in German, in Anglo-Saxon, in Latin and in Greek, signified by the letter *s*. Now, as in Greek, Latin, Saxon and German, this relation is denominated *the case*, we seem justified in calling it in English, *the case*. We are thus taught that in English we have *one case*, namely, the *genitive or possessive*. We also learn that what the Greeks and others express by means of a *case-ending* alone, we express, by means of a *case-ending* and the preposition *of*. These two modes cannot, however, be employed, the one or the other, indifferently; but of *two distinct* and-by-

Something of a similar nature is found in the classical languages, for instance, *in a cloud* in Latin may be rendered by *nubi* or *ad nubem*, that is, simply by a *case-ending*, or by a *case-ending added by a preposition*. The meaning produced by these two forms is not in both instances the same. But what I wish you to observe is, that in Latin, prepositions are employed to express the relations of nouns with verbs, no less than in English. With the *genitive*, how-

* For the sake of distinct comparison, the ego-endings of the noun, and the corresponding meaning in English are marked in Italics.

ever, no preposition (strictly so called) is employed. You must observe that in Latin case-endings are used as well as and together with prepositions. The opposite is the fact in English, for if you refer to the form or declension of *nubes*, *cloud*, before given, you will see that our word *cloud* remains unchanged through all the different cases. Hence it appears as a general fact, that what the Latins expressed by case-endings alone, or by case-endings and prepositions, we, dropping the case-endings, express exclusively by prepositions. The only exception to this statement is in the instance of the genitive case, for there we have one form with a case-ending, and without a preposition, and another form with a preposition and without a case-ending.

In English, then, there is *one case*, the possessive;—are there more cases than one? If we follow the analogy of the Latin grammar, we may admit that in English there is also a *nominative case*, for in Latin as in English the *nominative* is the original and uninflected (unchanged at the end) form of the word. Thus as *cloud's* is the possessive, so *cloud* is the *nominative*.

We have then been left to admit two cases, the *nominative* and the *genitive*, as *cloud*, *cloud's*. Can we go farther? according to classical analogy certainly not, for *cloud*, as is seen above, undergoes no other modification. Thus, for example, the word *cloud* remains the same in the *nominative*, the *dative*, the *accusative*, and the *ablative cases*, as appears in these instances (to which for the sake of illustration I have prefixed Latin demonstrations).

NOMINATIVE	The cloud is deep.
DATIVE	He gave bright green to the cloud.
ACCUSATIVE	He dispersed the cloud.
VOCATIVE	O cloud, be gone!
ABLATIVE	He was conducted by a cloud.

Here are several varieties of meaning. How are these varieties signified? Clearly not by *cloud*, for that remains the same throughout; but by the prepositions *to* and *by* and the form *O*, the term of direct address or invocation. But in Latin, changes at the ends of nouns are essential to the cases. If then such changes do not (generally) exist in English, why should we employ the Latin term *case*? At any rate why should it be applied in English, to instances in which there are no case-endings? We soon learn justified in declaring that in English, there is no *dative case*, no *accusative* or *ablative case*, no *objective case*, no *oblique case*. To foreign cases in these instances is to lessen the simplicity of our language, and to augment the learner's difficulties. Nor are cases in these instances required by the exigencies of parsing,—that is, a systematic and orderly explanation of the facts and the laws of a language. Logic will supply us with the needful terms. Instead of the *nominative case* we may with advantage speak of the *subject*, and instead of the *objective or accusative case*, we may speak of the *object*. On the whole, therefore I think it more accordant with fact and good sense, as well as more conducive to intelligibility, to discard the term *case* altogether, except in the sole instances in which a specific form exists, and to which I have already given the name of the *Saxon genitive*.

Nor is this conclusion impeached by the fact, that in the pronouns we have remnants of an *accusative case*, properly so called; as for example in *me*, (*nominative I*), *thee* (*nominative thou*), *us* (*nominative we*). Undoubtedly the English if viewed in its earlier tongue, the Anglo-Saxon, had what may rightly be termed *cases*. But we are studying not Anglo-Saxon, but English, and consequently it is the facts and the laws of the English, as it now is, with which we have to do; nor are we justified in referring to any other tongue, except for the express purpose of throwing light on the English—its facts, its usages, its laws. And we are not compelled to adopt the term *case* in regard to the forms *me*, *thee*, &c., for the term *object* is applicable to *pronouns* no less than to *nouns*.

Adhering, then, to established usage, I define *case* to be the change which nouns take in their terminations as expressive of corresponding changes of meaning, and I add, that in English, there are only two cases, the *nominative*, or the original form of the noun, and the *Saxon genitive*.

The term *genitive* arose from the idea that the case so named denoted *generation*, *origin*, *birth*, *source*, as a man's son. From the idea of *generation*, or giving life, comes the idea of *possession*; as William's son, e.g., "this boy is William's son, not Richard's;—this is Henry's dog;—this is Charlotte's doll."

I have already intimated that the real or Saxon genitive differs

in its application from the false genitive or the form derived from the Norman-French. Thus we can say *the man's end*, but we cannot say *the ball's end*. Why can we say the one, and not the other? The *real genitive*, as we have seen, denotes *origin* or *possession*. Not so the *false genitive*. When I say "the back of the chair" I express a relation much more vague than when I say "the man's back." *Possession* denotes a *possessor*, but the chair is not a *possessor*. Consequently the former, which denotes possession, cannot properly be used of the chair. Hence I deduce the general rule, that *nouns which denote or imply a real possessor may be used in the possessive case, and those which do not*; consequently other nouns or nouns, which do not properly signify a possessor, must be constructed with the aid of the preposition *of*; as in the following instances:—

The Possessive Case.	The Preposition "of."
Byron's Child Harold	the side of the house
The Queen's diamond	the edge of the precipice
The Mayor's liberality	the ridge of the wall

The forms of the possessive case may be exchanged with the forms made by means of the preposition *of*; thus we may say,

The Child Harold of Byron	"
The Diamonds of the Queen	"
The liberality of the Mayor	"

But the rule cannot be reversed, that is, you cannot turn the false into the true genitive, and say,

The house's side	"
The precipice's edge	"
The wall's ridge	"

Poetry indeed, in personifying objects, may and does employ of things without life, that is things to which possession cannot strictly be ascribed, the *real genitive*, as *Victory's crown*. The limitation of this in prose gives an affected air to the composition, and is to be avoided. In a few instances, however, custom sanctions the use of the Saxon genitive in its application to objects where no real possession is intended or implied, e.g.:

The sun's distance from the earth is greater than the moon's.
We saw a whale of a book's length from the ship's prow.
His house is not five minutes' walk from this spot.

The apostrophe in *man's* has already been explained; it represents the German and Saxon *e*. This *e* is found only in the *possessive singular*. To the possessive singular, therefore, the apostrophe specially belongs, and according to its origin, the apostrophe should stand immediately before the *s* as the *king's son*. Sometimes, however, it is actually found after an *s* as in *children's toys*. The reason is that the apostrophe borrowed from the Saxon singular has been extended to English plurals, thus:—

Singular.	Plural.
The child's toys	the children's toys
The man's houses	the men's houses
The wife's gown	the wives' gowns

But observe, the apostrophe, which in the singular is placed before the *s* in the plural is placed after the *s*. The apostrophe, however, is not to be employed unless with a possessive case.

In pronunciation it is not unusual to drop the *s* of the possessive when the noun itself ends in *s*, thus instead of *John's* (*John's*) book, we say *Johns* (*Johns*) book. Accordingly, when a noun ends in *s*, some do not add the *s* of the possessive case, but simply place the apostrophe after the *s* of the noun, as *Richardson's hat*. This omission, however, is only partial.

An abbreviation also takes place when several nouns in the possessive case come in succession, e.g.:

I saw the Duchess Dowager's carriage.
The Lord Chancellor's footman has come.
The keeper of the Priory Seal's house has been sold.
They went to Thompson and Brothers' the linen drapers.
I bought the article at Husband and Son's, the new tea-dealers.

Here, the *Duchess Dowager* is a compound title, and being taken together has but one 's, though consisting of two nouns. In *Thompson and Brothers'* the term shop or warehouse is understood; e.g. Call at *Henry's*, that is *Henry's house*, or *Henry's place of business*. Usage does not allow the *s* to be applied to explanatory nouns, as in the above *the linen drapers*, or *the new tea-dealers*; nevertheless, these nouns are in apposition, and consequently in the same case with the titles or names they explain.

SKELETON MAPS.—No. III.

ASIA.

In this lesson, we present our students of geography, with a skeleton map of Asia, signifying to that which we formerly gave of Europe. We have annexed to this map, a list of the latitudes and longitudes of the most important places in this continent, excepting the capitals of the countries, king doms or states; of these capitals, we have already given the latitudes and longitudes, at p. 371, volume II. in our lesson in Geography No. XX.; so that it was unnecessary to repeat them here. By the combination of these two lists, the student will be enabled to fill up this skeleton map in a very satisfactory manner; and thus make himself well acquainted with the geographical positions of the most important cities, islands, and parts belonging to Asia. From the directions given in the explanation of the skeleton map of Europe, the student will be enabled to construct a *scale of latitudes* and a *scale of British miles* for himself. In the construction of the former scale, it will be necessary to make it flexible, in order to be able to apply it in the direction of the curved meridian lines which unite the corresponding degrees of longitude at the top and bottom of the map; and those also which may be conceived to be drawn between them, for every degree and minute of longitude. Perhaps, the easiest way to make such a scale flexible, would be to paste the paper draught of it on a piece of fine thin whalebone of the proper length, so that it may be bent at pleasure to the proper curve. The something indeed ought to be done for the skeleton map of Europe, as even in that map, the meridian lines are somewhat curved, and therefore the student ought to have a flexible scale for the purpose of laying down the latitudes correctly; but the degree of curvature is so small, that very little error is likely to take place in using a straight scale. The real fact is, that after all our attempts at accuracy in the laying down of places on a map according to their latitudes and longitudes, we are able only to reach a certain degree of approximation to the truth; and a practised eye, assisted by a correct judgment, will attain the object fully as well without a scale as with one, by exercising its power of determining the situation of places by inspection. This power will serve the student both in reading off the latitudes and longitudes, and in laying them down; so that he can readily transfer the positions of places from a filled-up map, to a skeleton map at once. There is, however, not much difference between the size of the scale of our filled-up maps and our skeleton maps; and in a rough outline or first attempt, they may be considered the same; but, in a second attempt, the difference between them must not be overlooked; as habits of accuracy of essential importance to the geographical draughtsmanship. The principles of the construction of maps will be explained in future lessons.

LESSONS IN GEOGRAPHY.—No. XXV.
MAP OF NORTH AMERICA.

The principal isthmus in North America is that called the Mexican Isthmus which separates the waters of the Atlantic and Pacific oceans. At three different points do these waters approach each other. The isthmus of Panama or Darien, already mentioned, is the narrowest portion of this isthmian region; and at the narrowest point of this isthmus, the breadth of the land is only about 28 miles across, from ocean to ocean. The next isthmus in point of narrowness is that of Tehuantepec, which is reckoned 125 miles across the land from ocean to ocean; and the last, which is the broadest, is that of Guatemala or Chiquimula, which is reckoned about 170 miles across the land between the gulf of Honduras and the Pacific. The isthmus which separates New and Old California is upwards of 100 miles broad. The isthmus of Florida is about 150 miles broad; that of Alaska may be about 50 miles, and that of Nova Scotia about the same.

The mountains and plateaus of North America are on a grand scale. The most extensive chain of mountains is that called the Rocky Mountains next the Pacific, which extend from north to south, or from the shores of the Arctic Ocean to the plateaus of Mexico, a distance of about 2,800 miles; and which vary in height from 2,000 feet to 15,000 feet above the level of the sea. The principal plateaus are the great basin of Utah, the highlands of Oregon, and the mountain range of

California. The next chain is that of the Appalachian or Alleghany mountains, on the eastern side of the continent, next the Atlantic, and within the United States; these mountains extend from about the 31st parallel of latitude to the shores of the gulf of St. Lawrence, a distance of about 1,400 miles, their breadth on an average being about 120 miles. Their average altitude is about 2,500 feet, and the highest summits reach upwards of 8,000 feet. The Ozark mountains occupy a space about 300 miles long and 100 miles broad, and vary in height from 1,000 to 2,000 feet. The table-land in Labrador has an average height of 2,000 feet; but the Arctic highlands have a considerably less elevation. In the Mexican isthmus, the plateau of Chihuahua varies from 4,000 to 6,000 feet in height; and farther to the south the plateau of Anahuac varies from 6,200 to 9,600 feet in elevation. In this table-land there are several mountains, chiefly volcanic, which rise to an enormous height above the level of the sea, such as Jorulla, Popocatepetl and Orizaba. The altitude of Popocatepetl is 17,773 feet above sea-level, and is reckoned the highest peak in North America. The plateau of Central America extends from the isthmus of Tehuantepec to that of Panama, diminishing in height from about 5,500 feet to about 200 or 300 feet at its extremity. Between the mouth of the river Chagres on the Atlantic side, and the city of Panama on the Pacific side, the distance is about 42 miles; and the highest ground, on the proposed line of railway between these points, is less than 300 feet.

The rivers in North America are even on a grander scale than the mountains, as compared with those of the old world. The largest river in this continent is the Mississippi, which brings to the Atlantic the waters drained from a surface of more than a million of square miles. This river, which rises in the lake of Itasca, at the elevation of about 1,500 feet, flows in a southerly direction to its embouchure in the gulf of Mexico, a distance of about 2,400 miles. The longer branch of this river, called the Missouri, rises in the Rocky Mountains, and has a course of about 2,500 miles before it joins the Mississippi; so that the whole length of the river Mississippi by this great branch upwards of 4,000 miles. This river is navigable from the sea to the falls of St. Anthony, a distance of about 400 miles from its source; and the Missouri is navigable from its junction with the Mississippi to the great falls at the base of the Rocky Mountains. Thus the navigation of the Mississippi exceeds a distance of 2,000 miles, and that of the Missouri, with the lower Mississippi, a distance of 3,000 miles. The Ohio, another tributary to the Mississippi, has a course of nearly 1,000 miles before it reaches the latter, and receives a considerable number of tributary rivers, among which the Tennessee is the largest, being nearly equal to the Ohio itself. The delta of the Mississippi, owing to the floods which occur among the tributaries and the principal branches, is annually inundated to a great extent from its banks, and is frequently the cause of very serious changes and loss to the neighbouring country.

The next river of importance and magnitude is the St. Lawrence; the source of this river is the St. Louis, which flows into the Lake Superior; this lake is connected, like a chain, with Lakes Huron, Erie, and Ontario, through all of which the river runs, and, escaping from the latter, receives the name of the St. Lawrence; it then flows in a channel of about 700 miles in length, forming between Quebec and the sea a broad estuary, which increases from twenty-five miles to upwards of 100 miles at its embouchure. The whole length of the St. Lawrence is consequently about 2,000 miles. This river is navigable to the Rapids, near Montreal. On the channel between Lakes Erie and Ontario, a distance of about forty miles, occur the Falls of Niagara, 162 feet in depth, the most remarkable in the world for extent and sublimity. In the northern regions of the North American continent, occur several rivers of considerable extent: the Nelson, about 1,400 miles; the Churchill, about 900 miles; the Mackenzie, upwards of 2,000 miles; the Coppermine River, and others, whose lengths are not yet determined. On the eastern coast of this continent are a number of rivers, whose average length is about 400 miles; such as the Connecticut, the Hudson, the Delaware, the Susquehanna, the Potomac, the Savannah, &c., all of which flow into the Atlantic. On the western side of the continent, and flowing into the Pacific, are the following, with their estimated lengths:—The Columbia, 750 miles; the Sacramento, 420 miles; and the Colorado,

natura desideret; Plato si modo interpretari potuero, his scire vultis naturam; ut vobis me esse, ita ero; domos plurimas aedificandas curavit.

ENGLISH-LATIN.

I have nothing to write concerning thy brother; we know that God is (exists); it is agreed (constat) that Demosthenes uttered many words; I know what thou sayest; I know what thou art about to say; I shall know what thou sayest; the king condemned what the pirate did; my father has condemned what you said; I wish (male) to be rather than to seem good; they have not leisure to gather money; thy sister wishes to appear (videri) learned; I know that Tully is eloquent; they know that their father has gone away; they do not know when their sisters will return; they did not know when their sisters would return; they see what thou doest; no one was so blind as not to see what thou didst.

ANSWERS TO CORRESPONDENTS.

D. ARCHER (Birmingham): If any book states that the power is increased in effect 10 times, by increasing the diameter of a wheel 10 times, the statement is simply untrue, and the error cannot be explained arithmetically. F. W. J. (Worcester): J. Jones (Pontypridd): We cannot give the requested information.—Vernon Jones (Cardiff): See vol. II, p. 136, and p. 138, 49.—A. H. B. (Bristol): The number of letters in the name, does not wish to be set down and estimate them?—J. L. (Aston): Right is the only answer.—U. S. (Liverpool): This book is the best English. We agree with Walker in pronouncing *creed* in two syllables, and with you, in doing the same with *ake*, and for the same reason—the difficulty in pronouncing it in one syllable.

Amphylas (Worcester): must apply to his brethren of the *Popular Educational* for the solution of his question from the book of *Revelations*.—J. A. (Glasgow): His lines are pretty fair, but not quite up to our mark.—G. G. (Glasgow): will find some good hints on the points which trouble him in French pronunciation, in the short essay on this subject contained in No. 1, of *Cassell's French Dictionary*, just published.—A. Z.: The demandants, a *man of beggary*.—T. R. (Leeds): The lessons in Latin in the P.E. are the best for his purpose that we know. The last four months received their names from the Romans, who at first reduced only ten months in the year: this error was corrected by Numa Pompilius, and afterwards the calendar was improved by Julius Cæsar.—G. B. C. (Worcester): A *friend to Poland* (Glasgow).—J. Jenkins, and T. Watkins (Pembroke Dock).—E. J. (Lancaster): The party went live in 1800.—G. Davis (Bristol): *Tish*, *taille*, is the proper word.—T. Adams: "Richard Phillips' *Million of Facts* is a book of no authority.

D. (Liverpool): We have sent his communication to the author of the *Lessons in French*.—His penmanship needs improvement: see vol. II, p. 136, col. 2, line 10, 44.—A. J. (Glasgow): His request about French measuring should be attended to.—F. R. (Glasgow): We recommend him to buy the "Lessons in French," reprinted from the "Working Man's Friend," price 1d., or 2d. by post. He will find rules for pronunciation also in the first number of *Cassell's French Dictionary*, price 3d., just published.—J. (Glasgow): Received.—T. (Worcester): *Pen* and *quill* are in the compass for all genders.—D. H. (Dorchester): We think what he has now in hand, *French, German and Mathematics*, quite enough for 2 hours a day. His suggestions for the improvement of our readers are very good indeed, and well worthy of attention; but, alas! we are not a committee. He should correspond with those students and correspondents whose addresses are given in the P.E. His suggestions will be noticed as usual.—A. (Liverpool): *Agate*, means on the way, *agony*, and comes from the *agere*, and *agere*, which signifies a way, passage, or road; "get agate" means simply *begin*.—Communications received from J. B. (Ripley), E. J. (Birmingham), F. R. (Glasgow).

W. R. C. (London): His suggestion about large diagrams in Physiology, &c., has been followed out by others already. Such diagrams are to be had in various shops in town. We saw the other day some large and effective diagrams in anatomy, and art of making gas, smelting, &c., in Mr. Gilman's establishment, Baker-street, Portman-square, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100. The reckoning of one billion of pins, at the rate of 100 pins per minute, without time for sleep, food, or rest, would take a person 19,012 years, 311 days, 10 hours, 40 minutes! This would be said to be in round numbers about twenty thousand years.

YOUNG LAWYER (Kent): A list of all Mr. Cassell's publications may be had on application at this office by letter or otherwise. The second vol. of the P.E. is ready, common edition, 3s. 6d.; fine edition, 4s. 6d. The best book on the laws of England is *Blackstone's Commentaries*. As to the laws themselves, they are like Nero's, out of sight. When we were in France, we were offered by street hawkers a copy of the laws of that country (Le Code Napoleon) for a single franc. Oh that we had our English *Blackstone*, a thing that we might not break these laws through by every one! But the laws of "a one," may be had for tenpence! If these need for any other code. Your plan of case, is a most excellent plan, and all our subscribers would do the same.—A. (Glasgow): Received.—J. C. W. (Bristol): We agree with you in your suggestion is under consideration.—J. O. U. (1000 yrs), an acknowledgment does not know the meaning of that all were in the same predicament for borrowed money; we wish

J. RUSSELL (Kingswell): His problem shall be inserted when an opportunity occurs.—F. H. (Brightwell): His solutions have been received.—J. Wilson (Nottingham): His method of calculating 7573 yards of lace at 1d. per yard is very good and quite correct in principle; he has omitted 4d. in the price of our part, and he has, by inadvertence to his addition, made the price of the whole £100 too much. We advise him to buy Cassell's *Arithmetic*, and to study the rules of practice.—J. Turner (Camden-town): Persevere, and you will succeed.—T. A. Z. P.: The lengths of different pendulums, are to one another as the squares of their times of vibration; hence, if a pendulum is to vibrate 123 times in a minute, its length must be exactly one-fourth of that of the pendulum which vibrates 60 times in a minute; for, calling l the length of the second pendulum, and l' the length of the half-second pendulum, we have $l : l' :: (123)^2 : (60)^2$; or $l : l' :: 15129 : 3600$; therefore, $l' = \frac{3600}{15129} l$.—S. P. (Westmoreland): The poem of the Young Miser is not up to our mark.

SOME CORRESPONDENTS have asked us to recommend a weekly or fortnightly French publication of a cheap and useful kind. Among others, we may mention *Le Citoyen*, published by *L'Éclair*, for which the yearly subscription, put in advance, is 6 shillings. It consists chiefly of notices, memoirs, or biographies of eminent men both ancient and modern.—W. X. Don: We have not read Tate's *Mechanics*; perhaps the question is unanswerable.—J. M. STANFORD (Poole) will find instructions on *Telescopes* in the *Cabinet Cyclopædia*, *Treatise on Optics*, Chapter 42. This work was written by Dr. Hroeger, and may be had separately for about 3s. 6d.—Gordon (Worcester) must try and be more acute; the answer to the proposed question is quite right.

CLIO (Dulwich): The ancients were punsters as well as the moderns; the change of *Theresia* into *Maria* is a very good instance when coupled with his habit derived from his drunken nurse. *Maria* is a good Latin word, being the *abstractive singular* of the adjective *maria*, a sea, pure, unadorned, neat; it was used as a substantive by the Romans to signify pure unadorned wine, *vinum, vinum, vinum*, being understood; that is, as we should say neat or without water. The ordinary admixture of water and wine among the Romans was two-thirds of water to one of wine, and he who drank it was called a *calix* or *drunkard*. *Theresia*, though not a good Latin word, might be considered as derived from *theres*, to drink, and therefore would mean a drinker, a drunkard, or drunker. *Theresia* *Maria* would then signify *drunkard with wine, a calix*.

ERRATUM.

Vol. III., p. 7, line 25 from top, for *navigant*, read *navigatis*.

LITERARY NOTICES.

CASSELL'S FRENCH DICTIONARY, embracing a greater number of Scientific, Mythological, Geographical, and Historical Names than is to be found in any other Dictionary published in this country, is now in the course of issue, in Weekly Numbers. The price of the work complete will be Eight Shillings and Sixpence, or twenty-six weekly Numbers, price Three-pence, of thirty-two pages, or sixty-four columns, demy 8vo. Covers for binding the volumes, when completed, will be issued at 3d. The French department is edited by Professor De Lohme, and the English department by Professor Wallace and H. Bridgman, Esq. The Dictionary will also be published in Monthly Parts, the *Building* each. Each Part will contain one hundred and twenty-eight pages. Though these Dictionaries are thus published in periodical portions, to suit the convenience of a majority of purchasers, it will be found that the entire volume will cost no more than if it were purchased at once. Part I., page 1, is now ready.

CASSELL'S LESSONS IN FRENCH (from the "Popular Education"), the neat volume, price 2s. in stiff covers, or 2s. 6d. neatly bound in cloth.

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LESSONS IN NATURAL HISTORY.—No. XX.

THE ORANG-OUTAN—THE CHIMPANZEE—THE BABOON.

The following facts, illustrative of the structure and character of the orang-outan, may be added to the information conveyed in our last lesson. A female orang-outan, brought into Holland from the island of Borneo, was placed in the menagerie of the Prince of Orange. Her appearance was somewhat melancholy, but she loved company, particularly that of the persons to whose care she was committed, and she was always extremely gentle in her manners. Often when left alone, she was observed to throw herself on the ground, as if in distress, and was heard to utter the most doleful cries. But if her keeper sat near her on the ground, she would take the hay of her bed, arrange it by her side, and with the greatest anxiety and affection, invite him to take his place there. She was taken young, and on her first arrival, she was only two feet and a half high, and there was but little hair on any part of the body, except the back and arms. On the approach of winter, she became thickly covered; and the hair on the back was, at least, six inches in length. The whole animal was then of a chestnut colour, except the skin of the face and the paws, which was somewhat of a reddish mouse colour. Most commonly she walked on all fours, but she could also walk erect. At such times the difference between these creatures and man, was very easily perceived, particularly in reference to the means of locomotion. Her feet were not usually extended, but the toes were curved beneath in such a manner that she rested chiefly on the outer sides of her feet. Once

she contrived to escape from her chain, and was seen to ascend with wonderful agility, the beams and oblique rafters of the building. She manifested extraordinary muscular power, for the efforts of four men were necessary to accomplish her recapture. Two men were obliged to seize her by the legs, and a third by the head, while the fourth fastened a collar round her body. During the time she was at liberty she had,

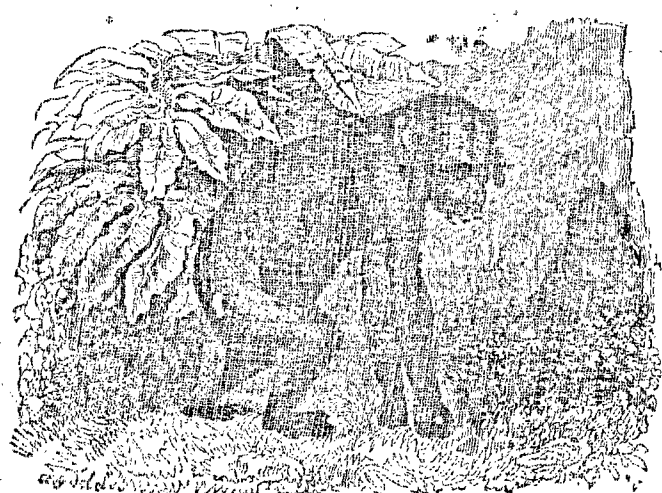
amongst other pranks, taken the cork from a bottle of Malaga, drank the wine to the last drop, and then returned the bottle to its place.

She would eat of almost every kind of food that was given to her; but she lived chiefly on bread, roots, and fruits. Of carrots and strawberries she was particularly fond; she also liked eggs, breaking the shells with her teeth, and then sucking out the contents. When strawberries were given to her on a plate, she would take them up one by one with a fork, and thus put them into her mouth, while she held the plate with the other hand. She would eat meat that was cooked, but was not fond of raw flesh. Her usual drink was water, a glass of which she would carry to her mouth, in the same way as a human being. She would also drink very eagerly all sorts of wine, and particularly Malaga.

She would present her hand to conduct the people who came to visit her, and walk as gravely along with them as if she formed part of the company. She would frequently sit with persons at dinner, where she would unfold her towel, wipe her lips, use readily a fork or a spoon, pour her liquor into a glass, and when it touched that of a person who drank along with her. When invited to take tea, she would bring a cup and saucer, place them on



The Baboon.



The Chimpanzee.

the table, put in sugar, pour out the tea, and allow it to cool before she drank it. These actions were performed at the instigation of certain signs and words from her master, but sometimes they took place of her own accord.

Whilst she was on ship board, she ran freely about the vessel, played with the sailors, and like them would go into the kitchen for her mess. At the approach of night, when she was about to lie down, she would prepare the bed on which she slept, by shaking the hay, and putting it in proper order; and last of all would cover herself up warm with the quilt. One day, seeing the padlock of her chain opened with a key, and shut again, she seized a little bit of stick, and put it into the key-hole, turning it about in all directions; thus trying to open the padlock. She died after having been about seven months in Holland. Such is an account of this interesting animal, on authority which is above suspicion.

The chimpanzee, like the orang-outan, with which it has been very generally confounded, has proved a copious source of the marvellous to those who have been led by interest or pleasure to cater for the credulous. It has greater facility for the biped or upright mode of locomotion than the orang-outan, and the facial angle (that is, the one formed of two lines, one descending from the forehead to the mouth, and the other passing from that point to the opening of the ear), is considerably less than it is in the latter animal. The arms of the chimpanzee are long, and its thumbs are larger and more serviceable than those of the orang-outan. Other differences in structure show clearly that there is a specific difference between the two animals.

Many years ago, a chimpanzee was caught in Angola, and brought to England. He was soon tamed, and became one of the gentlest creatures. He would even embrace, with the greatest tenderness, those persons whom he knew on board the vessel which brought him over. Although there were several monkeys in the ship, yet on no occasion would he associate with them. In many of his actions this creature displayed

considerable sagacity. A suit of clothes was made for him, in the wearing of which, after awhile, he took great delight. Any part of this dress which he could not put on by himself, he would bring in his paws to some of the ship's company for assistance. He would lie down at night in his bed, place his head on the pillow, and pull up the bed-clothes to keep himself warm, in the same manner as a human being.

The last of the chimpanzees on which we have looked, is the one in the gardens of the Zoological Society. It was, however, very unwell, and was constantly watched with great attention by its keeper. It was very carefully wrapped up, and had all the aid that could be afforded by medical attendance and skill; but these seemed to be unavailing. The keeper feared then that it would not live, but it has now survived the attack from which it was suffering for several weeks; we may hope, therefore, that it will yet serve not merely to gratify, but to instruct its numerous and eager visitors.

The first chimpanzee exhibited by the society arrived in 1835. Several specimens succeeded it, but none of them were equal in size or intelligence to "Jenny," who died in 1845, and whose remains are preserved in the Museum.

The appearance of the baboon is at once grotesque and formidable. In Siam, these animals frequently sallied forth in astonishing multitudes to attack the villages, when the labourers are occupied in the rice harvest. They then plunder the dwellings of all the food on which they can lay their hands. Fruit, corn, and roots form their principal food, and to obtain these they often com-

mit the most violent outrages on those who oppose them. The dog-faced baboons, inhabiting various parts of Asia and Africa, usually associate in vast companies. When travellers pass near their haunts, they run to the nearest trees, shake the boughs very vehemently, and chatter very loudly. They are very powerful animals, and they frequently commit such depredations in cultivated grounds, that the proprietors have armed men constantly on the watch, to prevent them from plundering.

of my son's wife's sister, or the husband of the sister of my son's wife.

Here, if the Saxon genitive is used, the *s* with the apostrophe must be used with all the nouns except the last.

Analyse this sentence, *I have bought a book of Richard's*, and you will find that, as it here stands, it is not correct. "What is it you have bought?" "A book." "What book?" "A book of Richard's." "Do you mean a book belonging to Richard?" "Yes." "Then what you say is that you bought the book from Richard?" "No, I don't mean that; I bought it at the auction, Richard did not sell it me." "Auction! what, has Richard's library been sold?" "Yes." "O then you bought one of Richard's books; that is what you mean?" "Certainly." "Well, then, you must show by the apostrophe that Richard is in the possessive case, thus, 'I have bought a book of Richard's; what you bought is a book of Richard's, that is, one of Richard's books.'"

I have been the more particular with this idiomatic phrase, because imperfect grammarians, fancying something wrong, sometimes attempt improvements by writing such instances without the sign of the possessive case.



A Young Orang-Outan.

LESSONS IN ENGLISH.—No. XLIX.

By JOHN R. BEARD, D.D.

In our last lesson, we treated very fully of the important case in English nouns, viz., the Saxon genitive, and we showed that this is recognised by the use of the apostrophe and the letter *s*. We now proceed to a conclusion on this subject.

If the several nouns which enter into a series represent each a distinct idea or fact, then the *s* must be appended to each, e. g.

My father's, grandfather's and uncle's property was destroyed, this is a different statement from the following, *My father, grandfather and uncle's property was destroyed*. In the former sentence it is declared that three properties were destroyed; in the latter sentence it is declared that one property shared between three persons was destroyed.

There are cases where successive nouns depend on each other, the relation expressed by the genitive or possessive case subsisting between them severally, e. g.

My son's wife's sister's husband has arrived; that is, the husband

You must be careful not to confound with the Saxon genitive an abbreviation of the verb *is*; e. g.

"A man's a man for a' that."

where *'s* is an abbreviated or shortened form of *is*, the abbreviation being made for the sake of the rhythm or the length of the line.

RULES IN SYNTAX (by anticipation).

1. One noun governs another in the possessive or genitive case. Explanation.—By governing the relation of dependence I meant, e. g., *the man's wife took the house from my father*. Here there are three instances of government or dependence: 1. *man's wife*; where *man's* is dependent on *wife*, the word *man* being changed into *man's* by the force of *wife*; 2. *took the house*; where *house* the object is dependent on the verb *took*; 3. *from my father*; where *father* is dependent on or is governed by the preposition *from*.

To the rule, then, above given may now be added these:—

2. The object of a verb is that person or thing on which the action of the verb falls.

3. Nouns and pronouns may be dependent on prepositions as well as on verbs.

These syntactical remarks are designed to prepare the way for the systematic study of syntax, or the laws of construction, on which we shall enter in due time.

EXERCISES.—COMPLETE.

You must keep him at arm's length. It is not larger than a pin's head. The Queen's carriage is the finest in London. The patriotism of Peter the Great, Emperor of Russia, was stained by many vices. The girl's mother gave money to the boy's aunt. The warmth of the sun and the mild light of the moon are very beneficial. The top of the mountain and the bottom of the valley are pleasant in different ways. The prince's son married the baron's daughter. For conscience' sake he refused to pay the tax. The children of the duchess come to-morrow. The duchess's carriage stops the way. I saw the Queen at Saint James's Palace. At Saint James's Palace gites sat three beggars. Have you seen Saint Peter's? No, but I have surveyed Saint Paul's. In a month's time I shall be in London. After two years' travelling we reached home. Are you going to your aunt's ball? No, I am going to a ball at my aunt's, given by my brother. Milton's *Paradise Lost* is a fine poem, but some prefer Dante's *Divina Comedia*. I have married the old man's daughter.

"Yef time ennobles and degrades each line;
It brighten'd Craggs's and may darken thine."—Pope.

"Now Jove suspends his golden scales in air,
Weights the men's wife against the lady's hair."—Pope.

"Sad was the hour, and luckless was the day,
When first from Shiraz' walls I bent my way."—Coltins.

"A wit's a feather, and a chief's a rod;
An honest man's the noblest work of God."—Pope.

"I dread thee, fate, relentless and severe,
With all a poet's husband's, father's fear."—Burns.

EXERCISES.—INCOMPLETE.

John's wife has been here. Henry's wife's sister is ill. On to Hyams and got measured for a suit of clothes. The boys top is lost. The boys hate have been burnt. Edward Bulwer Lytton's new work called "My Novel" is very interesting. The Queen of England's palace is in Saint James Park. One man's meat is another man's poison. Do you take your English lessons at your masters? No, he comes to my aunts and I go there. Captain Ross voyaged to the North Pole was very dangerous. That book is my sister's. That is my sister's book. You must keep him at arm's length. This is one of Mary's poems. Peter's wife's mother lay sick of a fever. I admire Beaumont and Fletcher's plays. The fox has carried off a hen of Williams. Sir Walter Scott's works are instructive as well as amusing. The writings of Hannah More are not comparable with Scott's. Potters Greek and Kennet's Roman antiquities are somewhat out of date. Mere happiness or misery is for the most part of their own making. The House of Lords differs greatly from the Lords house.

PARSING.

Ex.—A mother's tenderness and a father's care bestowed on me the best gifts of this world.

1. the indefinite article qualifying mother.

Mother's, a common noun, feminine gender, singular number, the possessive case, governed by *tenderness*, according to the rule "one noun governs another in the possessive or genitive case."

And, a conjunction.

The, the indefinite article.

Father's, a common noun, masculine gender, singular number, possessive case, governed by *care*, according to the rule, &c.

Bestow, a common noun, of the neuter gender, forming with *tenderness* the compound subject to the verb *bestow*.

On, a preposition, governing *me*, according to the rule "nouns and pronouns may be dependent on prepositions."

Me, a pronoun depending on the preposition *on*, according to the rule, &c.

The, the definite article, qualifying *gifts*.

Best, an adjective, qualifying *gifts*.

Gifts, a common noun, in the neuter gender and the plural number, being the object to the verb *bestow*, according to the rule "the object of a verb is that person or thing on which the action of the verb falls."

Of, a preposition, forming with *world*, the Norman-French genitive that is, the preposition *of* governs *world*, according to the rule, &c.

This, a demonstrative pronoun, qualifying *world*.

World, a common noun of the neuter gender and in the singular number, governed by the preposition *of*, according to the rule, &c.

Words with their proper prepositions, for the formation of sentences.

Disqualify for,	F. R.
Dissatisfied with,	dis, not, qualis, like, &c.
Dissent from,	dis, not, satis, enough
Distinct from, between	dis, differently, sentio, I think
Distrustful of,	dis, differently, tinguo, I dye
Divest of,	dis, not, trywial, to confide
Divide between, (two)	dis, not, vestis, a garment
Dote on,	dis, differently, video (obsolete), I
Doubt of,	separate
Dwell in,	(Dutten, to be delicious, delicious,
	comp. dozo
	Dubium, doubt
	Dvacler, to tarry, to stay

ADJECTIVES.

If we look at the etymology of the word *adjective* (Latin *ad* to, and *jectio* I throw or put), we find that an adjective is a word which is put to another. This is not a specific definition, for equally well may it be said that a pronoun or a preposition is a word put to another. Failing in the etymology, we must look to the sense for information. Take the following phrases:—

White linen pleases the eye.
Long days come in summer.
Tall men are often weak.

Here we find the words *white*, *long*, and *tall* related in the same way to the several nouns *linen*, *days* and *men*. And the former words are related to the latter so as to ascribe to them a certain quality, that is to tell us of what kind or sort they are; thus the *linen* spoken of is *clean* not *dirty*, the *days* are *long* not *short*, the *men* are *tall* and not of *low* stature. These three words then assign the quality of the three nouns before which they are placed. And these three words are commonly called *adjectives*. Hence we learn that it is the function (office) of adjectives to assign the qualities of nouns. An adjective may accordingly be termed a *qualifier*; that is, a word which states the quality of a noun. As the adjective *qualities* (from the Latin *qualis* of what kind, and *facio* I make), so does it answer to the question of *what kind*? Thus, in the instances given above, *linen* of what kind? Answer, *white*. *What kind* of days? Answer, *long*. *What kind* of men? Answer, *tall*. But a qualifying word depends for its meaning on the word qualified. What is the signification of *clean*, *long*, *tall*, without the nouns before which they stand? *A lofty*—are words having no sense until you add *tower*, or a similar term. There is then, you now see, some reason for the name adjective, i. e. the added word, inasmuch as the adjective has no independent meaning, and acquires meaning only in union with a noun.

As added words, adjectives come into existence after nouns to

which, in their very nature, they are adjectives. Adjectives, therefore, are in the history of language, of late origin. This is seen also in the fact that they imply a greater degree of discrimination in regard to the qualities of things than is involved in the existence of nouns. A noun, in giving a name to an object, describes its qualities. Thus the word *man* characterizes an intelligent being. But under the general term *man* stand many individual men. These individual men vary from each other; some are tall, some short; some weak, some strong; some young, some old; some black, some white. The one class is subdivided into many classes, and the signs of these classes are severally given by adjectives. The adjective, in consequence, implies an advanced state of mental culture, since it is the expression of somewhat minute mental discrimination.

The adjective, I have intimated, has no meaning by itself. "A red—" are senseless words, but "a red orange" conveys an idea. The widest signification is given to an adjective by appending to it the word *thing*, as, "a good thing; a bad thing." Hence, you see how near the adjective stands in sense to the noun, for *thing* is a very indefinite term. Indeed the adjective and the noun alike denote qualities. Thus, "a swift stream" is "a swift or rapid flow" (of water). The noun *stream* describes the flow of the water, as you may see, in the fact that you cannot with propriety speak of a *flowing stream*, inasmuch as it is in the very nature of a stream to flow, and *flowing* or to *flow* is involved in the term *stream* itself. But you can say a *swift stream*, because *swift* adds a description to the description already given, telling you how the stream flows. Thus the noun *stream* sets forth the quality of *flowing*, and the adjective *swift* sets forth the quality of *swiftness*. The noun and the adjective indeed describe qualities in different ways; the noun describes a quality in the abstract; the adjective describes a quality in the concrete. *Abstract* and *concrete* are logical terms. *Abstract* (from the Latin *abs* from, and *trahere* I draw), represents a quality as drawn away or standing apart from any particular object; *concreteness* is an abstract word, as it describes the quality *whiteness* considered alone that is, apart from any subject. *Concrete* (Latin *con* (cum) with, and *creo* I grow) is a term which speaks of qualities in union with subjects, e. g. an *octavo*, what? *Volume*; an *octavo volume*; *octavo* describes a certain quality as belonging or attached (*concrete*) to a book here called a *volume*. Abstract and concrete terms then are nearly related. In truth, a concrete term passes into an abstract term merely by taking the termination *ness*; as good, good-*ness*. So nearly are concrete and abstract terms related that they are sometimes used for one another. In the Hebrew, a very early and a primitive language, concrete terms or adjectives are comparatively few, their office being frequently discharged by abstract terms or nouns. In English, adjectives are occasionally used as nouns, thus "elder" in the singular, becomes in the plural "the elders." The ease with which adjectives become nouns is exemplified in such proper names as *Mr. Brown*, *Mr. White*, *Mr. Short*, *Mr. Long*, &c. Nouns also perform the part of adjectives, as "a fish slice," "a silver spoon," "a gold pin."

Adjectives in English undergo no change from gender, number, or case. We use the term *good*, for instance, indifferently with a masculine and a feminine noun, a singular and a plural, the subject and the object, e. g.

Obj. I saw a good man and a good woman, good boys and good girls.

Subj. A good man and a good woman, good boys and good girls were seen by me.

The only inflexion which adjectives undergo is one by which degrees of quality are expressed. In thought, take any quality, say *long*, and consider of what modifications it is capable. An object may be *long* as opposed to an object that is *short*. This we may call its *positive* condition. Or one object may be *longer* than another. Here, as a comparison is made or implied, we may call this the *comparative* condition. Or, again, an object may be *longer* than many other objects, that is, it may be *longest*. *Longest* may be termed the *superlative* condition, inasmuch as the object that is *longest* surpasses, that is, becomes *superlative* to all others. Here, then, are three conditions, the *positive*, *long*; the *comparative*, *longer*; and the *superlative*, *longest*. These three conditions are ordinarily termed degrees, hence we have the *positive degree*, the *comparative degree*, and the *superlative degree*. These are the three degrees of comparison, to use the common phraseology, though there is little propriety in calling the positive condition a *degree of comparison*.

LESSONS IN GERMAN.—No. LII.

§ 15. OBSERVATIONS ON THE DECLENSION OF COMMON NOUNS.

(1) Some have NO SINGULAR: as, in the following list:

Eltern (Eltern), parents.	Sohn, and Hofsien, costs.
Väter, ancestors.	Freiheitskriege, events of war.
Söhne, sons.	Volk, people, folks.
Äpfel, first fruits.	Mücken and Mücken, measles.
Wäsche, small clothes.	Wollen, wool.
Blattern, small-pox.	Ostern, Easter.
Stiefel, letters, papers.	Whitsuntide.
Steuern, revenue.	Witze, tricks.
Fasten, Lent, fasts.	Reproben, reprisals.
Ferien, holidays.	Gründen, bounds.
Schritte, footsteps.	Wesen, expenses.
Brüder, brothers.	Speisen, fees.
Wälder, rents.	Spülen, spoils.
Schwäger, brothers and sisters.	Studien, studies.
Glümmer, the limbs.	Teufel or Teufel, liars, i. e.
Streit, quarrels.	Trümmer, ruins.
Seifen, dregs, yeast.	Truppen, troops.
Seifen, trowers.	Waischen, Christmas.
Insigeln, marks, badges.	Schläge, events of the times.
Schrauben, entrails.	Sinken, interest of money.

Reute merely expresses plurality of persons. In this it differs from *Menschen* (human beings) which has regard to the kind or species, as also from *Männer* (men) which denotes particularly the sex. Those compounds, however, of which, in the singular, *Mann* forms the last part, take generally, in the plural, *Leute* instead of *Männer*; thus,

Singular.	Plural.
Arbeitsmann, workman;	Arbeitsleute, workpeople
Edelmann, nobleman;	Edelleute, noblemen.
Kaufmann, merchant;	Kaufleute, merchants.
Landmann, countryman;	Leute, countrypeople.

The distinctive difference between *Reute* and *Männer* may be forcibly shown by reference to the words *Eheleute* and *Ehemänner*: *Eheleute* means married people; *Ehemänner* signifies married men, i. e. husbands.

(2) Some have NO PLURAL, according to the following heads:

- Generic names of material substances; as, *das Gold*, gold; *Silber*, silver; *Eisen*, iron; &c.
- General terms and those expressive of abstract ideas; as, *Krieg*, pillage; *Ruhm*, glory; *das Glück*, cattle; *Vernunft*, reason; *Ehre*, pride; *Kälte*, cold; &c.
- Some names of plants; as, *der Kohl*, the cabbage; *Seyfen*, hops; *Kresse*, cresses; &c.
- All infinitives employed as nouns, as also all neuter adjectives so employed; as, *Sehen*, life; *Verlangen*, wish; *das Weiß*, white; &c.
- Nouns, for the most part, denoting quantity, number, weight or measure; as, *Rath*, bundle; *Ducent*, dozen; *Grad*, degree; *Pfund*, pound; *Seil*, an inch, &c.

It should be noted that words expressing quantity, number, weight or measure, even if qualified by numerals signifying more than one, are rarely found in the plural. Thus, in German, we say, *neun Meilen*, nine fathoms; *hundert Grad*, a hundred degrees; &c., where, though the numeral expresses more than one, the noun of measure is still in the singular number. Feminines ending in *e* and words denoting periods of time, as also the names of coins, are, in general, excepted from this rule.

(3) Some, in the plural, have two forms; conveying, in general, different, though kindred significations; as in the following examples:

Singular.	Plural.
der Band,	Bande, bonds, fetters; Bänder, ribbons.
die Bank,	Bänke, benches; Bäcker, bakers (of commerce).

The singular of this is *das (neuter) Band*. From *der Band*, we have another form: *Bände*, volumes.

LESSONS IN GERMAN.

Singular.	Plural.
der Bogen,	Bogen, sheets of paper; Bogen, arches, bows.
das Ding,	Dinge, things in general; Dinger, little creatures.
der Dorn,	Dörner, kinds of thorn; Dörner, thorns (more than one).
der Fuß,	füße, feet; Füße, feet (as measures).
das Gesicht,	Gesichte, visions, sights; Gesichter, faces.
das Horn,	Hörner, sorts of horn; Hörner, horns (more than one).
das Holz,	Hölzer, sorts of wood; Hölzer, pieces of wood.
der Laden,	Läden, shutters; Läden, shops.
das Land,	Länder, regions; Länder, states.
das Maß,	Mäße, marks, seasons; Maße, meals.
der Mann,	Männer, men; Männer, vassals.
der Monat,	Monate, months; Monate, planets.
der Ort,	Örter, places (any); Örtchen, places (particular).
die Sau,	Sauen, wild boars; Säue, swine.
der Schild,	Schilder, shields; Schilder, sign-boards.
die Schnur,	Schnüre, tapes; Schnüre, daughters-in-law.
der Strauß,	Sträuße, nosegays; Straußen, ostriches.
das Wort,	Wörter, words (more than one); Worte, words (in construction).
der Zoll,	Zölle, inches; Zölle, tools.

§ 16. FOREIGN NOUNS.

(1) Some nouns introduced into the German from foreign languages, retain their original terminations unaltered: as, *der Medicus*, a physician; plur. *Medici*, physicians; *Sacrum*, deed; *Sacra*, deeds. These are from the Latin.

(2) Some masculines and neuters from the French and the English, merely affix *e* to the genitive singular, which is retained in all the cases of the plural; as, *nom. der Herr*, the lord; *gen. des Herrn*, of the lord; plur. *die Herren*, the lords, &c. from the English; *der Chef*, the chief; *gen. des Chefs*, of the chief; plur. *die Chefs*, the chiefs, &c. from the French.

(3) But foreign nouns, for the most part, drop the terminations peculiar to the language whence they come, and substitute those characteristic of the German. Some accordingly, are found to be declined after the old declension, some after the new, and others, again, partly after the one and partly after the other.

§ 17. FOREIGN NOUNS OF THE OLD DECLENSION.

(1) Foreign nouns of the neuter gender, as also most of the masculines are of the old declension.

(2) Among the masculines must be noted those appellations of persons ending in the following terminations:

as, <i>Kardinal</i> , cardinal.
as, <i>Notar</i> , notary.
as, <i>Kastellan</i> , castellan.
as, <i>Dominikaner</i> , dominican.
as, <i>Benediktiner</i> , benedictine.

To which may be added *Abt*, abbot; *Probst*, provost; *Pastor*, pope; *Bischof*, bishop; *Mayor*, mayor; *Spy*, spy; *Patron*, patron; *Officer*, officer.

(3) Some have, in the plural, the form *er (+v)*; as, *Hospital*, hospital; *Spital*, hospital; *Kammet*, waistcoat; *Regiment*, regiment; *Parlament*, parliament; plur. *Hospitäler*, hospitals; *Spitäler*, hospitals; &c.

(4) Some, in the plural, soften the radical vowels; as, *Abt*, abbot; *Altar*, altar; *Bischof*, bishop; *Chor*, choir; *Choral*, choral-song; *Hospital*, hospital; *Spital*, hospital; *Kanal*, canal; *Caplan*, chaplain; *Kardinal*, cardinal; *Kloster*, cloister; *Markt*, marsh; *Morast*, morass; *Palast*, palace; *Pastor*, pope; *Probst*, provost; plur. *Äbte*, abbots; *Altäre*, altars; *Bischöfe*, bishops; &c.

§ 18. FOREIGN NOUNS OF THE NEW DECLENSION.

(1) To the new declension belong all foreign nouns of the feminine gender and nearly all masculines which are the ap-

pellations of persons. The latter are chiefly those ending in the following terminations;

as, <i>Advocat</i> , advocate.
as, <i>Adjutant</i> , adjutant.
as, <i>Student</i> , student.
as, <i>Katholik</i> , Catholic.
as, <i>Phantast</i> , humbrist.
as, <i>Jurist</i> , lawyer.
as, <i>Starost</i> , Polish magistrate.
as, <i>Poet</i> , poet.
as, <i>Jesuit</i> , Jesuit.
as, <i>Idiot</i> , idiot.
as, <i>Pupil</i> , pupil.
as, <i>Theolog</i> , theologian.
as, <i>Philosoph</i> , philosopher.
as, <i>Astronom</i> , astronomer.

(2) To these may be added some other foreign masculines; as, *der Elefant*, the elephant; *der Ducat*, the ducat; *der Comet*, the comet; *der Planet*, the planet; *der Consonant*, the consonant; *der Prinz*, the prince; *der Tyrann*, the tyrant.

§ 19. FOREIGN NOUNS PARTLY OF THE OLD AND PARTLY OF THE NEW DECLENSION.

(1) These are, first, neuters ending in *io*; as, *das Passio*, the passive; *gen. Passio*, of the passive; plur. *Passio*, the passives; secondly, titles of males in *o*; as, *Doctor*, a doctor; *gen. Doctor*, of a doctor; plur. *Doctores*, doctors; thirdly, neuters ending in *al*, *il* and *um*, which also, often have *i* before the *e* of the plural; as, *Capital*, a capital; plur. *Capitalien*, capitals; *Fossil*, a fossil; plur. *Fossilien*, fossils; *Studium*, study; plur. *Studien*, studies; fourthly, the following masculines, *Asterisk*, asterisk; *Diamant*, diamond; *Fasan*, pheasant; *Kaplan*, capon; *Import*, import; *Konsul*, consul; *Muskel*, muscle; *Pantoffel*, slipper; *Präfekt*, prefect; *Psalm*, psalm; *Rubin*, ruby; *Statut*, statute; *Ther*, gate; *Treatat*, treatise; *Zins*, rent; to which add *Insekt*, insect; *Metrum*, pronoun; *Statut*, statute, and *Verb*, verb; which are neuters.

§ 20. DECLENSION OF PROPER NOUNS.

Singular number.

(1) Names of males and females, except when the latter terminate in *e*, take *s* to form the genitive, which is their only variation; as,

N. <i>Heinrich</i> , Henry.	Gen. <i>Heinrichs</i> , of Henry.
G. <i>Heinrichs</i> , of Henry.	Gen. <i>Heinrichs</i> , of Henry.
D. <i>Heinrichs</i> , to Henry.	Gen. <i>Heinrichs</i> , to Henry.
A. <i>Heinrich</i> , Henry.	Gen. <i>Heinrichs</i> , of Henry.

It is customary with some writers to affix *en* to the dative and accusative of proper names; but the better usage distinguishes these cases by prefixing the article; as, *nom. Heising*, Lessing; *gen. Heising*, of Lessing; *dat. dem Heising*, (instead of *Heisingen*), to Lessing; *acc. den Heising*, (instead of *Heisingen*), Lessing.

(2) Names of females ending in *e*, as also of males ending in *o*, *u*, *u*, or *u*, from the genitive in *en*; as,

N. <i>Louisa</i> , Louisa.	Gen. <i>Leibnitz</i> , Leibnitz.	Gen. <i>Voss</i> , Voss.
G. <i>Louisa</i> , of Louisa.	Gen. <i>Leibnitz</i> , of Leibnitz.	Gen. <i>Voss</i> , of Voss.
D. <i>Louisa</i> , to Louisa.	Gen. <i>Leibnitz</i> , to Leibnitz.	Gen. <i>Voss</i> , to Voss.
A. <i>Louisa</i> , Louisa.	Gen. <i>Leibnitz</i> , Leibnitz.	Gen. <i>Voss</i> , Voss.

The genitive, dative and accusative of names ending in *a*, are sometimes formed by adding respectively *en* and *en* after dropping the *a*; as, *Diana*, Diana; *gen. Dianen*, of Diana; *dat. Dianen*, to Diana; *acc. Dianen*, Diana. The termination *en*, sometimes suffers contraction; as, *Heise*, Voss's; *Leibnitz*, Leibnitz's.

(3) Names whether of males or females, when preceded by an article, are indeclinable; as,

N. <i>der Schiller</i> , the Schiller.	Gen. <i>des Schiller</i> , the Schiller.
G. <i>des Schiller</i> , of the Schiller.	Gen. <i>des Schiller</i> , of the Schiller.
D. <i>dem Schiller</i> , to the Schiller.	Gen. <i>dem Schiller</i> , to the Schiller.
A. <i>den Schiller</i> , the Schiller.	Gen. <i>den Schiller</i> , the Schiller.

(4) Foreign names, also, having the unaccented terminations *es*, *et*, *is*, *us*, admit no variations of form, either in the sin-

gular or the plural. When, therefore, their case and number are not otherwise sufficiently indicated, an article or a preposition is used to point them out.

§ 21. PROPER NOUNS IN THE PLURAL.

(1) Proper nouns, when employed in the plural, conform, for the most part, to the rules for the declension of common nouns: the masculines being varied according to the old declension, and the feminines according to the new.

Sometimes the plural is made by the addition of *s* to the singular; as, *die Schillers*, the Schillers; *die Herders*, the Herders. Those ending in *er* add for the plural *n*, or *en*; as, *Gato, Cato*; nom. plur. *Gatonen*, or *Catonen*, the Catos; &c.

(2) Their inflection is in nowise affected by the presence of the article, nor do the radical vowels *a*, *o*, *u*, *au*, ever assume the *Umlaut*.

Examples.

N. <i>die Leibnizs</i> , the Leibnizes.	<i>die Schlegels</i> , the Schlegels.
G. <i>der Leibnizes</i> , of the Leibnizes.	<i>der Schlegels</i> , of the Schlegels.
D. <i>den Leibnizen</i> , to the Leibnizes.	<i>den Schlegeln</i> , to the Schlegels.
A. <i>die Leibnizs</i> , the Leibnizes.	<i>die Schlegels</i> , the Schlegels.
N. <i>die Annen</i> , the Annas.	<i>die Annes</i> , the Annes.
G. <i>der Annen</i> , of the Annas.	<i>der Annes</i> , of the Annes.
D. <i>den Annen</i> , to the Annas.	<i>den Annes</i> , to the Annes.
A. <i>die Annen</i> , the Annas.	<i>die Annes</i> , the Annes.

§ 22. PROPER NAMES OF COUNTRIES, CITIES, &c.

(1) Proper names of places admit no changes of form for the purposes of declension, beyond the mere addition of *s* to the genitive singular; as, *Berlin*, Berlin; gen. *Berlins*, of Berlin.

(2) If, however, the word end in a sound not easily admitting an *s* after it, the case is distinguished by placing before it a noun preceded by the article; or it is expressed by the preposition. Example: *die Stadt Mainz*, the city Mayence. *Der König von Preußen*, the king of Prussia. *Die Einwohner von Paris*, the inhabitants of Paris.

§ 23. OBSERVATIONS.

(1) When several proper names belonging to the same person, and not preceded by the article, come together, the last one only is declined; as, *Sehann Christophs Adolungs Sprachlehre*, John Christopher Adelung's grammar:—if, however, the article precede, none of them undergo change; as, *die Werke des Sehann Gottlob Herder*, the works of John Gottlob Herder.

(2) When a common and a proper name of the same person, preceded by the article, concur, the common noun alone is inflected; as, *der Tod des Königs Ludwig*, the death of king Louis: if no article precede, the proper noun is declined; as, *König Ludwig des Königs*, king Louis' death.

When the word *Her* is used with a proper noun, it is declined; as, *Herren Schlegels Gedichte*, not *Herren Schlegels Gedichte*, Schlegel's poems.

(3) When a Christian name is separated from a family name by a preposition (especially *von*), the Christian name only admits of declension; as, *die Gedichte Friedrichs von Schiller*, the poems of Frederick of Schiller:—if, however, the genitive precede the governing noun, the family name only takes the sign of declension; as, *Friedrichs von Schiller's Werke*, Frederick of Schiller's works.

THE MISSIONARY SETTLEMENT.

By heav'n directed, by the world revild,
Amidst the wilderness, they sought a home,
Where beasts of prey and men of murder roam,
And untam'd Nature holds her revels wild:
There on their glorious toils their Master smil'd,
And prosper'd them, unknown and scorn'd of men,
Till in the satyr's haunt and dragon's den,
A garden bloom'd, and savage herds grew mild.
So, in the guilty heart, when heav'nly grace
Enters, it ceaseth not, till it uproot
All evil passion, from each hidden cell,
Planting again an Eden in their place,
Which yields to men and angels pleasant fruit,
And God himself delighteth there to dwell.

LESSONS IN LATIN.—No. LV.

By JOHN R. BEARD, D.D.

VERBS AND RELATIVES.

In compound sentences one of the members may be introduced by a relative; this is called a relative member, or clause, e. g.,

Is, qui omnia tenet, faret ingenii;
He who possesses all things patronises talent.

where *qui omnia tenet* is a relative member, so called because it is introduced by *qui*. The sentence is obviously made up of two sentences, as may be thus seen in these examples:

CHIEF SENTENCE.	RELATIVE SENTENCE.
<i>Is faret ingenii.</i>	<i>qui omnia tenet,</i>
CHIEF SENTENCE.	RELATIVE SENTENCE.
<i>Caesar in fines Ambianorum pervenit.</i>	<i>qui se ei dediderunt.</i>
<i>Caesar came into the territories of the Ambians,</i>	<i>who surrendered to him.</i>
<i>Virtuti opera laudanda est.</i>	<i>sive qua virtutem assequi non possumus.</i>
<i>To virtue we must pay attention, without which all are unable to attain virtue.</i>	

In these cases, the relative merely qualifies the meaning. These therefore are illustrations of *qualification*, and not of *government*. But besides *qualifying*, a relative in union with a verb, or what is called a dependent relative, may govern the verb which is in a state of dependence. The dependent verb must be in the subjunctive mood, or what is commonly called the subjunctive (*subjoined*) mood. The general rule may be stated in these words: *A relative dependent clause takes its verb in the subjunctive mood.* Observe that the construction implies two things, namely, that the clause is a *dependent*, and that the clause is a *relative* clause; merely a relative clause does not require a subjunctive mood; and a dependent verb, we have already seen, may be in the infinitive mood, e. g.,

Scio quid hoc sit.
I know what this is.

Here *sit* is in the subjunctive mood by the force of *scio* quid, The sentence consists of two members or two sentences, thus, *hoc est tale, and scio hoc esse tale*; the two put together make *scio quid hoc sit*. Note that the Latin *sit* is represented by the English *is*; consequently in relative dependent clauses you must turn the Latin subjunctive into an English indicative, and the English indicative into a Latin subjunctive. The phrase *nescio quid hoc sit* may be regarded as an indirect question; thus, *quid est hoc? what is that? nescio, I know not*; or, in full, *nescio quid hoc sit*. Indirect questions have the second verb in the subjunctive mood.

The usages of the subjunctive mood in Latin, which are numerous, and which require study and practice to be clearly and fully understood, may in general be traced to the fact that the subjunctive is, in its essence, the mood which denotes dependence. Hence, when dependence is to be expressed otherwise than by an infinitive mood, the subjunctive must be employed. The necessity of employing another mood than the infinitive, arises from the fact, that for the expression of the sense, you have to use the relative pronoun, or some relative particle, such as *quod*, *quin*, *quum*.

In what is called the *obliqua oratio* the relative clause takes the verb in the subjunctive mood. The *obliqua oratio*, or indirect mode of speech, takes place when a fact, instead of being simply related as a fact, is given as set forth or conceived by the speaker. The *obliqua oratio* supposes or implies the *recta*, the straightforward or simple statement, e. g.,

THE RECTA ORATIO.	<i>Reversi sunt qui venerunt.</i> <i>They who came returned.</i>
THE OBLIQUA ORATIO.	<i>Reversus esse qui venerint innotabat Caesar.</i> <i>Caesar was angry that they who came returned.</i>

Here *qui venerunt* in the direct form is changed into *qui venerint* in the indirect form. Take another instance;

1. ORATIO RECTA.

Quid restat si neque ex equis pedestribus hostem, neque pedites quidem momenti fecimus? Quam tertiā expectamus pugnam?

What remains, if we have neither driven the enemy with our horse nor done any thing of moment with our infantry? Can we expect a third battle of any kind?

2. ORATIO OBLIQUA.

Equites alius alium increpantes querebant:—Quid deinde restaret? si neque ex equis pedestribus hostem, neque pedites quidem momenti fecimus? Quam tertiā expectarent pugnam?

The infantry, reproaching each other, inquired—What then remained, if they had neither driven, &c.

In the second, or *obliqua oratio*, where the same facts are spoken of, and where the facts are spoken of as dependent on the complaints and inquiry of the infantry, the verbs are all in the subjunctive mood, while in the *recta oratio*, or independent manner, they are all in the indicative. Sometimes no such phrase occurs as *he said, he thought, he feared*, but the dependence is to be sought in the mind of the speaker. If the matter is given as connected with a thought or feeling in the mind of the subject of the sentence, the relative clause or clauses must be in the subjunctive mood.

If the relative clause expresses an object or aim, the subjunctive is required, e. g.,

Delecti Delphos missi sunt qui conficerent Apollinem.
Chosen persons were sent to Delphi to consult Apollo.

Here there is a latent reference to the understood or avowed design in the minds of those who chose the deputies. Had the word stood qui consulerunt, the sense would have been that persons were sent, and that those persons did consult the oracle, whether chosen for that purpose or not.

A relative clause is put in the subjunctive when the relative has a causal force; that is, assigns the reason of the act or the nature, the consequence or the result of the thing.

Incidunt causas quae conturbant animos.
Events happen of such a nature as to disturb our minds;

a different statement from

Incidunt causas quae conturbant animos.
Events happen, and these events disturb the mind;

whether or not, they are of a nature to do so.

The relative followed by a subjunctive, is often preceded by *quoniam*, *indignus*, *idoneus*, *aptus*, *tantus*, *talis*, *is*, *ejusmodi*, &c., e. g.,

Tabulae non satis dignae erunt quas iterum legantur.
The plays are not worth being read a second time.

There is a causal force in the phrases *is sum qui, I am the person* (to do so and so), *est qui, sunt qui, reperiuntur qui, there are such persons, persons are found who, &c.*, e. g.,

Ego sum qui Caesaris concedi putem utile esse.
I am the person to think it useful to concede to Caesar.

Somewhat similar are the negative phrases *nemo est quin, nihil est quin*, e. g.,

Nemo in Sicilia totā ulam picturam fuisse quin Verres conquisivit.
I deny there was in all Sicily a picture but Verres made it his booty.

Here the particle *quin* is equivalent to *quam non*.

As the relative *quin*, so the relative particles *quod* and *quum*, when they assign a reason, require a subjunctive mood; but these will be treated as conjunctions.

Sometimes the causal force of the relative must be given in English by a circumlocution; e. g.,

Tergivno quid impudentius, qui bellum gereret cum his qui non tulerant ejus superbiā?
What is more impudent than Terminus, who made war against those who did not brook his arrogance?

In this translation, the force of the *qui* with the subjunctive is hardly seen; it would be better to say, *for he made war or as he made war*; or to paraphrase the words thus, *a late impudence was seen in that he made war*.

Occasionally the particles *utpote* and *quippe* are prefixed to the relative in order to increase its causal force; e. g.,

Antonius non procul aberat, utpote qui expeditis sequeretur.
Antonius was not far distant, since he followed unimpeded.

VOCABULARY.

Serius, s. um, late; *vesper*, *eris*, and *eri*, m. the evening; *animam agere*, to be dying, to be in the last struggle; *conseo*, 2, I think, I am of opinion, I hold; *versor*, 1, dep. I am amongst, literally, I turn myself; *turn*, I am in the midst of; *signa conferre*, to bring the standards together, to join battle, to fight; *praeo*, *onis*, m. a herald; *candor*, *oris*, m. burning, brilliancy; *quippe*, for; *quippe qui*, inasmuch as it, seeing that it.

EXERCISES.—LATIN—ENGLISH.

Nemo scit quid serus vesper secum portet; ite, create consules ex plebe, patres fremunt—Irent, crearent consules ex plebe; hoc tunc sentiet quum animam ager; dixit cum hoc tunc conserum esse quum animam ageret; faciam quae consul imperavit; dicit se facturum (esse) quae consul imperaverit; dicebat se facturum quae consul imperasset; nec cum eo tanquam cum eive agendum fuisse, qui spem regni conceperit; Caesar nuntiatur Sulmonenses cupere ea facere quae vellent; legatos ad Caesarem mittunt milites esse paratos esse portas aperire, quaeque imperaverit facere; puniret noxios, ignoscere lapsis, et ducere in hostem; quum abessem, quotiescunque patria in mentem veniret, haec omnia occurrerant, colles, campi, et Tiberis, et hoc caelum sub quo natus educatusque essem; mos est Athenis laudari in concione eos qui sint in proeliis interfecti; noctu ambulabat in publico Themistocles, quod somnum capere non posset; nulla videbatur aptior persona quae de aetate lequeretur; nulla acies humani ingenii tanta est quae penetrare in caelum possit; innocentia est affectio talis animi quae noceat nemini; videndum est ut ea liberalitate utamur, quae propositis audeat, noceat nemini; nulla gens tam fera est cujus mentem non imbuat aeternum opinio; Campani majora deliquerant quam quibus ignosci posset; ego is sum qui Caesaris concedi putem utile esse quod postulat quum signa conferri; qui se ultro morti offerunt facilius reperitur quam qui dolorem patienter ferant; nemo est quin malit integras omnes partes corporis imminutas habere; quis est quin cernat quanta via sit in sensibus; nihil est quin male narrando possit depravari; nihil est quin intreat; absoluit eum quid de fideatur maximas pecunias cum summa sociorum injunctis cepisse; genus dicendi est eligendum quod maxime teneat eos qui audiunt; quis est? nescio quis sim; multi erunt quibus recte litteras dare possis; nullum est animal praeter hominem quod habeat notionem aliquam dei; solis candor illustrior est quam ullius ignis, quippe qui in immenso mundo tam longe lateque colluceat.

ENGLISH—LATIN.

I know not what to-morrow may bring; he says the enemy is about to come; no one knows when he shall die; do you know when those who have come will return? I wonder you do not laugh when you look at each other; my father said he wondered I did not laugh when I saw thee; is there any person more suitable to (who should) teach Greek? I know no one who is more fit to make boys diligent and good; I shall walk by night because I cannot sleep; virtue injures no one; they who declare virtue injures no one, are wise; I am not the person to say that religion injures men; who is there that does not see how great is the power of religion?

LESSONS IN GEOLOGY.—No. XXXIII.

By THOMAS W. JENKYN, D.D., F.R.G.S., F.G.S., &c.

CHAPTER III.

ON THE INFLUENCE OF ATMOSPHERIC AGENTS ON THE EARTH'S CRUST.

SECTION II.

ON THE PRODUCTION OF LANDSLIPS.

The moisture of the atmosphere, in the form of dew, rain or melted snow, enters into the surface of all rocks which are of a loose and open texture. When the sands or gravels of these beds become infiltrated and saturated with water, they produce landslips.

We have already considered the action of water on the earth's crust, as a mechanical agent employed in abrading and transporting the materials of rocks. The purpose of this lesson is to represent the action of moisture, as a meteoric agent producing great changes in the position and conformation of rocks. We are here to examine its mechanical agency, not as running water, but as acting by weight, by percolation, and by its power to loosen the soils of beds.

There are, indeed, three processes for the production of landslips. They are produced sometimes by glaciers, sometimes by the freezing of infiltrated water, and sometimes by the softening

of the surface of beds of clay, upon which masses of rock may be found to rest.

The meaning of the term "Landslip" must be now well known to every one who has travelled by railway. Every passenger has observed how large masses of soil, on the inclined sides of a railway cutting, have given way, have slipped down to a lower level, and have, in many instances, rushed down upon the rail plates so as effectually to stop the passage of trains. The effects of a landslip in a railway cutting are generally very limited; but they may be seen on a large scale in the Undercliff of the Isle of Wight, from Shanklin to Black Gang, and also in other districts on the south-western coast of England.

The Hampshire Peninsula, called the Isle of Portland, furnishes a good example for illustrating both the principles and the phenomena of landslips. The rocks of these cliffs rest upon the Kimmeridge clay, which is a soft argillaceous bed constantly acted upon by percolating waters or land springs. In 1665, the cliffs, to the extent of a hundred yards, became loosened, cracked, and then sank or fell into the sea.

In 1792, a much more extensive slip took place in these cliffs. One morning, the public road, passing over this district, and lying at no great distance from the verge of the cliff, was observed to crack. The gap opened wider and wider, till early in the afternoon, the whole mass between the crack and the sea, was seen to have sunk seven feet; but yet so slowly and gently as to produce no noise. Towards evening, the sunken mass seemed to have settled down, but when the people came to see it, next morning, they found that the entire district, about a mile and a quarter from north to south, and about a furlong from east to west, had slipped from the top of the cliff to the water side; and that in some places, to so much as fifty feet perpendicular.

On the Dorsetshire coast, between Lyme Regis and Axminster, an extraordinary landslip occurred in December 1839.

In this district the upper bed is chalk. This rests upon a bed of sandstone alternating with chert. All these repose upon a lower bed of loose sand, more than a hundred feet in thickness, and having concretions at the bottom, belonging to what is called the greensand formation. When you are on the shore below these cliffs, you see that all these beds rest upon the lias, a bed of clay which is very retentive. Though water will not percolate through this lias clay, it can make its surface soft and slippery to the rocks resting upon it.

In the thick bed of sand marked *x* in our next diagram, there are many springs, which gush out in several places. Here atmospheric waters have percolated through the rocks downward till they came to the lias bed, which resists their farther descent. In your efforts to understand the landslip, you are to take into account that this bed of lias clay slopes toward the sea, and that, accordingly, the water, in seeking its level, tries to escape along this inclined slope. As the water proceeds, it carries with it, in minute grains, portions of the sand bed that is nearest the clay, and renders the surface of the clay slippery to the rocks lying upon it. As this action is going on without intermission for years and ages, it eventually undermines the overlying strata, so as to cause a succession of subsidences. You will at once comprehend this when you consider that, as the sand rock sinks closer to the lias clay, its gravel keeps continually within the action of water which carries it away; and that, therefore, the weight of the rocks above causes it to subside closer upon the clay.

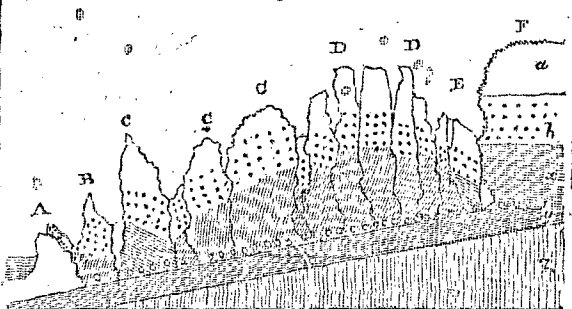
In 1839, there had been great rain, which completely infiltrated the rocks, and saturated them with moisture. The process of the landslip is now before you. In addition to the undermining agency of the water below the sand, there was the immense weight of the saturating water in the rocks above. By the combination of both these agencies, the beds were pressed down, were cracked perpendicularly, and were made to slide along the slippery slope of the clay, until they all precipitated themselves in wild confusion towards the sea.

Had you been there on the Christmas eve of 1839, you would have heard a crashing noise in the cliffs, and would have seen fissures opening in the ground. On the area which we have described there were some houses, whose walls were seen to crack and to sink with the soil. At one spot, near the farthest crack from the edge of the cliff, the whole ground, half a mile in length, and two hundred and forty feet in breadth, sunk so far down

as to form a chasm from a hundred to a hundred and fifty feet deep.

The annexed diagram will help you to understand the different circumstances which have been described.

Fig. 73.



A Landslip, between Lyme Regis and Axminster, on Dec. 25, 1839.

In the above diagram, *a b c d* represent the beds of the cliff of chalk downs, *x* the farthest crack from the shore, which afterwards became a wide and deep chasm. *e* are fragments of the chalk bed *a*, and attached to *b* before the landslip in 1839. *d e c c*, the district called Bendon Undercliff already shattered, but by this landslip pushed forward about forty or fifty feet towards the sea, and much fissured by the movement. *n* a craggy peak, formerly seventy feet high, now only twenty. *a* a fresh reef which the vast weight of the shattered cliff has, in sliding downward and by pressing on soft clays, raised up from the bottom of the sea. The beds in order of position are *a* lias, *b* lias clay, *c* loose sand about a hundred feet in depth, *d* sandstone with chert, and *e* the chalk beds.

The changes produced by this landslip are remarkable. On this coast, at Culverhole point, there was, up to Dec. 24, 1839, a solitary crag in the form of a peak, well known as a landmark. It was then seventy feet high, it is now only twenty. The main cliff was then fifty feet from this peak, they are now close to each other. As I have just intimated, the immense weight of beds and rocks saturated with rains must have exerted great pressure upon the lias clays beneath them. So great was this pressure that a tract of the underlying stratum, at that time covered with shingles and boulders on the shore, was actually forced to rise upward with all its boulders on its surface as represented in *a*, fig. 73. The portion of stratum thus forced upward forms now an elevated ridge along the shore, about a mile long and forty feet wide, covered with huge blocks of rock, which are clothed with sea-weed and coralling shells.

Faëts of this class are useful in geology, because they show to how great an extent the power of atmospheric waters can act in loosening and undermining rocks. They prove that water may be regarded as one of the most powerful and subtle agents which nature wields, and that its activity produces some of the greatest changes, and some of the most remarkable phenomena in physical history. Its results are more stupendous in mountain districts than they can be in an undulating district like that just described in Dorsetshire.

You may have listened to tales and narratives about avalanches in Alpine countries, and you may have shuddered at their destructive and fearful effects; but you will find that the ravages of landslips, or rather mountain slips, are far more terrible and devastating than those of avalanches.

Mountain slips are the results of a very gradual process in the agency of atmospheric moisture, and can take place only in hills that are stratified, and also composed of different layers of rock. In mountains of granite, porphyry, and trap, fragments of rock may become dislocated, and may roll down in enormous masses; but it is only in stratified mountains that immense quantities of soils and stones, and clays and sands, can, as if they were avalanches of earth, slip into valleys and plains, and bury for ever fields and forests, houses and their inhabitants.

When a lofty mountain is composed of strata of different structures, or of beds of different mineral character, it may be

that a rock of hard compact stone may rest upon a loose and gravelly bed. Through the porosity of the upper strata, or through cracks and chinks in their beds, the waters from rain and snow will find their way down to the looser gravelly bed. There the infiltrating water will dissolve and loosen the firm component particles, which enabled the bed to hold up the rocks that rested on it. As this becomes either less firm, or perhaps removed, the upper rocks will necessarily sink down upon the lower stratum.

If the slope of the mountain towards a valley be considerable, it may be that the stratified beds will not sink much; for the percolating water will perhaps be drained off in the superficial soil. But if the slope of the mountain be nearly abrupt, and if the dip of the stratified beds towards the valley be very great, it is likely that a whole bed or stratum may, in one mass, be slipped and projected to a lower level with terrific force.

Imagine such a stratum, in a lofty mountain, to be resting on an inclined bed of impervious clay that has been made moist and slippery by percolating water. The heavy rock above will press upon the softened bed, with a tendency to slide along its slope. At first the downward sliding will be slow, but in consequence of its immense weight, increased by an accession of many tons of infiltrated water, its momentum will increase as it descends, till, in its impetuous fall, it breaks into several fragments, which roll onward and downward amid torrents of stones and clouds of dust, and overwhelm a fertile valley with the ruins of a mountain shattered into atoms. These catastrophes have often been witnessed by the inhabitants of Alpine villages in Switzerland and the Tyrol, where pasture lands and vineyards, human dwellings and their tenants, have been buried with terrible devastations.

Between Chiavenna and St. Maurizio is Bergel Thal, or Val Bregaglia, once a scene of beauty and industry, and studded with charming villas. From this valley rises Mount Conto. On September 4, 1618, a slip from this mountain slid down to the valley, buried the town of Pleurs, and killed all its inhabitants 2,430 in number. The rubbish and the debris formed by the shattered fragments filled the valley, and blocked up the river Maira, which formed a lake, until it was able to force a passage for its stream. Pleurs and its villas now lie under a heap of rubbish sixty feet deep, and the rubbish is now grown over with chestnuts. For several years the shepherds on Mount Conto had observed that great cracks and chasms were being formed in the surface of the hill, but never apprehended that they signified any danger or gave any warning. At the close of August there had been heavy rains for several days incessantly. The 4th of September was "a clear sunshine after rain;" but at that calm and brilliant day, tremendous masses of the mountain slid down with a loud and dreadful crash, and overwhelmed villages, homesteads, and inhabitants in one grave, from which there was no escape.

In another part of Switzerland, at the junction of the cantons of Vaud and Valais, there are rising, from a tableland, the celebrated peaks called the Diablerets, or the Devil's Horns, whose elevation is from ten to eleven thousand feet high. In 1713 there were five of these peaks, which are composed of deranged beds of limestone, dipping rapidly towards the valley, and resting upon sloping beds of soft shale. At present, there are only two peaks. In 1716, immense masses of one of the peaks slipped down and buried alive many men and cattle. In 1749, another landslip fell, and checked the course of the river Tigrin, which, in consequence, has formed two small lakes. Before the landslip of 1714, the herdsmen and shepherds felt that the ground, on which they were pasturing their cattle, trembled under their feet at every tread. Some of them immediately ran away, but others dabbled till the moving mass buried them and their herds together. The result of these landslips is, that this district, for the space of about six miles, is covered with heaps of rubbish and rocks, the wrecks of these landslips. The accumulated debris is said to cover a space of fully eight miles. Three of the five peaks have already slipped down, and the two which remain, though now about ten thousand feet high, threaten to follow sooner or later. The beds of shale, forming the lower strata of the Diablerets, are incessantly disintegrated by percolating water, which is derived from the glaciers in the north-east ravines, and as these shaly beds are softened and worn away, large masses will become detached and hurled into the valley.

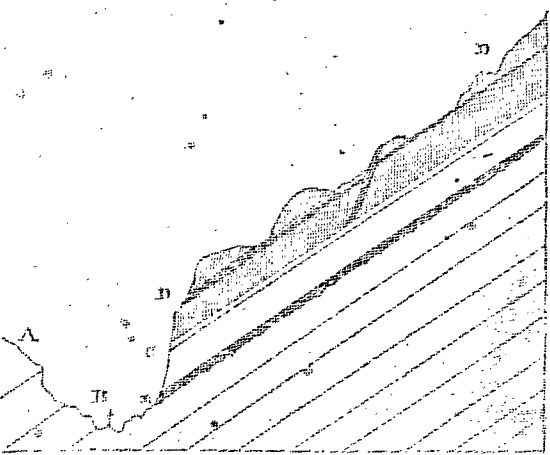
In another part of Switzerland is the valley of the Goldan, sometimes called the vale of Arth. This valley, six miles long, lies between two high mountains. On its north-east is the Rossberg, and on its south-west is the famous mount Righi. The Rossberg is 4,953 feet high, and the Righi, 5,700 feet. Observe that both the Rossberg and the Righi are stratified rocks, consisting, in the upper parts, of conglomerate breccia, called by Swiss geologists, *nagelfluë*, or round smooth stones and pebbles cemented together by sandstone and carbonate of lime. Their summits are clothed with pasture, and in summer about 2,000 head of cattle are fed there. The middle and the lower portions of both hills are covered with forests. The Rossberg slopes abruptly towards the valley of Goldan at a declivity of more than 45 degrees.

In 1806 a remarkable and terrible slip took place in the upper portions of the Rossberg. The masses of the landslip were three miles in extent, and their fragments buried four villages with all their inhabitants. The peasants had observed for more than fifty years that, occasionally, great cracks and rents were being formed in the surface of the Rossberg. Through these chinks and gaps, water from rain and melted snow penetrated through the loose marl and clay conglomerates down to the shaly bed on which they rested, and which the dribbling rivulets that formed landslips washed away.

On September 2, 1806, a great change took place all around. In the preceding winter, the fall of snow had been extraordinarily heavy; and in July and August, the rains had been frequent and abundant. On this day, strange sounds and unaccountable noises were heard to issue from the sides of the towering Rossberg, which were followed by copious falls of shattered masses of rock. Suddenly, a large horizontal rent or crack was seen to open across the brow of the mountain, at some distance from the summit. This horizontal rent was occasioned by the beds beneath its line sinking down upon the underlying rock that had been made soft and slippery by the infiltrated water; as they sank, all the landslips in the side of the mountain ceased to flow. Immediately after the gap had opened, or the beds below it sunk down, the upper portion of the mountain, with all the pastures and trees, with all the cattle and herds, and with all the houses on its surface, were seen to begin to move downwards, very slowly at first, and then with a rapidity that was terrific. As the tremendous deluge of rocks, stones, earth, trees and houses, rushed towards the bottom of the valley, immense clouds of white dust, like smoke, whirled above and along its course; the descending fragments came down dashing against loose boulders in their course, and large blocks of rocks were projected and hurled forward, as if they had been discharged by a park of artillery. In the fall, the enormous mass broke into myriads of fragments, which were propelled even to the base of the opposite mountain, the Righi.

Large portions of the landslip fell with such tremendous

Fig. 74.



Landslip or Fall of the Rossberg, Switzerland, 1806.

violence into Lake Lowertz that they produced great waves in the lake, which rose more than sixty feet high, and rushed with great impetuosity towards the village of Sewen, five miles off, where many houses were destroyed by their waters. The great fall took place at a point equidistant between Lake Zug and Lake Lowertz. Here the wreck of the landslide forms a great ridge studded with enormous boulders or rocks, reminding you of portions of the Trossachs of Scotland.

To assist your conception of this mountain slip, consult the diagram, Fig. 74. A represents a portion of the Righi, B the valley of Goldau, C the Klossberg, X the slope of the shaly bed worn and rendered slippery by percolating waters, C the horizontal rent that was seen in the side of the mountain just before the landslide.

The magnitude of the results will be best appreciated when you consider that the whole catastrophe took place in about five minutes. In this short time a lovely valley in high cultivation, with nearly five hundred human beings, were entombed, and the whole scene turned into a rugged desert. The extent of the mass that fell was three miles in length, more than half a mile in breadth, and about a hundred feet thick. The rush of stones and earth was accompanied with a large torrent of mud, which showed how completely the beds of the mountain had been saturated with water.

Apply all these phenomena to the cases of stratified rocks in volcanic districts, and you will easily see how the influence of atmospheric moisture upon certain beds prepares them for the action of earthquakes.

Examples of these combined actions were discovered in Calabria, during the celebrated earthquake of 1783. That district abounds with narrow valleys from 500 to 600 feet deep, and its rocks are composed of argillaceous strata or beds of clay. In these valleys the cliffs are in most parts perpendicular. At some spots the beds of the rocks are overhanging the rivers. When the beds below these projecting masses had been infiltrated and worn away by waters, the rocks would, as their support was removed, be easily thrown down by earthquake agency.

One deep valley in Calabria is called Terra Nova. During the earthquake of 1783, large masses of the flat beds of the higher cliffs were detached from each side of the glen, and hurled into the bed of the river. These beds were moved forward bodily, for the oaks, olives, and vineyards and cornfields, continued to grow in their new position at the bottom of the ravine, and appeared as little injured as the portions from which they were severed, and which are now standing on each side of them, about 500 feet higher and nearly a mile distant from them.

On the same occasion, two tenements near Mileto, occupying land about a mile in length and half a mile in breadth, were carried in masses for a whole mile down the valley. To the same distance a thatched cottage, surrounded by large olive trees and mulberry trees, was removed, and most of the trees remained upright and uninjured.

In these cases, as well as in those described in Dorsetshire and Switzerland, the beds of the sedimentary rocks had been long undermined by infiltrating rivulets, which, after the landslips, became all exposed to the open air.

LESSONS IN ALGEBRA.—No. IV.

The following are the answers to the exercises in our last lesson:

EXAMPLES FOR PRACTICE.

Answers: (1.) $2ab+xy+10df$; (2.) $-25ax-6ab$; (3.) $-3ay-31bx-5de$; (4.) $2ab-16xy-4d$; (5.) $11a-3x+10f+18yz$; (6.) $17b-42xy+23gh$; (7.) $21ax+y+20ay-4a-bc-e+yz+de$; (8.) $21x+10xy-13a+5bc-10ab-42$; (9.) $3xy-25ab$; (10.) $13ay-2ax$; (11.) $a+b+c+d-f+g$; (12.) $12ab+4xy-6ad$; (13.) $(a-b+c+d-f+g)$; (14.) $(-ab+cd-ef+gh+ij+kl-mn+op+qr)$; (15.) $2x-2255$; (16.) $5yy+24aaa$; (17.) $16(x+y)-10(a+b)$; (18.) $-13(a+b)-52(c+y)$; (19.) $a+3aa+1a$; (20.) $x-2x-11xyz$; (21.) $17+12$; (22.) $-a-32y$; (23.) $6xy-6as+ay-my-52+7df$; (24.) $87c$.

ADDITIONAL EXERCISES.

Answers: (1.) $4x^2-2x+5$; (2.) $8xy+8yz$; (3.) $a-$

$4x^2-11ab$; (4.) $2a$; (5.) $2x^3+a^2x+2ax^2-x^3$; (6.) $6x^2+2$; (7.) $(a-c)x^2+(b+d)y^2$.

MULTIPLICATION.

ART. 67.—Ex. 1. What will 4 oranges cost at x pence each?

Here, we say if one orange costs x pence, 4 oranges will cost 4 times as much; they will therefore cost $4x$ pence; and this is the answer.

Ex. 2.—How much can a man earn in 5 months at x pounds per month? Reasoning as before, we have $5x=5a$ pounds for the answer.

Now $4x$ is equal to $x+x+x+x$; and $5a=x+a+a+a+a$.

68. Hence, the repeated addition of a quantity to itself is called multiplication. From this definition of multiplication, it is manifest that the product is a quantity of the same kind as the multiplicand.

69. It is plain, therefore, that multiplying by a whole number is taking the multiplicand as many times as there are units in the multiplier. Thus multiplying a by 1, is taking the multiplicand once, as a .

Multiplying a by 2, is taking the multiplicand twice, as $a+a$, &c.

70. On the other hand, multiplying by a fraction is taking a certain portion of the multiplicand as many times as there are like portions of a unit in the multiplier. Thus

Multiplying a by $\frac{1}{2}$, is taking $\frac{1}{2}$ of the multiplicand once, as $\frac{1}{2}a$.

Multiplying a by $\frac{2}{3}$, is taking $\frac{2}{3}$ of the multiplicand twice, as $\frac{2}{3}a+\frac{2}{3}a$.

71. Multiplying two or more letters together, is writing them one after the other, either with or without the sign of multiplication between them; see Art. 23. Thus b multiplied into a is $b \times a$, or $b \cdot a$, or ba . And the product of x into y , into z , is $x \times y \times z$, or $x \cdot y \cdot z$, or, as it is more commonly written, xyz . Also the product of am into xy is $amxy$; and of abc into xyz , is $abcxyz$.

72. There will be no difference as to the result in whatsoever order the letters are arranged. Thus the product of ba is the same as that of ab ; and 3 times 5 is equal to 5 times 3. In like manner, the product of a, b , and c , is abc , bac , cab , or cba . It is more convenient, however, to place the letters in alphabetical order.

73. When the letters have numerical coefficients, these must be multiplied together, and prefixed to the product of the letters.

Ex. 1.—Multiply $3a$ into $2b$.

Here the answer is $6ab$. For if a into b is ab , then 3 times a into b is evidently $3ab$; and if, instead of multiplying by b , we multiply by twice b , the product must be twice as great, that is, $2 \times 3ab$, which is $6ab$.

Ex. 2.—Multiply $12xy$ by $3dh$. By $2x$ my $18hxy$ x $8mx$

Product: $21hxy$ $3dmy$ $26dghm$ $7bshx$ $24amxy$

74. If either of the factors consists of figures only, these must be multiplied into the coefficient of the other factor, and the result annexed. Thus $3ab$ into 4, is $12ab$; $3b$ into $2a$, is $72a$; and 24 into $5y$, is $245y$.

From the preceding rules we have the general one, that when factors are to be multiplied, the product will be the same in whatever order the operation is performed.

75. If the multiplicand be a compound quantity, each of its terms must be multiplied into the multiplier. Thus the product of $b+c+d$ into a , is $ab+ac+ad$. For the whole of the multiplicand a to be taken as many times as there are units in the multiplier.

7. Multiply $d+2xy$ by $2h+3m$ By $2h$ $6dy$ my 45

Product: $3hd+6dy$ $12dhy+6dmy$ $3hmy+my$ $8dhm+12b$

76. It must be carefully observed that the preceding instances are not to be confounded with those in which several factors are connected by the sign $\times$, or by a point. In the latter case, the multiplier is to be written before the other factors without being repeated. The product of $b \times d$ into a , is $ab \times d$, and not $ab \times ad$. For $b \times d$ is bd , and this into a , is abd . (Art. 71.) The expression $b \times d$ is not to be considered like

$b+d$, a compound quantity consisting of two terms. Different terms are always separated by $+$ or $-$. (Art. 19.) The product of $b \times h \times m \times y$ into a , is $a \times b \times h \times m \times y$, or $abhmxy$. But $b+h+m+y$ into a is $ab+ah+am+ay$.

77. If both the factors are compound quantities, each term in the multiplier must be multiplied into each term in the multiplicand. Thus $(a+b)$ into $(c+d)$ is $ac+ad+bc+bd$. For the units in the multiplier $a+b$, are equal to the units in a , added to the units in b . Therefore the product produced by a , must be added to the product produced by b . Whence, the product of $a+b$ into $c+d$, is $ac+ad+bc+bd$.

For, the product of $c+d$ into a is $ac+ad$; and the product of $c+d$ into b is $bc+bd$; by (Art. 76.); therefore the product of $a+b$ into $c+d$ is $ac+ad+bc+bd$.

Ex. 11.—Multiply $3x+d$ By $2a+hm$

Product: $6ax+2ad+3hm+3dhm$ $12axy+3de+4ary+2brx$

13. Multiply $a+1$ By $3x+4$ 11 $25+7$ $6d+1$

Product: $3ax+3x+4a+4$ $12bd+12d+25+7$

15. Multiply $d+rx+h$ by $6n+1+7y$. Ans. $6dn+6rmx+6hn+4d+4rx+4h+7dy+7hy$

16. Multiply $7+6b+ad$ by $3r+4+2h$. Ans. $21r+18br+3adr+28+24b+4ad+14h+12bh+2adh$

78. When several terms in the product are alike, it will be expedient to set one under the other, and then to unite them by the rules for reduction in addition, as in the following examples:—

Ex. 17.—Multiply $b+a$ By $b+a$

Product: $bb+ab+ab+aa$ $bb+bc+2c+6$ $bb+2bc+5b+5c+6$

19. Multiply $a+y+1$ By $3b+2x+7$

Product: $3ab+3by+3b+2ax+2xy+2x+7a+7y+7$

20. Multiply $3a+d+4$ by $2a+3d+1$. Ans. $6a^2+11ad+11a+3d^2+13d+4$

21. Multiply $b^2+c+d+2$ by $3b+4c+7$. Ans. $3b^3+7b^2cd+13b^2+4c^2d^2+16cd+14$

22. Multiply $3b+2x+h$ by $a \times d \times 2x$. Ans. $6abd+4ad^2+2adhx$

79. It is plain that when the multiplier and multiplicand consist of any quantity, repeated as a factor, this factor will be repeated in the product as many times as it is in the multiplier and multiplicand together.

23. Multiply $a \times a \times a$ By $a \times a$

Product: $a \times a \times a \times a \times a = aaaaa$, or a^5 .

Here a is repeated three times as a factor in the multiplicand, and twice in the multiplier; hence, it is repeated five times in the product.

24. What is the product of $bbbb$ by bb ? Ans. $bbbbb$, or b^6 .

25. What is the product of $aa \times aaa \times aaaa$ by $aaa \times aaaa$? Ans. $aaaaa$, or a^{10} .

80. It is also plain, from Art. 74, that the numerical coefficients of several factors should be brought together and made into one factor by multiplication. Thus to multiply $2a \times 3b$ by $4a \times 5b$, gives the product of $2a \times 3b \times 4a \times 5b$, or $120aabb$. For the co-efficients are factors (Art. 24), and it is immaterial in what order these are arranged. Therefore $2a \times 3b \times 4a \times 5b = 2 \times 3 \times 4 \times 5 \times a \times a \times b \times b = 120aabb$.

26. What is the product of $3x \times 4x \times 5y$ by $2y \times 4x$? Ans. $480xyy$.

27. What is the product of $2a \times 4b$ by $5m \times 8y$? Ans. $360abmy$.

28. What is the product of $4b \times 6d$ by $2x+1$? Ans. $48bdx+24bd$.

The product of two or more powers of the same quantity, is expressed by writing that quantity with an index equal to the sum of the indices of the proposed powers. Thus, the product of a^2 and a^3 is a^5 ; and the continual product of x^2 , x^4 and x^3 is x^9 . So likewise the product of x^m and x^n is x^{m+n} , and that of a and x^a is x^{a+1} ; and, on the same principle, the product of x^{m-n} and x^n is x^m . The reason of this is evident from Art. 79. Thus a^2 and a^3 are the same as aa and aaa ; the product of which is $aaaaa$ or a^5 ; the index 5 being the sum of the indices 2 and 3, the numbers which show how often a is used as a factor in the given powers.

RULE FOR SIGNS IN THE PRODUCT.

81. The rule is that $+$ into $+$ produces $+$; $-$ into $+$ gives $-$; $+$ into $-$ gives $-$; and $-$ into $-$ gives $+$; or, in words, plus multiplied by plus gives plus; minus by plus gives minus; plus by minus gives minus; and minus by minus gives plus; that is, if the signs of the factors are ALIKE, the sign of the product will be plus, or affirmative; but if the signs of the factors are UNLIKE, the sign of the product will be minus, or negative.

82. The first case, viz., that of $+$ into $+$, needs no explanation, being the same as that of ordinary numbers.

83. The second case is $-$ into $+$, that is, the multiplicand is negative, and the multiplier positive. Thus, $-a$ into $+4$ is $-4a$. For the repetitions of the multiplicand arc, $-a-a-a$ &c.

30. Multiply $2a-m$ By $3h+p$ $31. a-3d+4$ By $2y$

Prod.: $6ah-3hm+2ax-mx$ $2hy-6dy+8y$

32. $a-2-7d-x$ By $3b+h$

Prod.: $3ab-6b-21bd-3bx+ah-2h-7dh-hx$

84. In the two preceding cases, the positive sign prefixed to the multiplier shows, that the repetitions of the multiplicand are to be added to the other quantities with which the multiplier is connected. But in the two remaining cases, the negative sign prefixed to the multiplier, indicates that the sum of the repetitions of the multiplicand are to be subtracted from the other quantities. (Arts. 70, 71.) This subtraction is performed, at the time of multiplying, by making the sign of the product opposite to that of the multiplicand. Thus $-a$ into -4 is $+4a$. For the repetitions of the multiplicand arc, $-a-a-a-a$. But this sum is to be subtracted from the other quantities with which the multiplier is connected. It will then become $+4a$. (Art. 59.) Thus in the expression $b-(4 \times a)$ it is manifest that $4 \times a$ is to be subtracted from b . Now $4 \times a$ is $4a$, that is, $+4a$. But to subtract this from b , the sign $+$ must be changed into $-$. So that $b-(4 \times a)$ is $b-4a$. And $a \times -4$ is therefore $-4a$.

Again, suppose the multiplicand is a , and the multiplier $(6-4)$. As $(6-4)$ is equal to 2, the product will be equal to $2a$. This is less than the product of 6 into a . To obtain, then, the product of the compound multiplier $(6-4)$ into a , we must subtract the product of the negative part from that of the positive part. Thus, multiplying a by $6-4$ is the same as multiplying a by 2. And this product of the former, viz., $6a-4a$, is the same as the product of the latter, viz., $2a$. But if the multiplier be $(6+4)$, the two products must be added. Thus, multiplying a by $6+4$, is the same as multiplying a by 10. And the product of the former, viz., $6a+4a$, is the same as the product of the latter, viz., $10a$.

This shows at once the difference between multiplying by a positive factor, and multiplying by a negative one. In the former case, the sum of the repetitions of the multiplicand is to be added to, in the latter it is to be subtracted from, the other quantities with which the multiplier is connected. (Art. 41.)

33. Multiply $a+b^2$ By $b-a$ Product: $ab+b^2-ac-ab^2$ 34. Multiply $3dy+hx+2$ By $mr-ab$ Product: $3dmr+hmr+2mr-3abdy-abhx-2ab$ 35. Multiply $3x+3$ By $ad-b$ Product: $3add+3ad-3b-13$

84. If two negatives be multiplied together, the product will be affirmative: $-4 \times -a = +4a$. In this case, as in the preceding, the repetitions of the multiplicand are to be subtracted, because the multiplier has the negative sign. These repetitions, if the multiplicand is $-a$, and the multiplier -4 , are $-a-a-a-a = -4a$. But this is to be subtracted by changing the sign. It then becomes $+4a$.

Suppose $-a$ is multiplied by $(6-4)$. As $6-4=2$, the product is evidently twice the multiplicand, that is, $-2a$. But if we multiply $-a$ into 6 and 4 separately; $-a$ into 6 is $-6a$, and $-a$ into 4 is $-4a$. (Art. 83.) As in the multiplier, 4 is to be subtracted from 6; so, in the product, $-4a$ must be subtracted from $-6a$. Now, $-4a$ becomes by subtraction $+4a$. The whole product then is $-6a+4a$, which is equal to $-2a$. Or thus, multiplying $-a$ by $6-4$, is the same as multiplying $-a$ by 2; and the product of the former, viz., $-6a+4a$, is equal to the product of the latter, viz., $-2a$. Hence the general rule may be shortly expressed, thus:—When quantities are multiplied by a positive term, their signs are retained in the product; but when by a negative one, they are changed.

85. It is often considered a great mystery, that the product of two negatives should be affirmative. But it amounts to nothing more than this, that the subtraction of a negative quantity is equivalent to the addition of an affirmative one (Arts 58, 59), and therefore that the repeated subtraction of a negative quantity, is equivalent to the repeated addition of an affirmative one. So, taking off from a man's hands a debt of ten pounds every month, is adding ten pounds a month to the value of his property.

36. Multiply $a-4$ into $3b-6$. Ans. $3ab-12b-6a+24$.37. Multiply $3ad-ah-7$ into $4d-7$. Ans. $12ad-4ah-28-3ady+adh+7dy-3ahdr+ah^2r+7hr$.38. Multiply $2hy+3m-1$ into $4d-2x+3$. Ans. $8dhy+12dm-4d-4hxy-6mx-2x+3hy+3m-3$.

86. Positive and negative terms may frequently balance each other, so as to disappear in the product. (Art. 34.)

39. Multiply $a-b$ By $a+b$ Product: $aa+ab-bb$ 40. $mm-yy$ By $a-b$ Product: $aa+ab-bb$ 41. Multiply $aa+ab+bb$ By $a-b$ Product: $aa+ab-bb$ 42. What is the product of $a+m$ into $h+x$ and $d+y$? Ans. $(a+m)(h+x)(d+y)$.

87. For many purposes, it is sufficient merely to indicate the multiplication of compound quantities, without actually multiplying the several terms. Thus (Art. 23), the product of

$a+b+c$ into $h+m+y$, is $(a+b+c) \times (h+m+y)$.

42. What is the product of $a+m$ into $h+x$ and $d+y$? Ans. $(a+m)(h+x)(d+y)$.

By this method of representing multiplication, an important advantage is often gained, in preserving the factors distinct from each other. When the several terms are multiplied in form, the expression is said to be expanded.

43. What does $(a+b) \times (c+d)$ become when expanded? Ans. $ac+ad+bc+bd$.

88. With a given multiplicand, the less the multiplier, the less will be the product. If, then, the multiplier be reduced to nothing, the product will be nothing. Thus $a \times 0 = 0$. And if 0 be one of any number of fellow-factors, the product of the whole will be nothing.

44. What is the product of $ab \times c \times 3d \times 0$? Ans. 0.45. And $(a+b) \times (c+d) \times (h-m) \times 0$? Ans. 0.

LESSONS IN FRENCH—No. LXII.

By Professor Louis PASQUELLE, LL.D.

LIST OF IRREGULAR VERBS, &c., (continued from page 141).

Infinitive.	Participles.	Indicative.	Imperfect.	Past Definite.	Future.	Conditional.	Imperative.	Subjunctive.	Imperfect.
BATTRE, 4. to beat aux. avoir irregular.	battant battu, f. e.	je bats tu bats il bat n. battons v. battez ils battent	je battais tu battais il battait n. battons v. battez ils battaient	je battis tu battis il battit n. battîmes v. battîtes ils battirent	je battrai tu battras il battrait n. battrons v. battez ils battront	je battrais tu battrais il battrait n. battrions v. battez ils battraient	bats batte battons battez battent	je batte tu battes il batte n. battons v. battez ils battent	je battisse tu battisses il battît n. battissions v. battissiez ils battissent
BOIRE, 4. to drink aux. avoir irregular.	buvant bu, f. e.	je bois tu bois il boit n. buvons v. buvez ils boivent	je buvais tu buvais il buvait n. buvions v. buviez ils buvaient	je bus tu bus il but n. bûmes v. bûtes ils burent	je boirai tu boiras il boirait n. boirons v. buvez ils boiront	je boirais tu boirais il boirait n. boirions v. buviez ils boiraient	bois boive buvons buvez boivent	je boive tu boives il boive n. buvons v. buviez ils boivent	je buvisse tu buvisses il buvît n. buvissions v. buvissiez ils buvissent
BOUILLIR, 2. to boil	bouillant bouilli, f. e.	je bouille tu bouilles il bout n. bouillons v. bouilliez ils bouillent	je bouillais tu bouillais il bouillait n. bouillions v. bouilliez ils bouillaient	je bouillai tu bouillais il bout n. bouillîmes v. bouillîtes ils bouillirent	je bouillirai tu bouilliras il bouillirait n. bouillirons v. bouilliez ils bouilliront	je bouillirais tu bouillirais il bouillirait n. bouillirions v. bouilliez ils bouilliraient	bouille bouille bout bouillons bouilliez bouillent	je bouille tu bouilles il bouille n. bouillons v. bouilliez ils bouillent	je bouillisse tu bouillisses il bouillît n. bouillissions v. bouillissiez ils bouillissent
BOURRELER, 1. to torment aux. avoir irregular.	bourrelant bourrelé, f. e.	je bourle tu bourles il bourle n. bourlons v. bourlez ils bourlent	je bourlais tu bourlais il bourlait n. bourlions v. bourlez ils bourlaient	je bourlai tu bourlais il bourla n. bourlîmes v. bourlîtes ils bourlèrent	je bourrelai tu bourrelas il bourrelait n. bourrelons v. bourlez ils bourrelont	je bourrelais tu bourrelais il bourrelait n. bourrelions v. bourlez ils bourrelaient	bourle bourle bourle bourlons bourlez bourlent	je bourle tu bourles il bourle n. bourlons v. bourlez ils bourlent	je bourlisse tu bourlisses il bourlît n. bourlissions v. bourlissiez ils bourlissent
BRUIRE, 4. to drizzle aux. avoir irregular.	bruissant bruié, f. e.	je bruite tu bruites il bruite n. bruions v. bruyez ils bruient	je bruissais tu bruissais il bruissait n. bruissions v. bruyiez ils bruissaient	je bruissai tu bruissais il bruissa n. bruissîmes v. bruyîtes ils bruissirent	je bruirai tu bruiras il bruirait n. bruirons v. bruyez ils bruiront	je bruirais tu bruirais il bruirait n. bruirions v. bruyiez ils bruiraient	bruite bruite bruite bruions bruyez bruient	je bruite tu bruites il bruite n. bruions v. bruyez ils bruient	je bruississe tu bruississes il bruissît n. bruissions v. bruyissiez ils bruissent

List of Irregular Verbs, &c. continued.

Infinitive.	Participles.	Indicative.	Imperfect.	Past Definite.	Future.	Conditional.	Imperative.	Subjunctive.	Imperfect.
BRUIRE, 4. to rustle aux. avoir irregular.	bruissant bruié, f. e.	je bruite tu bruites il bruite n. bruions v. bruyez ils bruient	je bruissais tu bruissais il bruissait n. bruissions v. bruyiez ils bruissaient	je bruissai tu bruissais il bruissa n. bruissîmes v. bruyîtes ils bruissirent	je bruirai tu bruiras il bruirait n. bruirons v. bruyez ils bruiront	je bruirais tu bruirais il bruirait n. bruirions v. bruyiez ils bruiraient	bruite bruite bruite bruions bruyez bruient	je bruite tu bruites il bruite n. bruions v. bruyez ils bruient	je bruississe tu bruississes il bruissît n. bruissions v. bruyissiez ils bruissent
CACHETER, 1. to seal aux. avoir irregular.	cachetant cacheté, f. e.	je cache tu caches il cache n. cachons v. cachez ils cachent	je cachais tu cachais il cachait n. cachions v. cachez ils cachaient	je cachai tu cachais il cacha n. cachâmes v. cachâtes ils cachèrent	je cacherai tu cacheras il cacherait n. cacherons v. cachez ils cacheront	je cacherais tu cacherais il cacherait n. cacherions v. cachez ils cacheraient	cache cache cache cachons cachez cachent	je cache tu caches il cache n. cachons v. cachez ils cachent	je cachasse tu cachasses il cachât n. cachassions v. cachassiez ils cachassent
CHANGER, 1. to change aux. avoir irregular.	changeant changé, f. e.	je change tu changes il change n. changeons v. changez ils changent	je changeais tu changeais il changeait n. changeions v. changez ils changeaient	je changeai tu changeais il changea n. changeâmes v. changeâtes ils changèrent	je changerai tu changeras il changerait n. changerons v. changez ils changeront	je changerais tu changerais il changerait n. changerions v. changez ils changeraient	change change change changeons changez changent	je change tu changes il change n. changeons v. changez ils changent	je changasse tu changasses il changât n. changassions v. changassiez ils changassent
CIRCONSCRIRE, 1. to circumscribe aux. avoir irregular.	circonscrivant circonscrit, f. e.	je circonscris tu circonscris il circonscrit n. circonscrivons v. circonscrivez ils circonscrivent	je circonscrivais tu circonscrivais il circonscrivait n. circonscrivions v. circonscrivez ils circonscrivaient	je circonscris tu circonscrivais il circonscrivit n. circonscrivîmes v. circonscrivîtes ils circonscrivirent	je circonscrirai tu circonscriras il circonscrirait n. circonscrirons v. circonscrivez ils circonscriront	je circonscrirais tu circonscrirais il circonscrirait n. circonscririons v. circonscrivez ils circonscriraient	circonscris circonscris circonscrit circonscrivons circonscrivez circonscrivent	je circonscris tu circonscrivais il circonscrivait n. circonscrivions v. circonscrivez ils circonscrivent	je circonscrississe tu circonscrississes il circonscrissît n. circonscrississions v. circonscrississiez ils circonscrississent
CLORE, 4. to close aux. avoir irregular.	clotant cloté, f. e.	je clos tu clos il clot n. clouons v. closez ils clotent	je closais tu closais il clotait n. clouions v. closez ils clotaient	je clous tu clous il clota n. clouâmes v. clouâtes ils clouèrent	je clorai tu clorais il clorait n. clorons v. closez ils cloront	je clorais tu clorais il clorait n. clorions v. closez ils cloreraient	clot clot clot clouons closez clotent	je clot tu clotes il clot n. clouons v. closez ils clotent	je closisse tu closisses il closît n. closissions v. closissiez ils closissent
COMBATTRE, 4. to combat aux. avoir irregular.	combattant combattu, f. e.	je combats tu combats il combat n. combattons v. combattez ils combattent	je combattais tu combattais il combattait n. combattons v. combattez ils combattaient	je combattis tu combattis il combattit n. combattîmes v. combattîtes ils combattirent	je combattrai tu combattras il combattrait n. combattrons v. combattez ils combattront	je combattrais tu combattrais il combattrait n. combattrions v. combattez ils combattraient	combats combats combat combattons combattez combattent	je combats tu combats il combat n. combattons v. combattez ils combattent	je combattisse tu combattisses il combattît n. combattissions v. combattissiez ils combattissent
COMPARER, 4. to compare aux. avoir irregular.	comparant comparé, f. e.	je compare tu compares il compare n. comparons v. comparez ils comparent	je comparais tu comparais il comparait n. comparions v. comparez ils comparaient	je comparai tu comparais il compara n. comparâmes v. comparâtes ils comparèrent	je comparerai tu compareras il comparerait n. comparerons v. comparez ils compareront	je comparerais tu comparerais il comparerait n. comparerions v. comparez ils compareraient	compare compare compare comparons comparez comparent	je compare tu compares il compare n. comparons v. comparez ils comparent	je comparasse tu comparasses il comparât n. comparassions v. comparassiez ils comparassent
COMPLAIRE, 4. to comply aux. avoir irregular.	complaissant complaisant, f. e.	je complais tu complais il complait n. complaisons v. complaisez ils complaisent	je complaisais tu complaisais il complaisait n. complaisions v. complaisez ils complaisaient	je complaisai tu complaisais il complaisa n. complaisâmes v. complaisâtes ils complaisèrent	je complairai tu complairas il complairait n. complairons v. complaisez ils complairont	je complairais tu complairais il complairait n. complairions v. complaisez ils complairaient	complais complais complait complaisons complaisez complaisent	je complais tu complais il complait n. complaisons v. complaisez ils complaisent	je complaisisse tu complaisisses il complaisît n. complaisissions v. complaisissiez ils complaisissent
COMPRENDRE, 4. to understand aux. avoir irregular.	comprenant compris, f. e.	je comprends tu comprends il comprend n. comprenons v. comprenez ils comprennent	je comprenais tu comprenais il comprenait n. comprenions v. comprenez ils comprenaient	je compris tu compris il comprit n. comprîmes v. comprîtes ils comprirent	je comprendrai tu comprendras il comprendrait n. comprendrons v. comprenez ils comprendront	je comprendrais tu comprendrais il comprendrait n. comprendrions v. comprenez ils comprendraient	comprends comprends comprend comprenons comprenez comprennent	je comprends tu comprends il comprend n. comprenons v. comprenez ils comprennent	je comprisse tu comprisisses il comprisît n. comprisissions v. comprisissiez ils comprisissent
COMPROMETTRE, 4. to compromise aux. avoir irregular.	compromettant compromis, f. e.	je compromets tu compromets il compromet n. compromettions v. compromettez ils compromettent	je compromettais tu compromettais il compromettait n. compromettions v. compromettez ils compromettaient	je compromets tu compromettas il compromit n. compromettîmes v. compromettîtes ils compromettirent	je compromettrai tu compromettras il compromettrait n. compromettrons v. compromettez ils compromettront	je compromettrais tu compromettrais il compromettrait n. compromettrions v. compromettez ils compromettraient	compromets compromets compromet compromettions compromettez compromettent	je compromets tu compromets il compromet n. compromettions v. compromettez ils compromettent	je compromis tu compromis il compromis n. compromis v. compromis ils compromis
CONCLURE, 4. to conclude aux. avoir irregular.	concluant conclu, f. e.	je conclus tu conclus il conclut n. concluons v. concluez ils concluent	je conclusais tu conclusais il concluait n. concluions v. concluez ils concluait	je conclusai tu conclusais il conclut n. conclusâmes v. conclusâtes ils conclurent	je conclurai tu concluras il conclurait n. conclurons v. concluez ils concluront	je conclurais tu conclurais il conclurait n. conclurons v. concluez ils conclureraient	conclus conclus conclut concluons concluez concluent	je conclus tu conclus il conclut n. concluons v. concluez ils concluent	je conclusisse tu conclusisses il conclusît n. conclusissions v. conclusissiez ils conclusissent
CONCOURIR, 2. to contend aux. avoir irregular.	concourant concouru, f. e.	je concours tu concours il concourt n. concourons v. concourez ils concourent	je concourais tu concourais il concourait n. concourions v. concourez ils concouraient	je concourai tu concourais il concourut n. concourâmes v. concourâtes ils concoururent	je concourrai tu concourras il concourrait n. concourrons v. concourez ils concourront	je concourrais tu concourrais il concourrait n. concourrions v. concourez ils concourraient	concours concours concourt concourons concourez concourent	je concours tu concours il concourt n. concourons v. concourez ils concourent	je concourusse tu concourusses il concourût n. concourussions v. concourussiez ils concourussent
CONFIRE, 4. to confound aux. avoir irregular.	confisant confit, f. e.	je confis tu confis il confit n. confions v. confisez ils confisent	je confisais tu confisais il confisait n. confions v. confisez ils confisaient	je confisai tu confisais il confita n. confisâmes v. confisâtes ils confisèrent	je confirai tu confiras il confirait n. confirons v. confisez ils confiront	je confirais tu confirais il confirait n. confirions v. confisez ils confiraient	confis confis confit confions confisez confisent	je confis tu confis il confit n. confions v. confisez ils confisent	je confis tu confis il confit n. confions v. confisez ils confisent
CONJUGER, 1. to conjugate aux. avoir irregular.	conjuguant conjugé, f. e.	je conjugue tu conjugues il conjugue n. conjugons v. conjuguez ils conjuguent	je conjuguais tu conjuguais il conjugait n. conjugions v. conjuguez ils conjuguaient	je conjuguai tu conjuguais il conjugua n. conjugâmes v. conjugâtes ils conjugurent	je conjuguerai tu conjugueras il conjuguerait n. conjuguerons v. conjuguez ils conjugueront	je conjuguerais tu conjuguerais il conjuguerait n. conjuguerions v. conjuguez ils conjugueraient	conjugue conjugue conjugue conjugons conjuguez conjuguent	je conjugue tu conjugues il conjugue n. conjugons v. conjuguez ils conjuguent	je conjugasse tu conjugasses il conjugât n. conjugassions v. conjugassiez ils conjugassent
CONJOINDRE, 4. to join aux. avoir irregular.	conjoignant conjoint, f. e.	je joins tu joins il joint n. joignons v. joignez ils joignent	je joignais tu joignais il joignait n. joignons v. joignez ils joignaient	je joignai tu joignais il joignit n. joignîmes v. joignîtes ils joignirent	je joindrai tu joindras il joindrait n. joindrons v. joignez ils joindront	je joindrais tu joindrais il joindrait n. joindrions v. joignez ils joindraient	joins joins joint joignons joignez joignent	je joins tu joins il joint n. joignons v. joignez ils joignent	je joinsse tu joinsse il joinsît n. joinsissions v. joinsissiez ils joinsissent
CONNAÎTRE, 4. to know aux. avoir irregular.	connaissant connu, f. e.	je connais tu connais il connaît n. connaissons v. connaissez ils connaissent	je connaissais tu connaissais il connaissait n. connaissions v. connaissez ils connaissaient	je connus tu connus il connut n. connus v. connus ils connurent	je connaîtrai tu connaîtras il connaîtrait n. connaîtrons v. connaissez ils connaîtront	je connaîtrais tu connaîtrais il connaîtrait n. connaîtrions v. connaissez ils connaîtraient	connais connais connaît connaissons connaissez connaissent	je connais tu connais il connaît n. connaissons v. connaissez ils connaissent	je connusse tu connusse il connusît n. connusissions v. connusissiez ils connusissent
CONQUÊTRE, 2. to conquer aux. avoir irregular.	conquérant conquis, f. e.	je conquiers tu conquies il conquiert n. conquies v. conquies ils conquies	je conquies tu conquies il conquies n. conquies v. conquies ils conquies	je conquies tu conquies il conquies n. conquies v. conquies ils conquies	je conquies tu conquies il conquies n. conquies v. conquies ils conquies	je conquies tu conquies il conquies n. conquies v. conquies ils conquies	conquies conquies conquies conquies conquies conquies	je conquies tu conquies il conquies n. conquies v. conquies ils conquies	je conquiesse tu conquiesse il conquiesse n. conquiesse v. conquiesse ils conquiesse
CONSENTIR, 2. to consent aux. avoir irregular.	consentant consenti, f. e.	je consens tu consens il consent n. consentons v. consentez ils consentent	je consentais tu consentais il consentait n. consentions v. consentez ils consentaient	je consenti tu consentais il consentit n. consentîmes v. consentîtes ils consentirent	je consentirai tu consentiras il consentirait n. consentirons v. consentez ils consentiront	je consentirais tu consentirais il consentirait n. consentirions v. consentez ils consentiraient	consens consens consent consentons consentez consentent	je consens tu consens il consent n. consentons v. consentez ils consentent	je consentisse tu consentisses il consentît n. consentissions v. consentissiez ils consentissent

33. Multiply $a+b$ by $b-a$ Product: $ab+b^2-ca-ba$ 34. Multiply $3dy+4x+2$ by $m-a$ Product: $3dmy+4mx+2m-3ady-abx-2ab$ 35. Multiply $3a+3$ by $a+6$ Product: $3ad+3ad-18a-18$

84. If two negatives be multiplied together, the product will be affirmative: $-4 \times -6 = +24$. In this case, as in the preceding, the repetitions of the multiplicand are to be subtracted, because the multiplier has the negative sign. These repetitions, if the multiplicand is $-a$, and the multiplier -4 , are $-a-a-a-a=-4a$. But this is to be subtracted by changing the sign. It then becomes $+4a$.

Suppose $-a$ is multiplied by $(6-4)$. As $6-4=2$, the product is evidently twice the multiplicand, that is, $-2a$. But if we multiply $-a$ into 6 and 4 separately; $-a$ into 6 is $-6a$, and $-a$ into 4 is $-4a$. (Art. 83.) As in the multiplier, 4 is to be subtracted from 6; so, in the product, $-4a$ must be subtracted from $-6a$. Now, $-4a$ becomes by subtraction $+4a$. The whole product then is $-6a+4a$, which is equal to $-2a$. Or thus, multiplying $-a$ by $6-4$, is the same as multiplying $-a$ by 2; and the product of the former, viz., $-6a+4a$, is equal to the product of the latter, viz., $-2a$. Hence the general rule may be shortly expressed, thus:—When quantities are multiplied by a positive term, their signs are retained in the product; but when by a negative one, they are changed.

85. It is often considered a great mystery, that the product of two negatives should be affirmative. But it amounts to nothing more than this, that the subtraction of a negative quantity is equivalent to the addition of an affirmative one (Arts 58, 59), and therefore that the repeated subtraction of a negative quantity, is equivalent to the repeated addition of an affirmative one. So, taking off from a man's hands a debt of ten pounds every month, is adding ten pounds a month to the value of his property.

36. Multiply $a-4$ into $3b-6$. Ans. $3ab-12b-6a+24$.37. Multiply $3ad-ah-7$ into $4-dy-hr$. Ans. $12ad-4ah-28-3ady+adh+7dy-3adr+ahr+7hr$.38. Multiply $2hy+3m-1$ into $4d-2x+3$. Ans. $8dhy+12dm-4d-4hy-6mx+2x+3hy+3m-3$.

86. Positive and negative terms may frequently balance each other, so as to disappear in the product. (Art. 54.)

39. Multiply $a-b$ by $a+b$ Product: $aa-ab-bb$ 40. $mn-yy$ by $m+y$ Product: $mm+mn-yy-yy$ 41. Multiply $aa+ab+bb$ by $a-b$ Product: $aa^2-ab^2-bb^2$

87. For many purposes, it is sufficient merely to indicate the multiplication of compound quantities, without actually multiplying the several terms. Thus (Art. 23), the product of

 $a+b+c$ into $h+m+n$, is $(a+b+c) \times (h+m+n)$.42. What is the product of $a+m$ into $h+x$ and $d+y$? Ans. $(a+m)(h+x)(d+y)$.

By this method of representing multiplication, an important advantage is often gained, in preserving the factors distinct from each other. When the several terms are multiplied in form, the expression is said to be expanded.

43. What does $(a+b) \times (c+d)$ become when expanded? Ans. $ac+ad+bc+bd$.

88. With a given multiplicand, the less the multiplier, the less will be the product. If, then, the multiplier be reduced to nothing, the product will be nothing. Thus $a \times 0 = 0$. And if 0 be one of any number of fellow-factors, the product of the whole will be nothing.

44. What is the product of $ab \times c \times 3d \times 0$? Ans. 0.45. And $(a+b) \times (c+d) \times (h-m) \times 0$? Ans. 0.

LESSONS IN FRENCH—No. LXII.

By Professor Louis FASQUELLE, LL.D.

LIST OF IRREGULAR VERBS, &c., (continued from page 141).

Infinitive.	Participles.	Indicative.	Imperfect.	Past Definite.	Futüre.	Conditional.	Imperative.	Subjunctive.	Imperfect.
BATTRE, 4. to beat aux. avoir irregular.	battant battu, f. e.	je bats tu bats il bat n. battons v. battez ils battent	je battais tu battais il battait n. battions v. battiez ils battaient	je battis tu battis il battit n. battîmes v. battîtes ils battirent	je battrai tu battras il battrait n. battrons v. battez ils battront	je battrais tu battrais il battrait n. battrions v. battez ils battraient	bats q. batte battons battez q. battent	je batte tu battes il batte n. battions v. battiez ils battent	je battisse tu battisses il battît n. battissions v. battissiez ils battissent
BOIRE, 4. to drink aux. avoir irregular.	buvant bu, f. e.	je bois tu bois il boit n. buvons v. buvez ils boivent	je buvais tu buvais il buvait n. buvions v. buviez ils buvaient	je bus tu bus il but n. buvîmes v. buvîtes ils burent	je boirai tu boiras il boira n. boirons v. boirez ils boiront	je boirais tu boirais il boirait n. boirions v. boirez ils boiraient	bois q. boive buvons buvez q. boivent	je boive tu boives il boive n. buvions v. buviez ils boivent	je busse tu busses il but n. buvissions v. buvisiez ils buvissent
BOUILLIR, 2. to boil	bouillant bouilli, f. e.	je bouille tu bouilles il bout n. bouillons v. bouilliez ils bouillent	je bouillais tu bouillais il bouillait n. bouillions v. bouilliez ils bouillaient	je bouillai tu bouillais il bouillit n. bouillîmes v. bouillîtes ils bouillirent	je bouillerai tu bouilliras il bouillira n. bouillrons v. bouillirez ils bouilliront	je bouillerais tu bouillirais il bouillirait n. bouillirions v. bouilliriez ils bouilliraient	bouille q. bouille bouillons bouilliez q. bouillent	je bouille tu bouilles il bouille n. bouillions v. bouilliez ils bouillent	je bouillisse tu bouillisses il bouillît n. bouillissions v. bouillissiez ils bouillissent
BOURRELER, 1. to torment BRAIRE, 4. to brag defective.	bourrelant bourré, f. e.	je bourrèle tu bourrèles il braie ils braient	je bourrelais tu bourrelais ils braient	je bourrelai	je brairai ils brairont	je brairais ils brairaient	bourrèle	je bourrèle	je bourrelasse
BRUIRE, 4. to drizzle impersonal.	bruisant bruite	il bruite il drizzle	il bruissait il was drizzling	il bruina il drizzled	il bruirera it will drizzle	il bruirait it would drizzle	q. bruite let it drizzle	q. bruite it may drizzle	q. bruissait it might drizzle

LESSONS IN GEOGRAPHY.—No. XXVI.

(Continued from p. 144.)

On this observation as a basis, is founded the methods of estimating the size and shape of the skull, from which it is supposed that the intellectual capacity can be determined, as the differences among men in this respect are conceived to depend on their differences in the former respect. The measurement of the facial angle, the determination of the size of the cranium, the size and the variable inclination of the face, have all led to the establishment of individual differences among men, but which are all comprehended between two extreme limits. Thus 85 degrees, which expresses the maximum size of the facial angle, belongs in general to individuals and to nations of the highest intelligence, such as the Europeans; and 75 degrees, which expresses the minimum size of the facial angle, belongs to those of the lowest intellectual development, such as are seen in individuals of all nations, and also among whole nations, namely, the negroes of Oceania and Africa.

Fig. 1.

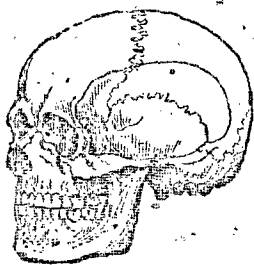
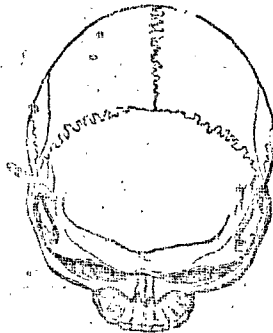


Fig. 2.



The measurement of the skull enables us to determine with greater exactness the differences which are observed among men, at least in its principal dimensions. The following are some of the results which have been obtained:—

SKULLS OF MEN BELONGING TO THE DIFFERENT RACES.

Races.	Diameter from front to back.	Diameter from side to side.	Anterior curve.
Caucasian	184	125	274
Mongolian	173	125	270
Ethiopian	183	112	263
Malayan	170	125	266
American	170	125	265

Fig. 3.

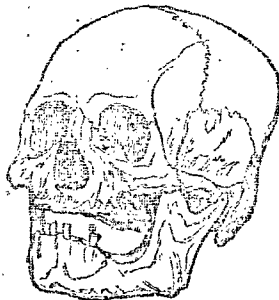
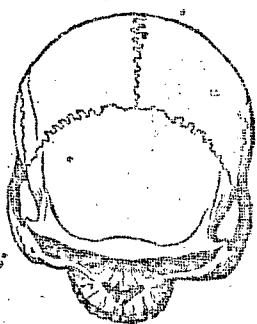


Fig. 4.

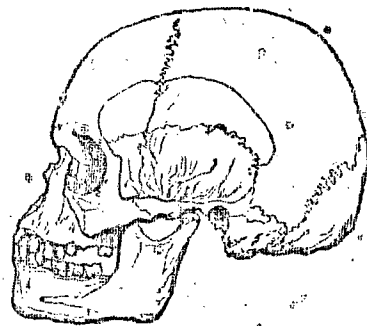


By the anterior curve, in these measurements, is understood the curve which is measured from the anterior edge of the hole of the one ear, along the eyebrows, to the corresponding point of the other ear. These measurements are also taken as a mean of the measurements of a great variety of individuals belonging to each race. As an instance of a nation belonging to the Caucasian race, let us take the measurements which have been given of the heads of the French:—

	Maximum.	Minimum.
Diameter from front to back	206	171
Diameter from side to side	165	127
Anterior curve	348	280

All these measurements of the skull are taken in French millimetres, 25 of which nearly make an inch, or more correctly 2 1/4; so that dividing any of these measurements by these numbers, you have the answer in English inches, more or less correctly according as you take 25.4 or 25 for the divisor. The preceding results divide mankind into the principal classes,

Fig. 5.



according to the size of the skull and the development of the forehead, and consequently according to their intellectual power, if there be any truth in this department of phrenology. Although flattered by these measurements ourselves, that of the maximum skull among the French being almost exactly the same as our own, we cannot put implicit faith in the story which they tell regarding the corresponding intellectual power, of which they are supposed to be the index. At all events,

Fig. 6.

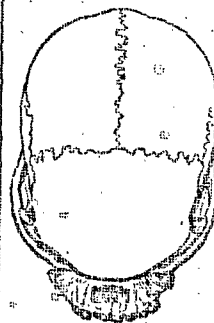
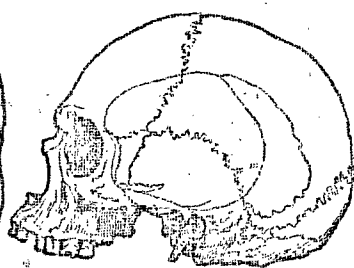
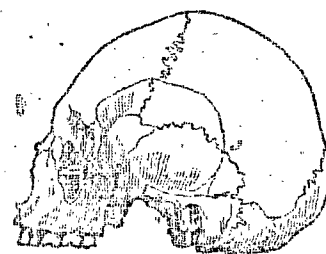


Fig. 7.



we cannot acquiesce in the mapping out of the skull itself into a given number of different organs, with all the gravity, and little except the certainty of mathematical demonstration. We

Fig. 8.



shall close this discussion for the present, by directing our readers to the consideration of the several representations of the skulls of which we have just given the measurements. The

profile of the Caucasian skull, in Fig. 1, is that of a Greek; it shows the approach to the perpendicular, in the direction of the facial angle; the same skull is seen vertically in Fig. 2, that is, resting on a table with the crown vertical. The profile of the Mongolian skull, is seen in Fig. 3; and the vertical view in Fig. 4. The profile of the Ethiopian skull is exhibited in that of a Negro, Fig. 5, and the vertical view in Fig. 6. The profile of the Malayan skull is seen in Fig. 7; and the profile of the American skull in Fig. 8.

The differences in size and shape which exist in the skulls of different races can be approximately determined by the inspection of them under different points of view. Inspected in profile, the skull of the Caucasian race, typified in that of the Greek, Fig. 1, presents an example of the finest development, in its globular shape, and in the straight or vertical direction of the face, which makes the facial angle nearly 90°. Viewed in profile, the skull of the Ethiopian race, typified in that of the Negro, presents a striking contrast to the former, in the respects which we have just mentioned. If we examine the upper part of the skulls of different races, as placed on a table, Figs. 2, 3, 4, and 6, we can form a more correct estimate of the shape and dimensions of the oval-like curve which limits and describes the contour of the cranium. Humentach, who examined a vast variety of human skulls, divided the whole into three typical forms, which he considered as characteristic of three distinct races of men, and which a single glance will discover in the figures to which we have referred above; thus, indeed, a better idea of their individuality will be obtained than by a laboured description. All the difference in the shapes of the skull are summed up in these two, the comparative size of the whole, and the comparative size of a part, corresponding to the difference in the size of the brain, which is contained in these parts, and expressing relative inequalities in intellectual capacity. It would be important if more careful researches were to confirm, in regard to the various races of men, what is considered as well established in respect to individuals, viz., that there is really a connexion between the size of the skull, the size of the brain, and intellectual development. In order to throw light on this subject, a French physician, not content with exterior measurements, gauged the skull and weighed the brain. Among his countrymen, he found the mean capacity of the skull about 95 cubic inches; and the extremes of capacity, that is, the maximum and minimum capacities, about 112 cubic inches and 85 cubic inches respectively. He found the mean weight of the brain about 3 pounds avoirdupois, and the extreme weights of the brain 4 pounds and 2 1/2 pounds respectively. The mean weight of the cerebrum, or brain properly so called, that is, the supposed seat of intelligence, was about 2 1/2 pounds.

The differences in the human face, which do not depend on the shape and size of the forehead, are referred to the variable projection and inclination of the organs of mastication, the teeth and jaws. In the case of the largest development of these organs, the two jaws, with the teeth they contain, are like two inclined planes in front, the junction of which at an obtuse angle, causes the lips and the mouth to project. From this prominence of the front teeth and the mouth, it follows that the plane of the face by its obliquity diminishes the facial angle; and, on either side of the line of projection, the mouth, the face runs off in a double inclined plane, upwards towards the forehead, and downwards towards the chin. The greater development of the palatal arch occasions an elongation (lengthening) in the oval of the base of the skull in the part which belongs to the face, and throws back the occipital aperture from the centre of the oval. These effects of the projecting development of the face give to the head of man a very particular form, called *prognathic* (from the Greek *pro*, before, and *gnathos* the jaw), which is manifested in a very striking manner in the head of the Negro, and which has been assigned as one of the characteristics of the Ethiopian race.

The features of the countenance appear to be chiefly dependent on the development of the jaws and the cheek-bone, which change more or less its oval form, by widening it in the middle and lower parts, and by creating hollows more or less abrupt or deep, in its general outline. The interval between the eyes, very large among the nations of the Mongolian race; the shape of the nose, very short and flat among

the Negroes, prominent and more or less straight among the Europeans, projecting and crooked among the Americans; the size of the lips, heavy, thick, and prominent among the Negroes; the direction of the opening of the eye-lids, which, horizontal among the greatest part of mankind, is sometimes inclined obliquely to the horizon so as to elevate the outer corner of the eye, as among the Chinese; are all characteristics, determining the differences which separate the human face more or less from the ideal type of beauty; a type to which the head of the civilised nations of Europe and Asia, is nearest in form and general appearance; and from which, that of the savage nations of Africa and Oceania is the most remote.

Having laid so many skulls before our readers, for their consideration, we cannot do better to relieve their minds, than by adding a piece of poetry which we have often admired, entitled "A Fragment, found in a Case containing a human Skeleton."

Behold this ruin! 'Twas a skull
Once of ethereal spirit full;
This narrow cell was Life's retreat;
This space was thought's mysterious seat!
What beauteous pictures fill'd this spot,
What dreams of pleasure long forgot!
Nor love, nor joy, nor hope, nor fear,
Has left one trace of record here!

Beneath this mould'ring canopy
Once shone the bright and busy eye—
But start not at the dismal void!
If social Love that eye employ'd,
It with no lawless fire it gleam'd,
But through the w of kindness beam'd;
That eye shall be for ever bright,
When stars and suns have lost their light!

Here, in this silent cavern, hung
The ready, swift, and tuneful tongue;
If falsehood's honey it disdain'd,
And where it could not praise was chain'd;
If bold in Virtue's cause it spoke,
Yet gentle Concord never broke;
That tuneful tongue shall plead for thee
When death unveils eternity!

Say, did these fingers delve the mine,
Or with its envied rubies shine?
To hew the rock or wear the gem,
Can nothing now avail to them;
But if the page of Truth they sought,
Or comfort to the mourner brought,
These hands a richer meed shall claim
Than all that waits on Wealth or Fame!

Avails it whether bare or shod
These feet the path of duty trod?
If from the bowers of Joy they fled
To seek the Affliction's humble bed;
If Gratitude's guilty bribe they spurn'd,
And home to Virtue's lap return'd;
These feet with angel wings shall vie,
And tread the palace of the sky!

Celui qui dit incessamment qu'il a de l'honneur et de la probité, qu'il ne nuit à personne, qu'il consent que le mal qu'il fait aux autres lui arrive et qu'il jure pour le faire croire, ne sait pas même contredire l'homme de bien.—*La Bruyère*.

Ceux qui combattent une religion ou une superstition reçue sont toujours accusés d'athéisme; mais les vrais athées, ce sont les hypocrites qui manient sans cesse les choses saintes.—*Bacon*.

Les idées sont des fonds qui ne portent intérêt qu'entre les mains du talent.—*Rivarol*.

Il n'y a qu'un bien, c'est la science; il n'y a qu'un mal, c'est l'ignorance. Celui qui connaît le bien et qui fait le mal est un insensé; l'homme sage ne croira pas savoir ce qu'il ignore; il concevra d'abord qu'il ne sait rien, et il cherchera à s'instruire.—*Socrate*.

Il y a trois sortes d'ignorance: ne rien savoir, savoir mal ce qu'on sait, et savoir autre chose que ce qu'on doit savoir.—*Duchas*.
C'est la profonde ignorance qui inspire le ton dogmatique; celui qui ne sait rien croit enseigner aux autres ce qu'il vient d'apprendre lui-même; celui qui sait beaucoup pense à peine que ce qu'il dit puisse être ignoré, et parle plus indifféremment.—*La Bruyère*.

* Belonging to the occiput or hinder part of the head.

ANSWERS TO CORRESPONDENTS.

W. J. B. (Woolwich): His suggestion is under consideration. **ERUDITUS** (Hull): I impute it to your ignorance, is the correct sentence. **O. HOUR** (Tenterton): His penmanship is very good; if he chooses, he may soon become a first-rate hand. **ANNO AR. READING** (Commercial-road): *Gipsy* is said, in Todd's Johnson's Dictionary, to be corrupted from *Egyptian*, and there is a strong probability that such is the case. They are a wandering race, and, like the Hebrews, they are found in every country under the sun, thus fulfilling the triple prophecy of Ezekiel: "I will scatter the Egyptians among the nations, and will disperse them through the countries" (Ez. ch. 29, v. 12, and ch. 38, v. 23 and v. 26). **M. DE B. (Belfast):** The great Sir Isaac Newton was the author of Newton's *Arithmetica Universalis*. His New Geometry is leading like Euclid's, being the doctrine of Fluxions and Moments, or the Differential and Integral Calculus. The order of Mathematical studies should be 1. Arithmetic; 2. Geometry (Euclid); 3. Algebra; 4. Trigonometry; 5. Algebraic or Analytic Geometry (including Conic Sections); 6. Differential and Integral Calculus. The *Encyclopædia Britannica* embraces Science, History, Biography, Arts, Belles Lettres, &c., and is the best work of the kind extant. **J. F. K. (London):** Thanks for his useful hints. **ATT. AND ORL. PUPIL** (Sydenham): To square the circle, is to find the side of a square exactly equal to a circle whose diameter is given; the equality consisting in their areas or surfaces. You are right as to the speeds of the trains.

J. SAGHAM (Little Harton): We have Hygiene in view. **P. R. M. (Hilbway):** We once had an excellent and costly Bible destroyed by the bookbinder, because it was bound too soon. Stained and illegible pages are an inevitable result of binding too soon, never be the name of the ink. A book should not be bound until the ink is thoroughly dry; this will take a twelvemonth to do, unless artificial means be employed. **T. B. (Ridgway):** The simple interest of £1 for 1,000 years at 5 per cent is £50; but the compound interest of the same sum for the same time, interest payable annually, is about £1,519,223,000,000,000,000; for the logarithm of 1.05 is .0211893, and this multiplied by 1,000 gives 211.89300, a logarithm, whose decimal part or mantissa being looked for in the table, is found to be nearest to .258263, and its corresponding number is 1.8187; annexing to this number the figures for the proportional parts of the difference between the tabular mantissa and the former, and annexing to them as many cyphers as there are required of additional figures, for the characteristic 21, we have the number above mentioned. **T. WATKINSON** (Stanstead): **F. G. S. means Fellow of the Geological Society; F. R. G. S. means Fellow of the Royal Geographical Society; F. R. S. means Fellow of the Royal Society, &c.** **J. HARRIS** (Cradley): Pronounce French and German proper and personal names, like common French and German words which are composed of the same letters. **P. B. J. (Barnoldsey):** Thanks for his useful suggestions.

W. SMITH (Charlton-upon-Medlock): The very central axis of a revolving shaft does revolve, and the very central point of its extremity or journal also revolves. **A SUBSCRIBER** wishes some correspondent to furnish the P. E. with a receipt for making the best black varnish for picture frames. **AN APPRENTICE SEAMAN:** The best work on Circular Sailing is Townson's *Tables*, published by the Lords of the Admiralty; but we hear that it is just out of print. It will be republished. **SOCIUS** (Kirkdale) must look again at his sums in Algebra; he has made mistakes. **LUPWIG** (Merthyr): Under consideration. **J. WATKIN** (Dean Mills): His solution is right, without being set down in proper form. **W. BURTONWORTH** (Oldham): Is a garden 100 feet long, and 80 feet broad, where a gravel walk is to be made of equal width all round, so as to take up half the ground, the breadth of this walk must be 12.9844 feet. For $(100 - 2p)(80 - 2p) = 8000$ — $360p + 4p^2 = 1000$, where p is the breadth of the walk; and the solution of this quadratic gives the answer we have put down, or $p = 12.9844$ feet. **A SCHOLAR** (London) must take the French Dictionary either in parts or numbers, or wait till the whole is completed. He wishes an answer to the following question: "A round pillar or shaft of 30 feet diameter be raised on a plane inclined to the horizon, and be itself inclined to the horizon at an angle of 75°, what length will it bear before it be overset?"

A PRACTICAL MINER (Hayle): Lyell's *Principles of Geology*, or *Manual of Geology*; Delabèche's *Geological Observer*; and Ansted's *Geology*; are among the best books on this subject. **G. WRIGHT** (Lincolnshire): His answers are pretty fair for a first attempt in Algebra. **W. M. S. (Tunton):** There is the Government School of Design, where we believe Model Drawing is taught. **SCRIBO** (Liverpool): We cannot say exactly when the Latin Dictionary will be ready; but we think that it will be more complete than Riddle's. **T. TAYLOR** (Meltham) seeks a solution of the following problem:—

Ten partners bought the hay a field would grow
Next year, upon the plan described below,
For forty pounds; the meadow now contains
Just sixty acres, or six hundred chains.
A pays a certain sum, and B exceeds
This payment, by a crown; then C must needs
A crown pay more than B; the same excess
Continues through them all; nor more nor less.
Three-sided is the meadow; and the base
In length no less than fifty chains displays;
One side is forty, the other thirty chains;
To calculate, now, who will take the pains,
According to the money each pays in,
What share belongs to each? You must begin
At the acute point, A's share to find;
B's next; then C's; the order, keep in mind;
Then find the perpendicular to the base,
Which must be drawn and where; you shall have praise,
If you can thus divide their shares in chains,
Along the base; and thus remove the stains
Of ignorance, from some who read the page
Of our P. E., the wonder of the age.

J. LUSH (Ludgate): "Egypt, its Edifices and its People," form a series of illustrated articles in the "Working Man's Friend," vol. II., Nos. from 27 to 32 inclusive; these numbers may still be had separate, or the volume which contains them. **KESSE D. BRASS:** Many thanks. **R. G. FRANKLIN** (Paisley): In a piece of land 36 yards long and 2 yards broad, plainly 2 times 26, or 52 yards square. The form of Dr. and Cr. is correct. **A. B. (Glasgow):** must begin the Phonetic Short-hand at the beginning, and not in the middle; many students are delighted with it, and are teaching themselves. **LEXAY T. W.** (Cambridge): *Charade* is a French word, and it means a sort of enigma or puzzle, which consists in decomposing a word into its syllables or letters, and giving each such a meaning that, by the help of all of them, the whole word may be found. **S. H. A.:** We are quite willing to let him have all his own way. **J. REED** (Brixton): Some trades have a mode of writing and advertising peculiar to them.

T. JONES (Porthell): Right. **O. L. HADFIELD** (Bolton) and **J. WARR** (Glasgow): Received. **R. F. (Accrington):** must ask the editor of the P. E. the difference between sanctification and justification. We do not think that a writing master can teach writing, unless he can write properly himself; for it is not exactly the case supposed by Dr. Johnson, when he said:—

"Who drives fat oxen, must himself be fat."

A CONSTANT SUBSCRIBER, who wished to know how to find per centage and averages, has at last corresponded to give some idea of what he means. In 573 cases, suppose of 60 clerks, 232 cases were called, and 1530 cases died; to find how much each of these sets of cases is per cent, or per hundred, use the following statements in Proportion:—

$$\begin{aligned} 1. & 874 : 232 :: 100 : x \\ 2. & 874 : 1530 :: 100 : y \end{aligned}$$

Here, working out the first statement gives $x = 26.67$, or nearly 27 per cent; and working out the second statement gives $y = 17.5$, or nearly 18 per cent. In the same way may any other per centage be found. The actual figures are obtained by successively annexing cyphers to the remainder, and continuing the process of division. To find the average of any two numbers, add them together and divide by 2; of any three, add them and divide by 3; and so on, whatever be their number. **H. H. (Snaith)** wishes information as to where and how a schoolmaster can obtain a certificate of merit; will some kind correspondent inform him?

ERRATUM.

Page 49, vol. III., col. 2, line 5 of note, for *bx—xx* read *bx—cx*.

LITERARY NOTICES.

CASSILL'S FRENCH DICTIONARY, embracing a greater number of Scientific, Mythological, Geographical, and Historical Names than is to be found in any other Dictionary published in this country, is now in the course of issue, in Weekly Numbers. The price of the work complete will be Eight Shillings and Sixpence, or twenty-six weekly Numbers, price Three-pence, of thirty-two pages, or sixty-four columns, demy 8vo. Covers for binding the volume, when completed, will be issued at 9d. The French department carefully edited by Professor De Lolme, and the English department by Professor Wallace and H. Bridgeman, Esq. The Dictionaries will also be published in Monthly Parts, One Shilling each. Each Part will contain one hundred and twenty-eight pages. Though these Dictionaries are thus published in periodical portions, to suit the convenience of a majority of purchasers, it will be found that the entire volume will cost no more than if it were purchased at once. Part I., price 1s., is now ready.

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Printed and Published by JOHN CASSILL, La Belle Sauvage-yard, Ludgate-hill, London.—June 11, 1852.

LESSONS IN DRAWING.—No. XIII.
ON TREES AND THEIR APPENDAGES.

(Continued from page 139.)

In this lesson we proceed to lay before our students in drawing, the method of making proper representations of the different parts of the fir-tree. Of this kind of tree, there are several species, known in botany by the general name of *Pinus* or the Pine; and in figs. 105 and 106, are given two examples of the trunks of such trees, the former belonging to the *Pinus Sylvestris*, or Scotch Fir, and the other to the *Pinus Abies*, or Spruce Fir. By comparing these with the figures of the trunk of the oak, page 89, and of the lime, fig. 102, the student will recognise at once the distinctive character of the trunk of the fir-tree, which is not only longer than the trunk of the other trees, but of a regularly cylindrical form; he will also observe the scaly marking of the bark, and the small fissures and clefts on its surface. Too much labour need not be directed to these points in the drawing; but these distinct and peculiar characteristics should be clearly marked. In order to assist the student more decidedly in the tracing out of the peculiar foliage of this tree, we have given two elementary sketches, which are to precede the full drawing. In imitating fig. 107, which is but a rude sketch of a large stem, surrounded by foliage, of the *Pinus Sylvestris*, the student should begin by attending to the principal shadows on this stem, and marking in the stronger parts in the masses of the leaves, leaving out of consideration, at first, the smaller branches, and looking

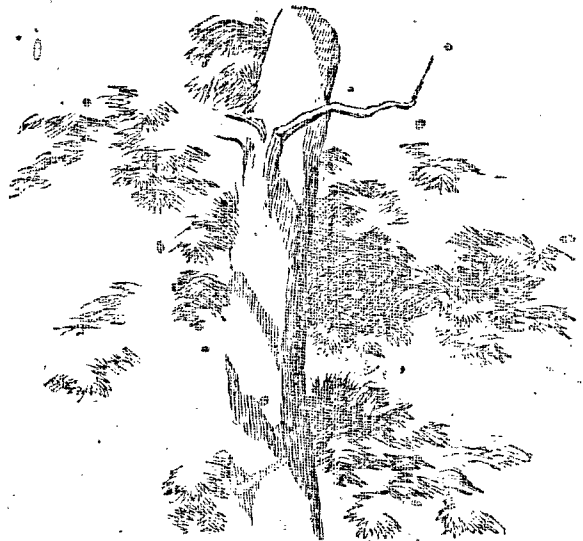


Fig. 107.—Sketch of a Stem of the *Pinus Sylvestris*.

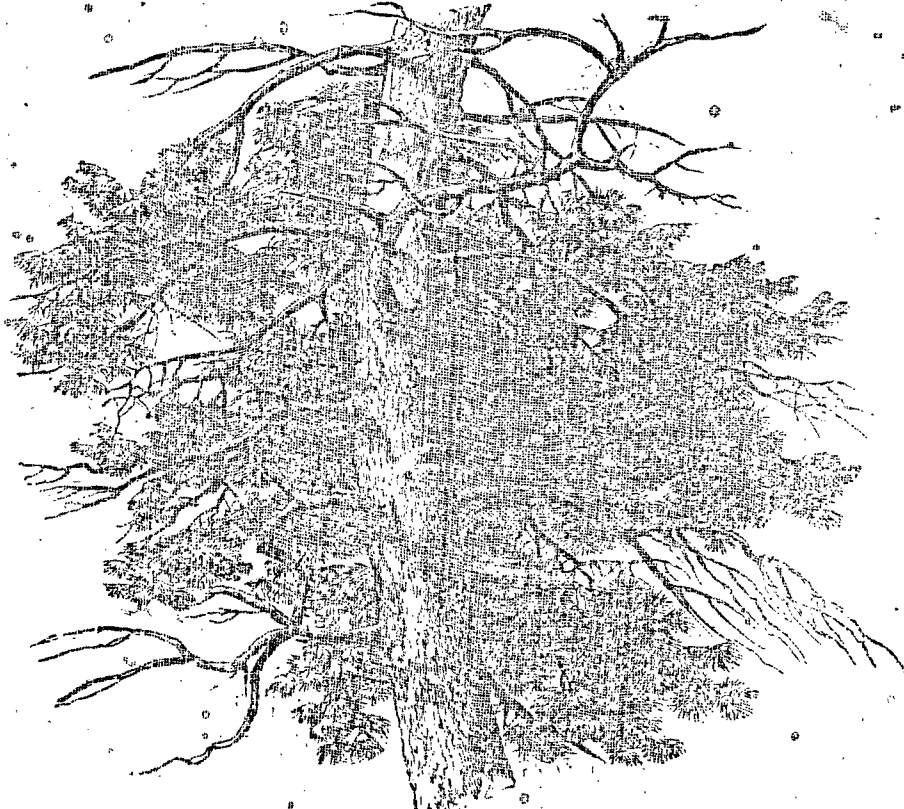


Fig. 109.—Stem and Foliage of the *Pinus Sylvestris*.

upon these as details to be filled up or supplied at the next stage of the drawing. It is particularly necessary to observe this rule in copying trees from nature; for too much attention to details in the early stage of a draught from the real tree, is almost certain to lead to a confused and discouraging result. The method here recommended by us, may indeed be said to be founded on the operations of the mind in the act of observation. For no one can see every part of an object at once; and still less can any one see the whole of an object at first. The general masses of trees are all that can be seen or noticed by the artist in his first attempts; then, as his attention is directed for a longer time to the object, so its different parts are better observed, and the details more distinctly noticed and placed in the drawing to render it more complete.

Having thus made a sketch of the larger masses belonging to the tree, the student should now proceed to insert the smaller details, as indicated in the second sketch of the stem and branches of the *Pinus Sylvestris*, in fig. 108. The ramification being at this stage carefully imitated and worked into the drawing, the student may now proceed to the third and last stage. This stage is seen in fig. 109, which is a complete section of the stem and branches of the same tree; here, the gnarled and irregularly-clothed appearance of the smaller branches, and the peculiar nature of the foliage, are very distinctly shown. In completing this drawing, the student should now extend the branches to their full limits, and insert the small twigs, by making sharp and light touches. He should then complete the foliage, put in the markings or tracings that indicate the cracks or roughness of the stem, and add force to the shadows where it appears to be necessary. We have already remarked that each species of tree requires a peculiar touch, in order to fully express the character of its foliage; and you will see that in the preceding sketches and example, a sharp angular touch is presented throughout; this foliage is somewhat fan-shaped, although not formally so, and is generally

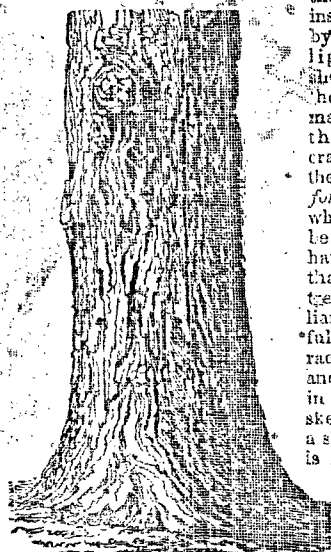


Fig. 105.—Trunk of the *Pinus Sylvestris*.

described as of the zig-zag form. This kind of touch is appropriate to the foliage of the fir-tree; but it is wholly unsuitable to that of the oak or the lime-tree. Enlarged examples of the leaves and cones of the fir, are shown in figs. 110, 111, 112, and 113. In your first attempt to execute the drawing, which we have so fully explained in this lesson, you may not possibly succeed to your wish; but persevere, and success is sure.

Most beginners commit an error on the side of excessive formality in the touch; this, of course, is to be especially avoided; but practice alone will give the skill which is necessary to enable you to hit the true medium between the drawing which is too loose and careless, and that which is too stiff and formal. It will be advisable to try the proper touch on the edge of your paper, or on a separate piece; and if you find that you succeed better in drawing to one scale or size than to another, make your copy according to that scale; but take care that the scale you select is not too small or insignificant; for petty drawing is always to be shunned. By petty drawing, of course, we mean that which exhibits an overdone neatness of subordinate parts, accompanied by poverty in the pro-

portions, or in the masses of light and shade; and not that only which consists in mere smallness of scale or size. A large surface may be covered with a drawing executed in a petty style; while a small drawing may exhibit a largeness of style, greatly to be commended. We therefore recommend to all our students to make a proper study of the different parts of a drawing, so as to make one grand whole. A celebrated artist was in the habit of advising his pupils to "study little bits," as the surest way of attaining a mastery over large ones. The drawings we have just laid before our students, if well studied and thoroughly mastered, will enable them to draw others on a scale at least ten times larger than the present.

The method of treating masses of foliage, above exemplified, does not exclude the utility of making a slight marking of the boundaries of the sketch. These may be dotted in by a few points, as formerly directed; and it is generally advisable to do so; but not marking them so strongly as to interfere with the subsequent pencilling of the sketch. We have omitted such boundary-marks in the preceding examples, for the purpose of showing more clearly the principle of the procedure

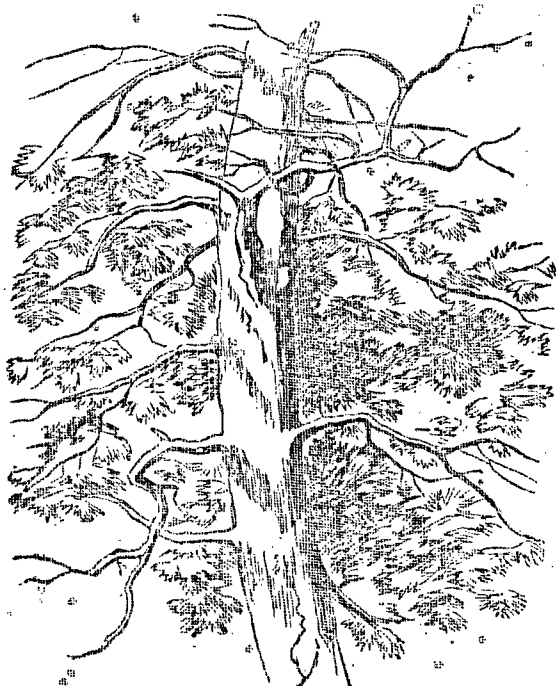


Fig. 108.—Sketch of the Stem and Branches of the *Pinus Sylvestris*.

we have recommended. Those of our readers or students who may happen to reside in places where trees may be readily studied from nature, need not, of course, trust to these sketches alone. The principles we have explained manifestly correspond to the appearances of nature; and, taking these appearances as their guide, students so happily situated may go to the fountain-head at once, and study as nature directs.

Some account of the different species of the genus *pine*, otherwise called *conifers*, that is, *cone-bearing*, may now be added for the sake of information and illustration. In Europe and North America these trees constitute one of the greatest families found in the forests. The oak, the beech, the birch, and the Scotch fir live in society, and form vast forests, almost to the exclusion of other trees; thus verifying the words of the poet:—

"In grouping beauty rise the loftiest trees,
Secure in friendship from the blighting breeze."

The *Pinus Sylvestris*, or Scotch fir, alone constitutes noble forests among the mountainous districts of North Britain,

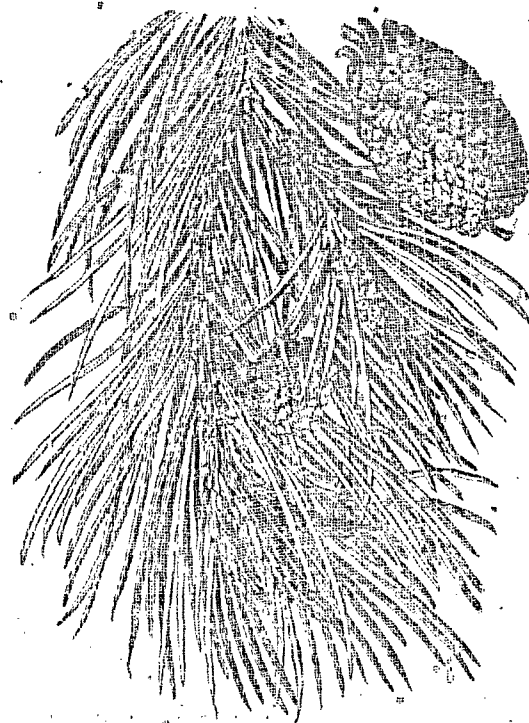


Fig. 110.—Leaves and Cone of the *Pinus Sylvestris*.

filling the valleys, and rising on the hills, even at the height of 2,500 feet above sea-level, among the northern Grampians, especially in the districts of Braemar, Glenmore, and Rothiemurens. This species often exhibits individual specimens of immense size and beauty. From a tree that was felled in Glenmore, a plank was cut five and a-half feet broad, free from every kind of imperfection. At half the preceding height above sea-level, the Scotch fir, in its own country, becomes stunted and of little value. Mr. Loudon mentions some specimens whose size was no doubt due to their being planted in more favourable situations; but the diameter of their trunks did not exceed that of the tree above mentioned, although they rose to the altitude of sixty, seventy-five, eighty, and 100 feet. The wood of this tree constitutes the red or yellow deal, which is reckoned the most durable of all the fir-tribe. The most common species of tree which covers the northern part of Russia with immense tracts of forest, is the pine, where it grows to an enormous height and bulk; but the *Pinus Sylvestris* is by far the most abundant; and, retaining its foliage during winter, it gives shelter to man and beast, and greatly softens the dreariness of these bleak regions. The greater the intensity of the cold, the firmer and more dense does its timber become. This tree furnishes the peasantry there with materials for constructing their cottages, boats, fences for enclosure, and with fuel. From the ashes of this tree are principally obtained the potashes of Russia; and by a very rude method of distillation, the peasantry obtain an abundant supply of turpentine from its roots. The trunk of the tree which grows vertically, or perpendicular to the ground, and is covered with a thick, rough bark, is shown in fig. 105. Its head is conical or rounded, and is narrow in proportion to its height; a section of it is seen in fig. 109. The needle-like form of the small leaves of this tree is exhibited on a large scale in fig. 110, which shows a small branch with the cone and bloom attached to it.

The *Pinus Abies*, or Spruce-Fir, of which there are two kinds, the white fir, and the red fir, is found in the North of Europe and Asia. These trees generally grow best at a height of from 300 feet to 500 feet above sea-level, and require about

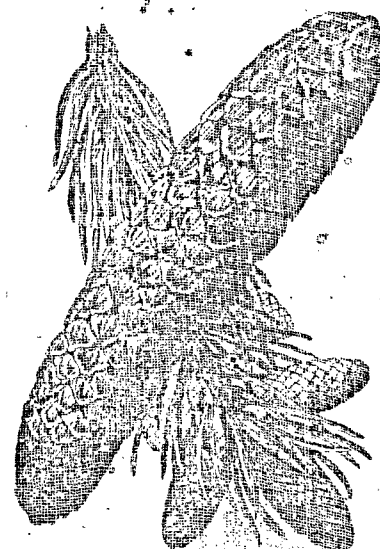


Fig. 111.—Leaves and Cone of the *Pinus Abies*.



Fig. 106.—Trunk of the *Pinus Abies*.

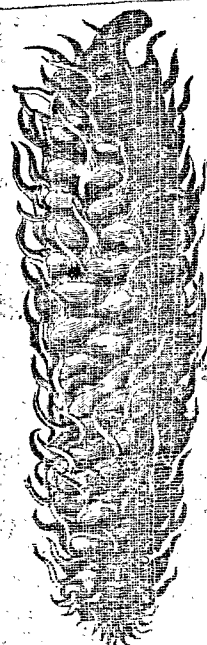


Fig. 112.—Cone of the White Fir.

a century to attain their full size. Their length varies from about 100 to 150 feet above the ground, and their average age, before final decay, is about 400 years. The diameter of their trunk does not exceed that of the Scotch fir. Their cones are about six inches long, and of a cylindrical form, rounded at the ends; that of the white fir is closely covered with flat, prickly scales, as seen in figs. 112 and 111. The red fir abounds in the north of Germany, growing singly in mountainous districts, as well as in large forests. It has a conical shape at top, and its leaves are of a dark-green colour, four-cornered, and prickly. Its bark is of a reddish-brown colour; and in old trees, it becomes cracked and scaly, as shown in fig. 106 which exhibits the trunk, *a. already mentioned. In fig. 113 is shown the leaves of the white fir, which are broader and thicker than the other species, and are arranged round the spikes in single and double rows. Forests of spruce-fir cover whole ranges of mountains of diminished altitude in Lapland, and the sides of other ranges of a higher elevation.

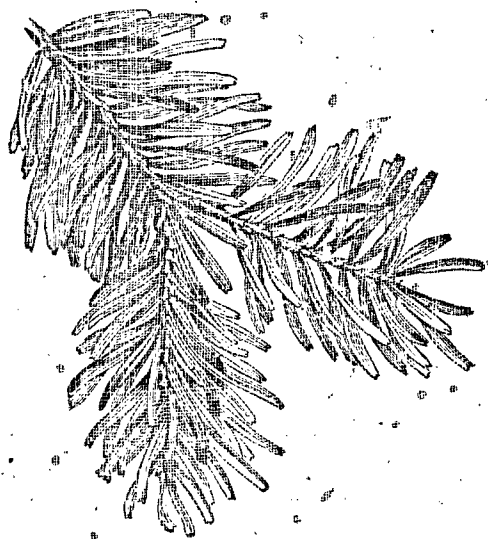


Fig. 113.—Leaves of the White Fir.

LESSONS IN BOOKKEEPING.—No. I.

INTRODUCTION.

BOOKKEEPING, as the word implies by its compound origin, signifies the art of keeping a set of merchant's books or a set of tradesman's books in such a manner as to show, at any time that may be required, the debts owing to the merchant or the tradesman; the debts which either owes; the property which either possesses; and the amount of the gains or losses which either has made or experienced in business. More concisely, Commercial Bookkeeping may be defined as the art of arranging the entries of mercantile transactions, in books adapted for the purpose, in such a systematic and orderly way, that a merchant may, at any period of the year, ascertain the actual worth of a trading concern.

A correct statement, in business form, of any mercantile transaction written in the proper book, or transferred from one book to another, is called an *Entry*, because it is then said to be inserted or *Entered*.

The book into which the entries of all the transactions of any trading concern are ultimately collected in a proper but abridged form, for the purpose of ascertaining its actual worth at any period of the year, is called the *Ledger*, from the verb *lego* in Greek or Latin, (German, *legen*), to *lay, gather, or collect*.

When the entries of transactions in business are made only once in the Ledger, the books are said to be kept by *Single Entry*; when they are made *twice* in the Ledger, the books are said to be kept by *Double Entry*. Let us illustrate this by an example: suppose a merchant, on the 12th of January, sells goods of the value of £50, to a tradesman whose name is Thomas Simpson; there would be, in the Ledger kept by *Single Entry*, only one entry of this transaction, to the following effect:—

THOMAS SIMPSON Dr.

Jan. 12. To Goods..... £50 0 0

This Entry, however, would have previously appeared in a book called the Journal or Day-book; and it is brought into the Ledger as its final resting-place. Now, in the Ledger kept by *Double Entry*, the same entry would be made *twice* in the Ledger, but in very different forms. It would appear *first* in the Ledger, *exactly as it does in the preceding instance*; but it

would appear a *SECOND TIME* in the Ledger in the following form:—

Goods Account Cr.

Jan. 12. By Thomas Simpson..... £50 0 0

Here, we must inform some of our students, that *Dr.* means *Debtor*, and *Cr.* means *Creditor*. The reason why these words are used in the preceding entries is plain: when a tradesman buys goods on *Credit*, he becomes a *Debtor* to the merchant of whom he bought them; and when a merchant sells goods on *Credit*, he becomes a *Creditor* by the tradesman to whom he sold them.

In the second entry of the preceding transaction in the Ledger, which is peculiar to the system of *Double Entry*, there is an elegant fiction adopted, viz., that of making the *goods the Creditor* instead of the merchant; thus, a merchant's name is never entered in his own books, either as *Debtor* or *Creditor*. For, when he buys goods on credit, he makes the *Goods Account* appear as the *Debtor* to the person of whom he buys them; and he makes the person of whom he buys them appear as the *Creditor* by the *Goods Account*. In like manner, when he sells goods on credit, he makes the person to whom he sells them appear as the *Debtor* to the *Goods Account*; and he makes the *Goods Account* appear as the *Creditor* by the person to whom he sells them.

In keeping books by *Single Entry*, this fiction cannot be adopted; for the Ledger, in this system, contains only *Personal Accounts*, that is, the accounts in the names of the persons with whom the merchant transacts business. In the books of many persons who use *Single Entry*, such as tradesmen, shopkeepers, &c., the names of those persons only who are *Debtors* in the business are entered in the Ledger, and the names of those who are *Creditors* are left out, on the supposition that there is no need to keep the *Creditors'* accounts, seeing that they will be sure to take care of their own affairs. But this system cannot be called *Bookkeeping*, according to our definition, because it is utterly impossible, from the state of the Ledger, to arrive at a knowledge of the tradesman's affairs. Such a system, at best, can only be called *Semi-bookkeeping*. In the case of those who employ *Single Entry*, and who keep *Personal Accounts* both of *Debtors* and *Creditors*, there is of course a better view of the actual state of business kept in the Ledger; but still there is no proper record kept of many transactions connected with the

purchase and sale of goods, such as the gain or loss made by these transactions; their settlement by cash or bills; the discount or interest allowed on some transactions; the charges and expenses of the business; and various other items of very considerable importance in the management of a tradesman's affairs. While treating of this difference between *Single* and *Double Entry*, we cannot but cite the opinion of a very good authority, George Jackson, Accountant:—"The system of bookkeeping by *Double Entry* is one of consummate beauty; every debit amount having its corresponding credit; and every *Debit* account exhibiting either profit, loss, or stock in hand. *Personal Accounts*; these are *Debited* (made *Debtor*) to goods, cash, charges, commission, and for everything we give out; and *Credited* for what we receive in goods, cash, charges, &c. *Single Entry* (according to the common method of keeping books by *Single Entry*) has effected the ruin of thousands; simply from the neglect of duly collecting the various charges that appear upon the face of the *Personal Accounts*. As canorous sorcs corrode and ultimately destroy the vitals, so do these imperceptibly eat up the profit of a man's business. By *Single Entry*, your 'accounts current' are perhaps examined into most scrupulously; and upon being found correct, 'Charges' and 'Interest' are suffered to 'run off,' unnoticed in the Ledger, but are never collected together into one account; and whether your charges upon *Personal Accounts* amount to £50 or £500 per annum, seems to be a matter of total indifference; all you seek, in order to ascertain the state of your affairs, are your balances, *Dr.* and *Cr.*, with the stock of goods and cash on hand; and, should you have omitted any amount in the posting [carrying the entries from the Journal or Day-book into the Ledger], you possess not the slightest means of discovering such an omission, unless you happen to recollect the transaction, or that you fall into the hands of an HONEST MAN, who informs you of it."

In every mercantile house of business there ought to be at least four books kept for the purpose of properly recording the entries of the mercantile transactions of the concern; these are the Day-book, the Cash-book, the Bill-book, and the Ledger. If the books be kept on the principles of *Single Entry*, these four books are, in general, sufficient to effect the common purposes of Bookkeeping; but with these only, the merchant can seldom or ever ascertain the state of his affairs without constant reference to the value and quantity of goods actually in his possession. In such cases, if the business be very extensive, it is necessary to keep a Stock or Warehouse-book, an Invoice-book, a Sales-book, and various other books, which take their names from the nature of the business pursued, or from the particular kind of goods of which it is necessary to keep an account. If the books be kept on the principles of *Double Entry*, then an important book, not yet mentioned, becomes an indispensable requisite; this book is called the Journal, and this name, as its origin implies (being derived from the French, *jour*, a day), has exactly the same meaning as *Day-book*. The use of a Journal, however, is very different from that of a Day-book, or, as it is sometimes called, a Waste-book. The Journal, in *Double Entry*, is the assistant and companion of the Ledger; into it are collected all the entries of the different transactions of the business, however numerous they may be; and in it they are methodically arranged for the purpose of being *posted* (entered) into the Ledger. The entries in the Journal are, of course, collected from all the different books kept in the concern, commonly called the Subsidiary Books, whether they be few or many, in order that, by this means, every transaction may appear and have its proper place in the Ledger. According to the old Italian method of bookkeeping, so called because it was first practised in the mercantile states of Italy, every transaction in business, whether of purchase or sales, whether of cash or bills, whether of interest or discount, whether of barter or exchange, whether of gain or loss,—all was entered first in the *Waste-book*, as a sort of original Memorandum-book, without order or system; from this book, the entries were then taken, and classified and arranged in the Journal from time to time, as the bookkeeper could find opportunity; the same entries were again taken from the Journal and posted into the Ledger, that is, they were then finally arranged and collected under the different heads of *Dr.* and *Cr.* to which they properly belonged, so that all the

* Need be another name for fictitious or neglected accounts; such as Goods Account, Cash Account, &c.

transactions with each customer, tradesman, merchant, or other individual, were distinctly and clearly seen at one view.

It is to the *Italians*, therefore, that we originally owe the system of keeping books by *Double Entry*; and it is to them that we owe the elegant fiction of personifying Cash, Stock, Goods, Bills, Merchandise, Adventures, Profit and Loss, &c., so as to give them "a local habitation and a name" in the Ledger; thus making them a counterpart to the real persons with whom a merchant transacts business; and thus dividing his Assets and Liabilities under distinct heads, so that a proper account can be kept of each without confusion, and his real or actual worth periodically ascertained. The Italian method looks very simple and beautiful at first sight; and it would seem to be preferable to our multifarious modern improvements in Bookkeeping, by which separate books and accounts are multiplied, and the labour of keeping them apparently increased; but this is not the case, it being found that subdivision and distinct separation in books and accounts lead to accuracy, punctuality, and readiness; and afford the best means of avoiding error, of checking errors when they occur, and of not only ascertaining at once the particular position of any department of a merchant's business, but of speedily ascertaining the condition of the whole concern. The modern system of Bookkeeping by *Double Entry*, therefore, as it now exists in its present state of perfection in the first mercantile houses, is but an exemplification of the admirable principle of the *division of labour*; a principle which has raised the arts and manufactures of this country to their present pitch of excellence and grandeur.

With respect to the books called *Subsidiary* (from the Latin, *subsidiū*, help or assistance), they of course form the subsidies or basis upon which the superstructure of the Ledger is raised; and many of their names sufficiently indicate their nature and the purposes for which they are employed; thus we need scarcely tell our readers, that the *Cash-book* is used for the entries of all moneys received or paid, whether it be in coin of the realm, in notes of the Bank of England, or of any other bank or in checks upon a merchant's banker; and that the *Bill-book* is used for the entries of the particulars of all bills drawn or accepted by the merchant himself, or transferred to him or by him, in lieu of cash to be received or paid. The names of *Day-book* and *Journal*, however, instead of indicating the nature or use of these books, merely indicate the time of making the transactions; but these names which, as we have seen from their origin, were once synonymous, have in respect of modern improvements in Bookkeeping lost their original meaning, it is plain that other names more expressive of the real use of these books must necessarily fall to be adopted. The name *Goods-book* is a more appropriate term than that of *Day-book*, which is still applied by some to the book in which the daily record of purchases and sales of goods is entered; but it is not sufficiently general for those who enter accounts of other transactions, exclusive of those belonging to cash and bills. If a merchant wishes to keep separate books for his purchases and sales, he has only to keep two books, which will indicate by their titles the object thus intended; these titles may either be *Purchase-book* and *Sales-book*, or *Goods-bought-book* and *Goods-sold-book*. As goods when bought by and sent to a merchant are always, or ought to be, accompanied with an invoice or account stating their quantity and price, the *Goods-bought-book* might be called the *Invoice-book*, and the entries in this book might contain the exact particulars of quantity and price, made out in a form prepared for journalizing or posting, without being a mere copy of the invoices. The invoices themselves are generally preserved, as important documents, by being pasted into a book made of coloured paper. The *Sales-book*, or as it might be called the *Outward Invoice-book*, might in like manner contain the exact particulars of quantity and price relating to goods sold, and prepared for journalizing or posting, without being a mere copy of the invoices sent out with them; for, as a merchant receives invoices with goods bought, so he must give invoices with goods sold. The former book might then be called the *Inward Invoice-book*, to distinguish it from the latter.

As to the Journal kept by modern *Double Entry*, it has no longer any right to this title; it is used, as has been observed, as a companion and assistant to the Ledger, and therefore might be appropriately denominated the *Sub-Ledger*; but if a name were given to it which indicated the period that elapsed

Before making it up from the Subsidiary books, then it might be called Week-book, Fortnight-book or Month-book, and being as time was found or appointed to make it up; but Day-book or Journal, in their original sense, it could not and ought not to be called. The verb to *journalize*, that is, to transfer entries from the Journal into the Ledger, would require to be changed from the Journal into the Ledger, when the term *posting*, when accordingly; unless we chose to retain the term *posting*, when the application of *sub* to it would be necessary. For, as *posting* means transferring entries from the Journal into the Ledger, *sub-posting* would mean transferring entries from the subsidiary books into the Journal of Sub-Ledger.

The Ledger, as before observed, is by far the most important book in a merchant's business, or indeed in any tradesman's business whatever. It contains, or ought to contain, an account of every transaction affecting business in any way whatever; it ought to be so lucidly and clearly kept, that if brought into a court of law by any unforeseen accident, the judge, the Commissioners of bankruptcy, or any other legal authority, would pronounce it a pattern for imitation, and compliment the owner of it on the occasion. It arranges every transaction in business under its proper head or account to which it belongs; and it ought to be so kept that from this book alone, at any given period, the state of accounts between a merchant and any one with whom he transacts business can be ascertained. Finally, it ought to be so kept that at a given period, and with very little trouble, the state of a merchant's general affairs may be determined, and the important fact ascertained whether he is gaining or losing by his business. If a Ledger does not do this, it does nothing; at least, nothing to the purpose; and the bookkeeper, whoever he is, may be sent about his business. To conclude, on this part of the subject, we repeat, more emphatically than before, that the Journal, as now used in Bookkeeping by Double Entry, contains all the transactions of a merchant's business arranged in the order of time only, but collectively, and for a given period; hence its proper name will depend on that period; or else, it may very appropriately be called the *Sub-Ledger* or *Time-Ledger*; whereas, the Ledger, *par excellence* so called, might be called the *Public-Ledger*, as being open to inspection by proper authorities, at any given period.

LESSONS IN ENGLISH.—No. LII.

By JOHN R. BEARD, D. D.

Now observe how these degrees of comparison are indicated. Long the positive becomes long-*er* in the comparative, and long-*est* in the superlative. You thus see that the addition of *er* to the positive forms the comparative; and the addition of *est* to the positive forms the superlative.

While, however, we say long, longer, longest, we do not say eventful, eventfuler, eventfulist; but instead, we say eventful, more eventful, most eventful. Accordingly, we have a second way of describing the degrees of comparison, namely, by prefixing to the positive the adverbs *more* and *most*. Respecting the employment of these two methods the following rules may be given.

Monosyllables take at the end *er* to form the comparative, and *est*, to form the superlative; or, when the word ends in a vowel and *ie*, to form the comparative and superlative; e. g.

Positive.	Comparative.	Superlative.
Wise	wiser	wisest
Great	greater	greatest
Rich	richer	richest

Monosyllables and dissyllables ending in *y* change the *y* into *i* before they are inflected, e. g.

Positive.	Comparative.	Superlative.
Sly	slier	sliest
Lovely	lovelier	loveliest
Happy	happier	happiest

Dissyllables which terminate in *le* or *re*, take in the comparative *er*, and in the superlative *est*; e. g.

Positive.	Comparative.	Superlative.
Able	abler	ablest
Noble	nobler	noblest
Sincere	sincerer	sincerest

Dissyllables of which the accent is on the last syllable, may have *er* and *est*; e. g.

Positive.	Comparative.	Superlative.
Discreet	discreeter	discreetest
Gentle	gentleer	gentleest
Robust	robuster	robustest

All these classes of words may, however, be compared by *more* and *most*, and with the last class the use of *more* and *most* seems preferable; e. g.

Positive.	Comparative.	Superlative.
Rich	more rich	most rich
Sly	more sly	most sly
Able	more able	most able
Discreet	more discreet	most discreet

Generally in words of more than one syllable, the employment of *more* and *most* is correct, if not obligatory; e. g.

Positive.	Comparative.	Superlative.
Careful	more careful	most careful
Candid	more candid	most candid
Learned	more learned	most learned
Careless	more careless	most careless
Charitable	more charitable	most charitable

Adjectives formed by the suffix *some* except handsome (handsomer, handsomest) require *more* and *most*; e. g.

Positive.	Comparative.	Superlative.
Fulsome	more fulsome	most fulsome
Blithesome	more blithesome	most blithesome

Exclusively by *more* and *most*, are formed the adjectives which have the ensuing terminations; e. g.

Positive.	Comparative.	Superlative.
Sign as certain	more certain	most certain
As mortal	more mortal	most mortal
As distant	more distant	most distant
As wretched	more wretched	most wretched
As recent	more recent	most recent
As blissful	more blissful	most blissful

If a word ends with a consonant preceded by a short vowel, the consonant is doubled before *er* and *est*; e. g.

Positive.	Comparative.	Superlative.
Big	bigger	biggest
Fat	fatter	fattest
Fit	fitter	fittest
Red	redder	reddest
Thin	thinner	thinnest

The following adjectives are usually given as irregular: namely,

Positive.	Comparative.	Superlative.
Bad	worse	worst
Far	farther	farthest
Good	better	best
Little	less or lesser	least
Much	more	most

Here some explanations are necessary. Worse properly is not the comparative of *bad*, but of an adjective in the positive condition which has long ceased to exist. So *bad* itself has no comparative and no superlative in the present state of the language. Worst is nearly a regular form from *worse*. The same remarks may be applied to *good*, *better*, *best*. The full form in each case is made up by the aid of two distinct roots. *Better* is the comparative of the Anglo-Saxon *bet*, as *worse*, *worst* are from the Anglo-Saxon *ysra*. These are instances not so much of irregular as defective comparison. *Little*, *least*, *less* seems to be abbreviated forms of *littil*, *littilist*; *littilist* became *least* and *least* gave rise to *less*. *Lesser*, a corruption of *less*, seems to have arisen from the general form of *er* as a comparative sign, combined with the disinclination to a monosyllabic adjective. *Most* is a contracted form of the regular superlative from *more*, as *more*, *morest*, *most*; and *more* itself is a regular though shortened form from *much*, in the Anglo-Saxon, *maeg*. In *far*, *farther*, *farthest* (Anglo-Saxon *for*, *fyrrer*, *fyrrrest*) the *th*, as Latham remarks, seems euphonic, that is, inserted for the sake of ease in pronunciation. *Far* is now more common as an adverb than as an adjective.

The word *most* becomes a terminational suffix to denote the superlative degree in these words, namely *foremost*, *hindmost*, *innermost*, *lowermost*, *outermost*, *undermost*, *uppermost*. Here we have compound adjectives in the superlative, consisting, for instance, of the

superlative *most*, and the preposition *under*. Compare *under* with *outer* and *upper*. *Outer* is an adjective from *out*, as

"He brought me into the outer court." (Ezek. xlvi. 21.)

Outer (whence *utter*) has its counterpart in *inner*, thus *out*, *outer* (*utter*), *outermost* (*utmost*), *in*, *inner*, *innermost*. What then is the origin of the preposition *under*? May it not be *on* and *neither*, that is *on the lower side*; *on neither*—*under*; whence the superlative *undermost*. So *upper* is a comparative from the old positive *up*; *up*, *upper* (as in "upper leather" in a shoe compared with the sole or under-leather) *upmost*.

Most is often used without any direct reference to comparison, in order to denote a very high degree of the quality, e. g.

"Ere yet the salt of most unrighteous tears
Had left the flaming in her galled eyes."—Shakespeare.

The inflected superlative is used in a similar sense,

"Unbidden guests are often welcomest."—Shakespeare.

Adjectives compounded with a noun denoting their signification, do not admit of comparison, e. g. *blood-warm*, *cock-black*, *milk-white*, *pea-green*, *sky-blue*.

Nor do those admit of comparison which signify the stuff or substance of which any thing is made, as *golden*, *silver*, *brass*; nor those which denote the country to which persons belong, e. g. *British*, *Irish*, *French*.

Equally without comparison are all adjectives which indicate a fixed or definite idea, quality or quantity, as *square*, *triangular*, *round*, *circular*, *straight*, *upright*, *perpendicular*, *daily*, *annual*, *biennial*.

Moreover, adjectives which denote the highest state or condition of a quality or thing are without comparison. Thus, you cannot compare *boundless*; for if an object is boundless, it cannot be more or less boundless. Accordingly all words in *less* are incapable of comparison. So are such adjectives as *extreme*, *full*, *immense*, *infinite*, *perfect*, *principal*, *right*, *wrong*, *supreme*, *preferable*, *universal*. Sometimes, however, a latitude (not to be imitated) is taken in some of these words. Thus, "more perfect" is said when "less imperfect" is meant, or "more nearly approaching perfection." Equally incorrect is "more certain"; "less uncertain" is what is intended. Hooker has "unapest" and Locke "more uncorrupted"—both, in strictness of speech, are wrong; for the prefix *un* is a negation, that is, it denies the quality, of course the whole quality, declared in the adjective. Yet Shakespeare says

"O good but most unwise patricians,"

and common usage follows his example. The truth is, that in adjectives compounded of a negative prefix, the thought of the derivation is lost, and in the use of them, a positive idea occupies the mind; thus, *unwise* is regarded as the same as *foolish*.

Poetic licences are not to be imitated, especially in prose. Thus Milton's celebrated lines:—

"And in the lowest deep, a lower deep
Still threatening to devour me, opens wide,"

contain a licence which imagination may justify, but which grammar cannot excuse.

NUMERAL ADJECTIVES.

One class of adjectives has connected with it the epithet "Numeral," because it contains the numbers. When we say "five persons," we obviously in *five* make use of an adjective, for the word *five* qualifies the word *persons*. Numeral adjectives are either cardinal or ordinal; the cardinal, one, two, three, four, &c. are those which form the series of our numbers, being called "cardinal," because they are the chief; thus, prudence, justice, temperance and fortitude are called the cardinal virtues; that is, is leading or most important, the principal virtues, as being those on the exercise of which the existence of others depends. The ordinal (Latin *ordo*, rank, order), such as *the first*, *the second*, *the tenth*, are those which denote the place in a series which the numbers severally hold.

Our numbers are formed on a decimal system. Thus we have a series from one to ten, another from ten to twenty, and so on until you arrive at ten times ten, that is a hundred. Again ten hundreds make a thousand. Of very few independent words, however, is the series made up. From one to ten we find ten independent words, but another independent word does not occur until you come to a hundred, nor another until you come to a thousand,

nor again another until you come to a million; for eleven signifies one over ten, twelve two over ten, in thirteen, fourteen, and fifteen, any one may see that we have merely compounds, severally of three and ten, four and ten, five and ten; so twenty is twice ten, thirty, thrice ten, &c.

In using the terms *twice*, *thrice*, I have used units out of a series which consists of what is called *Numeral Adverbs*. The numeral adverbs *once*, *twice*, *thrice*, denote the number of times a thing is to be taken; thus twice two (or two twos) make four. The list is very defective, for after *thrice* we say *four times*, *five times*, &c. as, *nine times nine* make eighty-one.

From the ordinal numbers *first*, *second*, *third*, &c. are formed by the addition of *ly*, so many adverbs, as *eighthly*, *ninthly*. Instead of these a periphrasis may be used, as in the first place, in the sixth place. These adverbs denote the sequence of topics or heads in a discourse or speech.

The ordinals stand either before or after their nouns. Thus we say "the third book," but speaking of a series of monarchs we place the adjective after the noun, e. g. *George the fourth*. We say the *first* of January, but we cannot, while our present queen is alive, speak of *Victoria the first*, because until there is a *Victoria the second*, we are not sure that any series has begun. With days of the month we say either *the twelfth* (12th) of May, or *May the twelfth*; the former is the more usual in ordinary affairs.

There is yet another series of numeral adjectives, the multipliers, as *single*, *double*, *treble*, *quadruple*, *quintuple*, *centuple*. These are immediately from the Latin. Another series of similar import are of Teutonic origin, namely, *twofold*, *threefold*, *fivefold*, &c.

The comparison hitherto made involving more than is implied in the positive may be called the comparison of superiority. But all comparison involves the idea of less as well as the idea of more. The comparison which involves the idea of less may be called the comparison of inferiority. For the comparison of inferiority there are no inflexional terminations; it is formed exclusively by *less* and *least*.

The Comparison of Inferiority.

Positive.	Comparative.	Superlative.
Rich	less rich	least rich
Sly	less sly	least sly
Able	less able	least able
Discreet	less discreet	least discreet
Careful	less careful	least careful
Big	less big	least big

These general rules are subject to modifications in the practice of good writers. For instance, the use of the inflexional comparison (*er*, *est*) or the comparison of prefix (*more*, *most*) is made in a measure dependent on the ear. We also occasionally meet with double comparatives and double superlatives;—but these are not to be imitated; examples:—

"The duke of Milan and his more braver daughter."—Shakespeare.

"Changed to a worse shape than canst not be."—Shakespeare.

"After the most straitest sect of our religion."—Paul.

Some adjectives in their nature do not admit of comparison. Such are those which end in *ish*, a termination like *some*, which denotes a portion, *ish* denoting a small portion; e. g. *It is cold*; yes, *it is coldish*; that is, *rather*, or *somewhat cold*.

EXERCISES FOR PARSING.

"Scepticism, which is commonly laid to the charge of intellectual philosophy, may, in the first place, be fairly said to have done its worst. Bishop Berkeley destroyed this world in one volume octavo; and nothing remained after his time, but mind; which experienced a similar fate from the hands of Mr. Hume in 1737;—so that, with all the tendency to destroy, there remains nothing left for destruction; but I would fain ask if there be any one from the days of Protagoras the Abderite to this present hour, who was even for a single instant a convert to three subtle and ingenious follies? Is there any one out of Ballan who doubts of the existence of matter? who doubts of his own personal identity? or of his consciousness? or of the general credibility of memory? Men tell on such subjects from ostentation, or because such wretched speculations are an agreeable exercise to them; but they are perpetually recalled by the necessary business and the inevitable feelings of life to sound and sober opinions upon these subjects."—Sydney Smith.

LESSONS IN LATIN.—No. LVII.

By JOHN R. BEARD, D.D.

CONJUNCTIONS AND VERBS.

CONJUNCTIONS are words which unite other words together. This is the meaning of the term conjunction (con and jungo), if we are guided by its etymology. A wider signification is required by the service which conjunctions render. Led by their application, we may define conjunctions as words which mark the relations in which sentences and clauses of sentences (or abbreviated sentences) stand to each other. How numerous those relations are may be learnt from these

CLASSES OF CONJUNCTIONS.

1. *Copulative*, or such as are used in combinations; et, and, que, and; que is called an enclitic, that is, it is subjoined to the word it qualifies, and throws its accent on the word; e. g., hominum deorumque, of men and gods; etiam, also; quoque (enclitic) also; neque, nec, neither, and not; et—et, both; neque—neque, neither—nor.
2. *Adversative*, or such as denote opposition, at, but (ast, poetical); tamen, yet; verum, truly; vero, in reality; attamen (at and tamen), verumtamen, but yet; enimvero, verum enimvero, but indeed; sed, but; autem, but; atqui, but yet.
3. *Disjunctive*, or such as denote separation; aut, vel, ve (enclitic, or); aut—aut, either, or; vel—vel, ve—ve, either—or.
4. *Causal*, or such as assign a reason; nam, namque, enim, etenim (et and enim), for; quoniam (from qui), since; quod (from qui), because; quoniam (quum and jam), since; quandoquidem, seeing that; tanquam (tam and quam), as, as if.
5. *Conclusive*, or such as indicate a conclusion or inference; ideo (id and eo), idecirco (id and circo), propterea (propter and ea), on that account; ergo (Greek, ergon, work, deed), igitur, therefore; proinde, accordingly; quocirca, quamobrem, wherefore.
6. *Local*, or such as indicate place; ubi, where; unde, whence; quo, whither; qua, by what road; quatenus, how far.
7. *Temporal*, or such as signify time; dum, whilst; donec, until; quoad (quod and ad), up to the time when; quum, when, since; quum primum, as soon as; quando, since; priusquam, antequam, antequam, before; postquam, postquam, after; simulac (simul and ac), simulatque, simul, as soon as; ut, as; utprimum, as soon as; ubi, where, since; quoties, as often as.
8. *Comparative*, or such as imply a comparison; ut (uti), sicut, velut, ceu, like, just as; quomodo, quemadmodum, in which manner, that, as; quippe, for, since.
9. *Conditional*, or such as express a condition or stipulation; si, if; nisi (ne and si), unless; sin (si and ne, but if); si modo, if only; dummodo, modo, provided that; dummodo ne, modo ne, if only not; sive (seu), or if; sive—sive, whether that or.
10. *Concessive*, or such as denote a concession or admission; etsi (et and si), although; etiamsi, even if; tametsi (but if) quamquam, although; quamvis, quamlibet, quantumvis, however; licet, if indeed; ut, suppose that.
11. *Final*, or such as assign the end, object, or result; ut, in order that; ne, in order that not; neve (neu), and in order that not; quin, that not, but; quo, wherewith; quominus, wherewith not.

It is not possible to assign to these and other particles, meanings which shall be applicable in all cases. The meanings actually given must be modified by experience. The subject is one of special difficulty, and can be mastered only by long and careful study.

Some of these classes of conjunctions qualify rather than govern verbs; such are the copulative, the adversative, the disjunctive, the conclusive, &c. It is chiefly the causal, the conditional, the concessive, and the final, that exert on verbs the peculiar influence which we have termed government; they have, that is to say, a direct action, and as a direct action, so a direct influence on verbs, producing in them a change of

mood. The following sentence presents an instance of a qualifying conjunction, and an instance of a governing conjunction.

Legura idecirco omnes servi sumus, ut liberi esse possimus.
We are all slaves to the likes, on that account that we may be free.

Idecirco qualifies the first member of the sentence and ut, that, or in order that, governs the verb of the second, putting it into the subjunctive mood.

The subjunctive is for the most part the mood which governing conjunctions require; but quod, for instance, may stand with the indicative; e. g.,

Quanta est bonitas naturae quod tam multa ad vescendum gignit.
How great is the kindness of nature that she produces so many things to eat.

The indicative is employed generally when the second member is explanatory of the first, and the quod is little more than a connecting particle.

Having given these general explanations, I shall take up each of the conjunctions severally, the rather, because, as I have intimated, they require careful study. The copulative conjunctions et, que, ac, atque, and; et, etiam, quoque, also; and in negative propositions, neque, nec, are employed as follows.

Et unites words and groups of words when each is regarded as independent and of equal weight; e. g.,

Reges excellentissimi fuerunt Persarum Cyrus et Darius.
Cyrus and Darius were very excellent kings of the Persians.

The enclitic que is used when the second word is an appendage to the former, and goes with it to form a whole; e. g.,

Senatus Populusque Romanus decrevit.
The Roman senate and people determined.

Contrasted words expressive of a whole are combined by que; e. g., terrâ marique.

Atque (that is, ad and que) is an emphatic particle of connection, equivalent to our and, when the stress of the voice is thrown thereon; e. g.,

Interim omnes servi atque liberi opus faciebant.
Meanwhile all free men no less than slaves, performed the work.

Atque is abbreviated into ac, and has the same import. These distinctions are not always rigidly observed, and the use of the one particle or the other depends on the view predominant in the writer's mind; as may be learnt from the following sentences from Cicero:

Et, que und atque used indifferently.
Rerum est divinarum et humanarum scientia;
Divinarum humanarumque rerum nomina aptissimi;
Omnia rerum, divinarum atque humanarum vim nosse.

In a succession of nouns, the et, instead of being reserved to precede the last, is repeated before each; as,

Vi vim illatam repellere et ratio
To repel force by force, reason
docet, et necessitas barbaris, et mos
has enjoined on the learned, necessity on barbarians, custom on nations, and nature itself on wild animals.

Two negative propositions are connected by neque—neque, or in the abbreviated form nec—nec; as,

Illud neque taceri ullo modo, That cannot in any way be kept
neque dici pro dignitate potest. in silence nor spoken as a regard to
dignity requires.

Necue (nec)—et and et—neque are found.

Etiā (et and jam) is used to add a member of equal weight to what has gone before, especially when the new member is unexpected, or rises in importance; as,

Caesar splendidam quandam rationem dicendi tenet, voce, motu, spaking, in voice, in gesture and formâ etiam magnâ et generosâ. even in lofty and magnificent beauty.

Quoque is que with an emphasis, and serves to give prominence and force to the word or words to which it is appended. Hence the exclamation of tu quoque (what, thou too!) with which Caesar received the blow from the dagger of Brutus.

Etiā and quoque serve not so much for connecting particles as to give point and effect to certain ideas. Quoque always stands after its word, etiam generally before its word.

As the copulative conjunctions unite two or more parts into

EXERCISES—LATIN-ENGLISH.

a whole, so the adversative divide a whole into its parts, and place those parts in opposition one to another. Three degrees of opposition may be distinguished; 1°. When one member is simply opposed to another; 2°. When one member restricts another, so that the latter no longer exists in all its fullness; and 3°. When the second removes the first, and substitutes something else. According to these distinctions, the adversative particles vary in meaning.

Autem, properly signifies again, on the other hand, adding something rather varying from than opposed to what has preceded.

Sed, connected with se in seorsim and secundo, and so denoting separation, signifies but, in such a way as to mark a limitation or substitution.

At (from the obsolete form ast) introduces an opposed or contrasted thought in a sudden and lively manner. At is employed with objections, exculpations, warnings, and admonitions; as well as with wishes and prayers.

Atque opposes and strengthens, and is used to affirm something incapable of denial or doubt.

Verum and vero, adverbial forms from verus, declare a statement as true; admitting in general what precedes, they limit it, and add that which any way is true.

Tamen marks the following thought as something which, from what has gone before, is unexpected, and which apparently contradicts it.

The adversative particles sed and verum appear in a second member correlatively to non modo, non solum, non tantum standing in the first; with the general meaning of not only—but or but also; thus non modo—sed or sed etiam.

The disjunctive particles regard the several sentences or clauses not as parts of a whole, but as separate elements of which the presence of the one excludes more or less decidedly the presence of the other. This relation may exist on one side or on both. The exclusion is entire when it exists on both sides, partial when it exists on one side.

Aut—aut denote ideas or facts which are mutually and necessarily exclusive. The exclusion, however, may be in the mind of the speaker who considers the parts disjointedly and severally.

Vel—vel denote an exclusion which does not lie in the nature of things, so that though the parts exclude each other, they may be united, or exclude each other for the sake of distinction. Instead of vel—vel we find the abbreviated form ve—ve.

Sive or seu, made up of si and ve, is often used as equivalent to vel et, and put one of two cases in either of which the proposition is true. Sive—sive put an alternative like our whether—whether, whether—or. Sive indicates a doubt or an alternative as to a name; as, sive Paris, sive Alexander, "whether you call him Paris or Alexander."

Causal conjunctions express either a cause, reason, or conclusion. Nam gives the explanation of the clause by which it is preceded; enim assigns the ground on which you may learn the truth of what is said. A regard to euphony, however, often determines which of the two shall be used, rather than any clear and marked distinction in their meanings. Nam precedes, enim succeeds; enim generally stands next after the first word. Nam unites with que to form namque, and enim with et prefixed makes etenim; the compounds in import scarcely deviate from nam and enim, and may both be positive, or take their place after the first word in a sentence.

While nam and enim assign a cause or reason, itaque, igitur, ergo, proinde, ideo, and idecirco denote a conclusion. Itaque, and thus, shows that the fact which it introduces has its ground in what precedes. Igitur shows that a thought or a judgment is occasioned by what has been said before.

Proinde, accordingly, is in import similar to igitur, but is used only for exhortation and encouragement by the best Latin authorities.

Ergo, in virtue of the fact, in consequence, represents the thought, judgment or inference as a necessary result of what has been advanced.

Ideo, idecirco, wherefore, on that account, give what has been said as the ground or reason of what follows. The same relation is indicated by eam ob causam, quam ob rem (quam obrem) quare (quare) quapropter, and quocirca.

Ca. is omnia blandimenta voluptatis otique vitæ; terrâ marique turbamur est; Numa ea pietate omnium pectora imbuerat ut fides ac iuramentum civitatem regerent; vi vim illatam repellere et ratio docetis, et necessitas barbaris, et nos gentibus, et feris natura ipse præcipit; omnium rerum seminator et salor et parens, ut ita dicam, atque educator et alior est mundus; Hortensius erat memor et quæ essent dicta contra, quæque ipse dixisset; illud neque taceri, neque dici pro dignitate potest; animal nullum inveniri potest quod neque unquam natum sit et semper sit futurum; ergo et promissa non facienda nonnunquam, neque semper deposita reddenda sunt; Caesar splendidam quandam rationem dicendi tenet, voce, motu, formâ etiam magnâ et generosâ; auctoritate tuâ nobis optus est, et consilio, et etiam gratiâ; quod si ius, etiam justitia; optimus quisque conficitur multa se ignorare et multa sibi etiam atque etiam esse dicenda; otii fructus est non contentio animi sed relaxatio; non ab alienis, at a suis; sum consecutus non modo ut domus tua tota sed ut cuncta civitas me tibi amicitiam esse cognosceret; persuasum mihi est, nihil hominem nisi quod honestum sit, aut admirari, aut optare, aut expectare oportere; nihil est tam naturæ aptum ad res vel secundas, vel adversas quam amicitia; homines nobiles seu recte seu perperam faciant, in utroque excellunt; Cretam leges quas sive Jupiter, sive Minos sanxit, laboribus erudiant juvenutera.

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They do not labour, therefore they will have nothing when they (shall) have need; that which you say scarcely appears credible, but so it is; again and again Orero invoked all the gods; no animal except man can be found which is endowed with reason; that is both good and bad, this neither good nor bad; the city decreed a statue to the father and the son, also to the daughter was a reward given; we must not only practice but enjoy riches; either learn or depart; the things which you say are either true or false.

PHYSICAL EDUCATION.—No. I.

GYMNASTICS, or the art by which physical education is effected, is a Greek word, and literally signifies stripped of clothing encumbrances. This art consists in developing the strength and agility of the human body by exercise; and as this could best be done by putting off all the superfluous parts of the dress, we thus see the origin of the word *Gymnastics*. Physical education, therefore, consists in causing the body to undergo certain properly regulated exercises, and in bringing into full play all its powers of action, thereby enabling it to perform at pleasure, and with ease, all the principal functions of its organization, both external and internal. Writers on the subject have divided this art into three distinct branches, viz. Hygienic Gymnastics, Military Gymnastics, and Medical Gymnastics. *Hygienic* and *hygienic* are terms which we have lately borrowed from the French; they simply signify that which relates to the health of the body, and come originally from the Greek word *hygieinos*, healthy; *hygienic*, therefore, signifies the art of preserving the health, and *hygienic* anything which belongs to this art. We have had a word in use in our language, appropriated by the poets, and taken directly from the Greek, namely, *Hygieia* (properly *Hygieia*), which is the source of the term *Hygiene*; it simply signifies health, but it is used by the poets metaphorically, for the name of the imaginary goddess of health. Here, however, we protest against the abuse of the terms *Hygieia* and *Hygienic* by our modern quack doctors, as if these terms employed in their advertisements of gamboge pills, and in their puffs concerning their so-called colleges of health, were intended only to conceal the object they have in view.

Hygienic Gymnastics, then, is the art of giving to the organization of the human body all the compass and elasticity of which it is susceptible. *Military Gymnastics*, is also hygienic; but in addition to its object in developing and strengthening the organization, it has specially in view those exercises which are only adapted to the life of a soldier. *Medical Gymnastics*, which may be called *Therapeutics*, or the art of curing disease, is distinguished from the other two, as much by its object as by the circumstances under which it is employed. In this case, the body cannot be put under the same rules and exercises as when it is in perfect or even comparative health; gymnastics is here employed either to cure a disease, or to remedy a malformation; in the latter case, gymnastics trenches upon orthopedy, or the art of curing deformities.

Medical Gymnastics is not a modern discovery; it as tends to the age of Chiron, the rough preceptor of Achilles, whose physical education was so vigorous. After Chiron, Esculapius flourished, who was for his skill deified by the Greeks; he prescribed to his sick patients, riding and exercise in complete armour. Herodiscus, who was censured by Hippocrates, caused his feverish patients at Athens to travel to Eleusis, going through Megara, a distance of about twelve leagues, without stopping to take rest or refreshment by the way. Galen, himself strongly addicted to the practice of gymnastics, seeing that he dislocated his arm at the age of thirty-five by fencing in the *palestra* (the ancient wrestling-school), secured a man of great obesity (corpulence) by making him run every morning till he was bathed in perspiration. It was the gymnastic art which gave strength to the great Demosthenes, so feeble and sickly in his youth. It was the same art which made of a puny infant, which had been thrown without maternal pity from the Mount Taygetus, the illustrious general admired in all ages under the name of Agamemnon. An ancient physician affirmed that exercise would cure the vertigo. It is undeniable that gymnastics, in diverse diseases, especially in some affections of the nervous system, or in certain states of the constitution, will produce excellent results; and it is to be regretted that physicians deprive themselves of its advantages in curing their patients, by a species of unfortunate neglect. Scrofulous diseases, for instance, require much exercise in the open air, particularly in fine weather, a nourishing diet, and a strengthening regimen. The time is now come when, throwing aside foolish prejudices, gymnastics must form a part of all medical and hospital practice for the recovery of invalids.

The first system of gymnastics was empirical, violent, or, if you please, martial. Its object was to form soldiers robust, hardy, and able both in the management of weapons of war, and in close conflict in fighting.

Homer, it has been said, may be considered as the first *gymnasiarch*, or leader of gymnastic exercises; and of course this refers the origin of gymnastics to the tenth century before the Christian era. But Homer was, no more than Hippocrates, the inventor of what he has recorded; and the exercises which he describes unquestionably ascend to an age anterior to that in which he lived. We may just, for the sake of illustration, cite the Greek poet, and catch an idea of this primitive system of gymnastics. "The sons of Laertes," says he, "and of The-lamon, rush upon each other in the arena; they clasp each other with their powerful hands; their backs are strained by the force of their arms; they are drowned in perspiration; swellings start out on their flanks and their shoulders." These swellings of which Homer speaks are the startings, or projections, of the muscles increased by contraction. At this stage, however, of our lectures on Physical Education, we cannot resist the insertion of an old poem, being the supposed address of Chiron to Achilles, although it includes mental as well as physical exercises; it may be useful, as affording reflection to numerous readers, being put into plain didactic rhyme.

Old Chiron to his pupil thus began,
When he beheld him rip'ning into man:
Accomplish'd youth! well worthy of my pains,
You now are free, now guide yourself the reins;
Yet hear, Achilles, hear, before we part,
A few short precepts from a faithful heart.
What tho' the fates a lengthen'd age deny?
Let management a longer life supply;
And learn, at least, to live, before you die.
A little tract well till'd more profit yields,
Than realms of wide uncultivated fields.
'Tis not from length of years our pleasures flow,
Nor to the fates alone our bliss we owe;
Great ill, by art, we lighten or remove,
And skill our meanest pleasures may improve.
Think not, young prince, your elevated state,
Birth, honours, or the empty name of great,
Can fix your joys; peace in the hut is found,
While palaces with discord still resound.
Fortune to industry is always kind,
And tho' by vulgar notions painted blind,
Is still more equal than the vulgar know,
Who judge of happiness by outward show:
She smiles on all conditions; each may be
A man of pleasure in his own degree.

Yet few with art, their happiness pursue,
Tho' all mankind have always this in view,
And every sense seems made by nature's skill,
For giving pleasure and averting ill.
Nature, our common mother, has been kind,
And for a joyful race her sons designed,
But wholly blind, or doubtful how to advance,
They leave the work of industry to chance.
Even of those few who, with more active strife,
Pursue this great, this vital end of life,
Some, too impatient, know not how to wait,

Or aim at things beyond their human state.
Shun, then, Achilles, shun the faults of those,
Who still too little, or too much propose;
Stretch not your hopes too far, nor yet despair;
But, above all, of indolence beware.
Attend to what you do, or life will seem
But a mere vision or fantastic dream,
Spent in ideas of delight, at best,
While pleasure true is lost in doubtful rest.
In short, learn when and how to bear; in vain,
He pleasure seeks, who is afraid of pain.
But you, aspiring youth, by nature seem
Addicted to an opposite extreme;
Restless, impetuous, and soon inflamed,
And like a fiery conger hardly tamed,
In all things violent. Brave prince, disdain,
To let usurping angry passions reign,
In one rash moment sacrificing more
Than years of sad repentance may restore.

As Thracian winds the Euxine sea molest,
So wrath and envy, from a human breast
Drive Halcyon peace, and banish kindly rest.
For no security for joy is found,
But in a mind that's tractable and sound.
Suppress the first emotions of your ire,
And smother in its birth that kindling fire,
Ere anger yet possesses all your soul,
Ere yet your bosom heaves and eyeballs roll;
Think on the useful precepts I have taught,
And meet the rising heat with wholesome thought.
Or seek the sacred muses with your lyre,
Who with sweet peace to lonely shades retire;
Virtue and God, and godlike heroes, sing,
While hills and valleys with their praises ring;
These learn to imitate, and him adore;
Thus sweetly to yourself, yourself restore;
Music, and verse, and solitude controul
Impetuous fury and compass the soul.

For this, I early taught you how to sing,
And form'd your fingers to the trembling string;
For pleasure only wants the pow'r to show
The arts of consolation man should know;
Our joys are short and broken; and in vain,
To constant bliss would all mankind attain.
There is a Deity who rules our fate,
And damps all joys immoderately great;
That none on earth from sorrow should be free,
But ev'n our blessings taste of misery.
If fortune gives what rarely we obtain,
An equal share of pleasure and of pain,
Our portion is o'erpaid, the rest we find
In fond ideas of the wanton mind,
Which now vain scenes of godlike pleasure shows,
And then creates imaginary woes.

When sad, your ills examine and compare,
Judge of your own by what another's are;
Consider greater wretches, and the fates
Of mighty heroes, and of powerful states;
Thus evils will be seen in their own light,
And fancied ones will vanish out of sight.
Nor aim at pleasures difficult to gain,
Choose rather such as you can soon obtain.
Who scorns to trifle is by pride abused;
I pity him who ne'er can be amused.
Who, slighting pleasure moderate and small,
Must live in rapture, or not live at all.
Great pleasures still are close allied to pain;
Who quits the peaceful shore and ploughs the main,
Huge waves and mighty tempests must sustain.

Let not the fond ambition to be blest,
The humbler pleasures in your power molest;
Still cherish hope, for without hope there's none;

Taste hope, but be not fed with that alone.
Some their whole lives in expectation spend,
As life were not begun, or ne'er would end;
Fondly from day to day themselves deceive,
Not living, but intending still to live;
While they neglect the joys they might possess,
For empty dreams of future happiness.
Let nature in your pleasures be your guide,
Nor suffer art her genuine charms to hide;
Her *Uranian* with unwearied charms we see;
The truth of beauty is simplicity.

Live not by imitation, servile state!
Nor on the fashion, for your pleasures wait.
Man, otherwise so selfish and so proud,
Submits his taste to the fantastic crowd,
And lives not forth himself: Do you pursue
Your own desires, and to yourself be true.
As bees extract their sweet from ev'ry flower,
So you, your joys from all things in your power,
With industry and management produce:
The meanest trifles sometimes are of use.
Yet know well what you do, and when 'tis done,
Nor at all hours to ev'ry pleasure run;
But mix with art, your pleasures and your toils,
For pleasures have their seasons, and their foils.

Thus when the earliest dawn of eastern light
Proclaims the finish'd empire of the night,
Haste to the field, Achilles, nor disdain
To chase the foaming monster o'er the plain
Or, teach the fleet steed to feel the rein.
Now, let your ear and arms your nerve prepare,
Or, for Olympic games, of future war;
And whether arts or glory fire your mind,
With thoughts more generous, or more refin'd,
The morning, to the muses, still is kind.
At noon, a simple short repast be made;
A shorter slumber in the cooling shade;
What's gay and light, th' unbending mind employs,
Or sports, or past delight, or future joys.
But when the evening star begins to rise,
When Phœbus' panting steeds forsake the skies,
Still cheerful, at the well-spread board be found,
Amidst bright friends, and with fresh garlands crown'd;
While now the muses, with their song and lyre,
Banish old sorrows, and new joys inspire.

Thus when from toils of empire, you are free,
Nor camp nor council claim your liberty,
The morn, to labour and reflection give,
At noon, with temperance and quietness live;
The gifts of providence at ev'ning prove,
And spend the night in happiness and love.
Thus, thus, Pelides, drive your cares away,
Nor feel the evil, till the evil day.
One precept more, I fain would recommend,
And then, old Chiron's tedious lessons end.

Learn, gen'rous prince, what's little understood,
The godlike happiness of doing good.
How glorious to defend, and to bestow!
From nobler springs, can human pleasure flow?
A solid good, which nothing can destroy,
The best prerogative the great enjoy.
For this, remember, monarchs first were made,
For this, young prince, be lov'd and be obey'd.
At once yourself and mighty nations bless,
And make humanity your happiness.

In the fabulous and heroic age depicted by Homer, the art of gymnastics, which consisted chiefly in wrestling and boxing, was cruel and barbarous. It was only in later times, and in the celebrated city of Athens, that gymnastics assumed a scientific form, and was regularly taught in the Academy, in the Lyceum, and in the Gynosarges, gymnasia built outside the city, surrounded with gardens and sacred woods. In these were the young Greeks taught leaping, racing, throwing the disc and the javelin, and wrestling. To these were added pugilism and several other species of combat, particularly the *Paneralium*, which was a combination of boxing and wrestling. Several officers were appointed to the administration of each gymnasium. The *gymnasiarch* was the chief master or president, who had the general direction of the school; the *cryptarch* was the president of the *crypti*, that is, the covered colonnades

or porticos in which the scholars performed their exercises during winter or in bad weather; the *gymnastes* was he who selected the exercises according to the age and constitution of each scholar; and the *pedotribes* (boy-trainer) was the actual manipulator or teacher of the different exercises in each department.

Phonastis, or *phonary* (as the French term it), literally the art of exerting the voice, made a part of the gymnastics of the ancients. Modern gymnastics has introduced this useful art into military exercises, where its utility is undeniable. A troop of soldiers harassed and fatigued in its march will renew its step and change its aspect at the sound of the drum; Sailors, in winding the capstan, break out into a noisy but measured song. The harmonious sounds of a soothing ballad are even necessary to the road-leveller; and the powerful effects of music on the soldier's mind, in the hour of fancied glory, are well-known.

At Rome, no less than in Greece, was gymnastics pursued as an art necessary to the health of man. The elder Tarquin constructed the first Circus where the Roman youth performed gymnastic exercises. Before his time, they were performed in a vast enclosure bounded by the Tiber on the one side, and by palisades on all the other sides. It was to the practice of gymnastics and to the daily renewal of military exercises, that the Roman soldier owed those great physical qualities which rendered him so long victorious in the wars of the state. He would march twenty miles in five hours with a weight of more than sixty pounds. In the field, he would carry, besides his arms, his baggage, his tent, and provisions for fifteen days. According to the account of Sallust, the famous Pompey could take the field at the age of fifty-eight. But to the manly exercises of the Circus, succeeded the gory games of the gladiator; and later still, the dancing and the mimicry of the actor; then Rome, which had subdued the world, fell by luxury and effeminacy.

The gymnastics of the middle age consisted in tilts, tournaments, carousals, sham-fights, horsemanship, fencing, and breaking a lance; but these exercises were restricted to a class, and had for their object the maintenance of its superiority over the militia. The modern invention of gunpowder put an end to this superiority, and brought mere physical force and training to a level. John de Medicis instituted the *calcio*, in imitation of the games of the ancients. The calcio is only the game of foot-ball raised to the rank of a military exercise. If this game could be played in moderation, and both hands and feet employed in the exercise, we know not a more delightful or a more healthy recreation; we look back upon our exercises in this game at the university with unmingled pleasure. The game of tennis used to be greatly in vogue during the last century; and particularly in France, before the first revolution. Since that period, it has greatly declined, and is now almost abandoned. In the present calculating age in which we live, we are forced to become serious betimes; young people early appointed to mental labour, and to the grappling with the difficulties which they have to encounter through life, neglect or disdain these games, in which, the youth of preceding ages not only found honourable recreation, but a salutary mode of developing the natural strength of the body.

The foot-ball, the skipping-rope, the hoop, the battledore and shuttlecock, and various other games of this kind, which are now deemed only juvenile games, have the double advantage of not only developing the muscles of the different members of the body, but also the chest and lungs. England alone has retained the ancient pugilistic exercises of the Greeks and Romans, under the name of the art of boxing; and although we cannot but admire the effects of physical training which this art produces among professional boxers, the cruelty, immorality and neglect of mental culture which are usually its accompaniments, render it an unfit exercise for modern times. Nevertheless, the boxer, from his peculiar training and exercise, possesses large limbs, hard, projecting and elastic muscles; a small abdomen; a full chest, respiration large and deep; skin close, smooth, and transparent; and a uniform complexion, perfectly corresponding to the under-lying muscles. In like manner, and from equally adapted training, jockeys and divers acquire the developments necessary for their peculiar occupation.

(To be continued.)

LESSONS IN GERMAN.—No. LIII.

§ 24. ADJECTIVES.

(1) Adjectives are, in German, generally so varied in termination, as to indicate thereby the gender, number and case of the words with which they are joined. Before treating of their inflection, however, we shall present and explain those significant suffixes, which are most commonly employed in forming adjectives from other words.

(2) Here, as was done in the case of derivative nouns (§ 10, § 11), each suffix is given with its corresponding English equivalent; its meaning explained; and its use further illustrated by a series of examples.

§ 25. SUFFIXES USED IN FORMING ADJECTIVES.

SUFFIXES. English EQUIVALENTS.

bar	[able, ile, ile]	implies ability; sometimes, disposition.
en	[en]	points to something made of that expressed by the radical.
haft	[ive, ish]	denotes tendency, or inclination; also resemblance.
ig	[y, ful]	represents a thing as being full of that denoted by the radical.
igt	[y, ous, ish]	denotes similarity of nature, or character.
lich	[ly, ish, able]	implies likeness or sameness either of manner or degree; also ability.
ig	[ish, some, al]	represents something as pertaining, or belonging to.
ig	[some, able]	expresses inclination; sometimes ability.

§ 26. EXAMPLES.

SUFFIXES.	WORDS.
bar	dienbar; serviceable; tributary.
	sichtbar; that can be seen; visible.
en	golden; made of gold.
	bleiben; leaden.
haft	Eugenhaft; inclined to virtue; virtuous.
	Meisterhaft; resembling a master; masterly.
ig	blumig; full of flowers; abounding in flowers.
	waldig; woody, i. e. abounding in woods.
igt	salzig; saltish; somewhat like salt.
	brüderlich; brotherly, or like a brother.
lich	kranklich; sickly.
	süßlich; sweetish; somewhat sweet.
	beweglich; movable.
ig	irdig; earthly; belonging to earth.
	poetisch; poetical.
	zänktig; quarrelsome.
ig	fleißig; inclined to work; diligent.
ig	gehlig; inclined to follow (orders), i. e. obedient.

ig is the ending commonly added to names of places pointing to things belonging to them; as, englisch, schweizisch (§ 5 Note VII), &c. If, however, a name be a compound, the suffix er is used in place of ig; as, das Braunschweiger Bier, the Merseburg beer.

§ 27. DECLENSION OF ADJECTIVES.

(1) Whether an adjective is to be inflected at all or not, depends wholly upon the way in which it is used; for, when employed as a predicate, it is never declined;† when as an attributive, almost always. Be the noun, therefore, masculine,

* The letters er in this word are simply euphonic; while the e of en is dropped, also, for euphony (§ 2, (8).)

† For the form of the adjective substantively employed after nouns or pronouns, see Sect. 15. IV

feminine or neuter; be it singular or plural; if the adjective, to which it is applied, be used as a predicate (Sect. X. Note.), its form remains unchanged: thus,

Der Mann ist gut; the man is good.
Die Frau ist gut; the woman is good.
Das Kind ist gut; the child is good.
Die Männer sind gut; the men are good.
Die Frauen sind gut; the women are good.
Ich nenne das Kind schön; I call the child beautiful.
Ich nenne die Kinder schön; I call the children beautiful.
Der Knabe, fleißig und artig; the boy prudent and polite.

In this last example, the predicative use of the adjectives may be made more obvious, by completing the structure, thus: der Knabe, welcher fleißig und artig ist; the boy who is prudent and polite; so also, Caesar, fleißig und tapfer.

(2) The following adjectives (and a few others) are never used otherwise than as predicates, and are, of course, indeclinable:

abstossend, averse.	besitzend, possessing, or possessed of.
angst, anxious.	langweilig, skimming.
angekündigt, bound by promise.	irrt, wrong; erring.
bereit, ready.	bekannt, known.
trach, follows.	leid, distressing; sorry.
fremd, hostile.	not, needless.
gehasst, hating, hated.	nützlich, useful.
gar, done; cooked enough.	quer, crosswise.
ganz und gar, current; usual.	quitt, rid of.
eingedenk, mindful.	theilhaft, sharing.
getroß, cheerful.	unpäß, ill; sick.
gewissig, aware.	verloren, forfeiting.
gram, grudge-bearing.	

§ 28. DECLINABLE ADJECTIVES.

(1) There are two declension of adjectives, as there are two declension of nouns: the Old and the New. In either of these, according to circumstances, are attributive adjectives declined. The following are the terminations of

THE OLD DECLENSION.

Singular.	Plural.
Masculine. = Feminine. Neuter.	For all genders.
Nom. er.	Nom. e.
Gen. es (en).	Gen. en.
Dat. em.	Dat. en.
Acc. en.	Acc. e.

Adjectives ending in er, en, er, commonly drop the e upon receiving a suffix; as,

edel, noble;	edler (not edler) Mann, noble man.
eben, even;	ebener (not ebener) Weg, even path.
lauter, pure;	lauteres (not lauteres) Gold, pure gold.

Upon adding en, the e of the termination (en) is dropped, while that of the root is retained; as, ten heißen (instead of heissen) Morgen; the serene morning.

In the nominative and accusative neuter the termination es is often omitted, when the adjective is under no special emphasis; as, kalt (for kaltes) Wasser, cold water.

In the genitive singular masculine and neuter, it is now the common custom to adopt the new instead of the old form; as, für den Stuhl frisch (not es) Brot, a piece of fresh bread. In a few adverbial phrases, however, the old form is still generally used; as, gutes Muths, of good courage.

RULE FOR ADJECTIVES.

When the adjective stands either entirely alone before its substantive, or is preceded and restricted by a word that is undeclined or indeclinable, it follows the Old form of declension:

LESSONS IN GERMAN.

Singular.	Plural.
Masculine.	
N. guter Vater, good father.	gute Väter, good fathers.
G. gutes (en) Vaters, of good father.	guter Väter, of good fathers.
D. gutem Vater, to good father.	guten Vätern, to good fathers.
A. guten Vater, good father.	gute Väter, good fathers.
Feminine.	
N. gute Mutter, good mother.	gute Mütter, good mothers.
G. guter Mutter, of good mother.	guter Mütter, of good mothers.
D. guter Mutter, to good mother.	guten Müttern, to good mothers.
A. gute Mutter, good mother.	gute Mütter, good mothers.
Neuter.	
N. gutes Geld, good money.	gute Gelder, good monies.
G. gutes (en) Geldes, of good money.	guter Gelder, of good monies.
D. gutem Geld, to good money.	guten Geldern, to good monies.
A. gutes Geld, good money.	gute Gelder, good monies.

(1) The following are examples, in which the adjective in

each instance is preceded by a word, either undeclined or indeclinable:

Einiges gutes Wein,	some good wine.
Die frische Milch,	much fresh milk.
Wenig kaltes Wasser,	a little cold water.
Sehr gute Menschen,	very good men.
Genug rother Wein,	enough red wine.
Fünf lange Jahre,	five long years.
Allelei süße Frucht.	all kinds of sweet fruit.

§ 30. THE NEW DECLENSION.

Singular.	Plural.
Mas. Fem. Neut. For all gender	
Nom. e. e. e. en.	
Gen. en. en. en. en.	
Dat. en. en. en. en.	
Acc. en. e. e. en.	

§ 31. RULE FOR ADJECTIVES.

(1) When immediately preceded and restricted by the definite article, by a relative or demonstrative pronoun, or by an indefinite numeral, declined after the ancient form, the adjective follows the new form of declension:

EXAMPLES.

Singular.	Feminine.	Neuter.
Masculine.		
N. der gute Mann, the good man.	die gute Frau, the good woman.	das gute Kind, the good child.
G. des guten Mannes, of the good man.	der guten Frau, of the good woman.	des guten Kindes, of the good child.
D. dem guten Manne, to the good man.	der guten Frau, to the good woman.	dem guten Kinde, to the good child.
A. den guten Mann, the good man.	die gute Frau, the good woman.	das gute Kind, the good child.
Plural.		
N. die guten Männer, the good men.	die guten Frauen, the good women.	die guten Kinder, the good children.
G. der guten Männer, of the good men.	der guten Frauen, of the good women.	der guten Kinder, of the good children.
D. den guten Männern, to the good men.	den guten Frauen, to the good women.	den guten Kindern, to the good children.
A. die guten Männer, the good men.	die guten Frauen, the good women.	die guten Kinder, the good children.

As, however, the neuter of the definite article, differs from the old form, in having the ending a, instead of es; so also in compounds; as, das selbe, the same; dasjenige, that. The other words referred to in the rule, are

dieser, this.	solcher, such.	einiger, some; several.
jener, that.	jeder, jeglicher, each.	etlicher, some; several.
welcher, who; which.	aller, every; all.	mancher, many a.

Three of these, it may further be noticed, viz. welcher, welche, welches, which; solcher, solche, solche, such; and mancher, manche, manche, many a; sometimes appear without the terminations of declension; in which case the adjective assumes the suffixes denoting gender, &c. Thus, manche schöne Bild, many a beautiful picture.

OTHER EXAMPLES.

Singular.	Masculine.	Plural.
N. dieser schöne Garten, this beautiful garden.	diese schönen Gärten, these beautiful gardens.	
G. dieses schönen Gartens, of this beautiful garden.	dieser schönen Gärten, of these beautiful gardens.	
D. diesem schönen Garten, to this beautiful garden.	diesen schönen Gärten, to these beautiful gardens.	
A. diesen schönen Garten, this beautiful garden.	diese schönen Gärten, these beautiful gardens.	
Feminine.		
N. welche schöne Blume, what beautiful flower.	welche schönen Blumen, what beautiful flowers.	
G. welcher schönen Blume, of what beautiful flower.	welcher schönen Blumen, of what beautiful flowers.	
D. welcher schönen Blume, to what beautiful flower.	welchen schönen Blumen, to what beautiful flowers.	
A. welche schöne Blume, what beautiful flower.	welche schönen Blumen, what beautiful flowers.	
Neuter.		
N. manches schöne Feld, many a beautiful field.	manche schönen Felder, many beautiful fields.	
G. manches schönen Feldes, of many a beautiful field.	mancher schönen Felder, of many beautiful fields.	
D. manchem schönen Felde, to many a beautiful field.	manchen schönen Feldern, to many beautiful fields.	
A. manches schöne Feld, many a beautiful field.	manche schöne Felder, many beautiful fields.	

With many authors it is the custom to reject the final n of the nom. and acc. plural of adjectives preceded by einige, etliche, mehrere, manche, viele, alle, welche, solche and wenige; as, einige deutsche Kaiser, some German emperors.

LESSONS IN FRENCH.—No. LXIII.

By Professor LOUIS PASQUELL, LL.D.

LIST OF IRREGULAR VERBS, &c. (continued from page 161).

Infinite.	Participles.	Indicative.	Imperfect.	Past Definite.	Future.	Conditional.	Imperative.	Subjunctive.	Imperfect.
CONSTRUIRE, 4. to construct	construisant construit, f. e. contenant	je construis see CONDUIRE je contiens see TENIR	je construais	je construisis	je construirai	je construirais	construis	je construisse	je construisse
CONTENIR, 2. to contain	contenu, f. e. contraignant	je tiens je contrains see CEINDRE	je contraignais	je contraindis	je contraindrai	je contraindrais	contiens	je contienne	je continisse
CONTRAINDRE, 1. to constrain	contraindant	je contrainds see CEINDRE	je contraindis	je contraindis	je contraindrai	je contraindrais	contrains	je contraigne	je contraignisse
CONTRADIRE, 4. to contradict	contradisant contrredit, f. e.	je contradis tu contradis il contredit n. contradisons v. contredisez il contrediraient	je contredisais like DIRE	je contredisais like DIRE	je contredirai like DIRE	je contredirais like DIRE	contredis q. contredise contradisons co. tredisez q. contredissent	je contredisse	je contredissais
avoir									
CONTRAFERRE, 4. to counterfeet	contrefaisant contrefait, f. e.	je contrefois see FAIRE	je contrefaisais	je contrefis	je contreferai	je contreferais	contrefois	je contrefassais	je contrefissais
CONVENIR, 2. to convene	convenant convenu, f. e.	je conviens see TENIR	je convenais	je convins	je conviendrai	je conviendrais	convieus	je convienne	je convinsse
CONVAINCRE, 4. to convince	convainquant convaincu, f. e.	je convaincs see TENIR	je convainquais	je convaincus	je convaincrai	je convaincrais	convaincs	je convainque	je convainnisse
COQUETER, 1. to coquet	coquetant coqueté	je coquette see ACHETER	je coquetais	je coquetai	je coqueterai	je coquetterais	coquette	je coquette	je coquettasse
CORROMPRE, 4. to corrupt	corrompant corrompu, f. e.	je corromps see ROMPRE	je corrompais	je corrompis	je corromprai	je corromprais	corromps	je corrompe	je corrompisse
COUDRE, 4. to sew aux. avoir irregular.	cousant cousu, f. e.	je couds tu couds il coud n. cousons v. cousez ils courent	je cousais tu cousais il cousait n. cousions v. couviez ils couvaient	je couisis tu couisis il couisit n. couismes v. couistes ils couirent	je coudrai tu coudras il coudra n. couurons v. couurez ils couiront	je coudrais tu coudras il coudras n. couurons v. couriez ils couiraient	couds q. couse il couse n. cousions v. coussiez q. coussent	je couse tu cousses il coust n. coussions v. coussiez q. coussent	je coussais tu coussais il coust n. coussions v. coussiez q. coussent
COURIR, 2. to run aux. avoir irregular.	courant couru	je cours tu cours il court n. courons v. courez ils courent	je courais tu courais il court n. courions v. couriez ils couvaient	je courus tu courus il courut n. courumes v. courutes ils coururent	je courrai tu courras il courra n. courrons v. courrez ils courront	je courrais tu courrais il courrait n. courrions v. courriez ils courraient	cours q. couro courons courez q. courent	je coure tu coures il coure n. courions v. couriez ils courent	je courusse tu courusses il courût n. courussions v. courussiez q. courussent
COUVRIR, 2. to cover.	couvrant couvert, f. e.	je couvre see OUVRIRE	je couvrais	je couvris	je couvrirai	je couvrirais	couvre	je couvre	je couvrissais
CRAINDRE, 4. to fear	craignant craint, f. e.	je crains see CEINDRE	je craignais	je craignis	je craindrai	je craindrais	crains	je craigne	je craignisse
CROIRE, 4. to believe aux. avoir irregular.	croisant cru, f. e.	je crois tu crois il croit n. croyons v. croyez ils croient	je croyais tu croyais il croyait n. croyions v. croyiez ils croyaient	je crus tu crus il crut n. crûmes v. crûtes ils crurent	je croirai tu croiras il croira n. croirons v. croirez ils croiront	je croirais tu croirais il croirait n. croirions v. croiriez ils croiraient	crois q. croie il croît n. croyions v. croyiez q. croient	je croie tu croies il croît n. croyions v. croyiez ils croient	je crusse tu crusses il crût n. crussions v. crussiez ils crussent
CROÎTRE, 4. to grow aux. avoir and être irregular.	croissant ordu, f. e.	je crois tu crois il croît n. croissons v. croissez ils croissent	je croissais tu croissais il croissait n. croissions v. croissiez ils croissaient	je crus tu crus il crût n. crûmes v. crûtes ils crurent	je croîtrai tu croîtras il croîtra n. croîtrons v. croîtrez ils croîtront	je croîrais tu croîrais il croîtrait n. croîrions v. croîriez ils croîraient	crois q. croisse croissons o. oissez q. croissent	je croisse tu croisses il croisse n. croissions v. croissiez ils croissent	je crûsse tu crûsses il crût n. crûssions v. crûssiez ils crûssent
CUEILLIR, 4. to gather	cueillant cueilli, f. e.	je cueille tu cueilles il cueille n. cueillons v. cueillez ils cueillent	je cueillais tu cueillais il cueillait n. cueillions v. cueilliez ils cueillaient	je cueillis tu cueillis il cueillit n. cueillimes v. cueillites ils cueillirent	je cueillerai tu cueilleras il cueillera n. cueillerons v. cueillerez ils cueilleront	je cueillerais tu cueillerais il cueillerait n. cueillerions v. cueilleriez ils cueilleraient	cueille q. cueille tu cueilles n. cueillons v. cueillez q. cueillent	je cueille tu cueilles il cueille n. cueillions v. cueilliez q. cueillent	je cueillais tu cueillais il cueillait n. cueillions v. cueilliez ils cueillaient
CUIRE, 4. to bake, cook, &c.	cuisant cuit, f. e.	je cuisine see CONDUIRE	je cuisais	je cuisais	je cuirai	je cuirais	cuis	je cuisine	je cuisasse
DÉBATTRE, 4. to debate	débattant débatu, f. e.	je débats see BATTRE	je débatais	je débattis	je débattrai	je débattrais	débats	je débatts	je débattisse
DÉCACHETER, 1. to unseal	décachettant déchété, f. e.	je décachette q. 10. (4)	je décachetais	je décachetai	je décacheterai	je décacheterais	déchette	je déchette	je déchétasse
DÉCHOIR, 2. to decay aux. avoir and être defective	déchu, f. e. (Nescherele)	je décrois tu décrois il décroît n. décroisons v. décroissez ils décroissent	je décroissais tu décroissais il décroissait n. décroissions v. décroissiez ils décroissaient	je décrochais tu décrochais il décrochait n. décrochions v. décrochiez ils décrochiaient	je décrocherai tu décrocheras il décrochera n. décrocherons v. décrochiez ils décrocheront	je décrocherais tu décrocherais il décrocherait n. décrocherions v. décrochiez ils décrocheraient	déchois q. déchoue tu déchoues n. déchouions v. déchouiez q. déchouent	je déchoue tu déchoues il déchoue n. déchouions v. déchouiez ils déchouent	je déchouais tu déchouais il déchouait n. déchouions v. déchouiez ils déchouaient
DÉCOUDRE, 4. to rip	découtant découvert, f. e.	je découpe see COUDRE	je découpa	je découpa	je découperai	je découperais	découps	je découpe	je découpassais
DÉCOUVRIR, 2. to discover	découvrait découvert, f. e.	je découvre see OUVRIRE	je découvrais	je découvris	je découvrirai	je découvrirais	découvre	je découvre	je découvrisse

List of Irregular Verbs, &c., continued.

Infinitive.	Participles.	Indicative.	Imperfect.	Past Definite.	Future.	Conditional.	Imperative.	Subjunctive.	Imp. pres.
DÉCHIRE, 4. <i>to describe</i>	décirant décrit, f. e.	je déchire see DÉCHIRE	je déchirais	je déchirai	je déchirai	je déchirais	déchire	je déchire	je déchirasse
DÉCHIRE, 4. <i>to unweave</i>	décisant déchit, f. e.	je déchis see CONTRA- [UNWEAVE]	je déchissais	je déchis	je déchirai	je déchirais	déchis	je déchise	je déchisse
DÉCHUIR, 2. <i>to deduct</i>	déchuisant déchuit, f. e.	je déduis see CON- [UNWEAVE]	je déduisais	je déduis	je déduirai	je déduirais	dédus	je déduise	je déduisasse
DÉFAILLER, 2. <i>to fail, faint</i> defective.	défaillant défaillit, f. e. (Duchercille)	il défaille u. défailles v. défailliez ils défaillaient	je défaillais etc.	je défaillei etc.	see <i>French- Dictionary</i> <i>National</i>				
DÉFAIRE, 4. <i>to undo</i>	défaissant défait, f. e.	je défaits see FAIRE	je défaissais	je défais	je déferai	je déferai	défaie	je défaise	je défassé
DÉGELER, 1. <i>to thaw</i>	dégélaient dégèle, f. e.	il dégelait	il dégelait	il dégela	il dégelera	il dégelerait	q. dégèle	il dégèle	il dégelât
DÉJOINDRE, 1. <i>to join</i>	déjoignant déjoint, f. e.	je déjoins see CO- [UNWEAVE]	je déjoignais	je déjoignai	je déjoindrai	je déjoindrais	déjoins	je déjoigne	je déjoignisse
DÉMENTIR, 2. <i>to belie</i>	démentissant démenti, f. e.	je démentis see DÉMENTIR	je démentissais	je démentis	je démentirai	je démentirais	démentis	je démente	je démentisse
DÉMENTIR, 1. <i>to defeat</i>	démentissant démenti, f. e.	je démentis see DÉMENTIR	je démentissais	je démentis	je démentirai	je démentirais	démentis	je démente	je démentisse
DÉPEIGNRE, 1. <i>to depict</i>	dépeignant dépeint, f. e.	je dépeins see DÉPEIGNRE	je dépeignais	je dépeignai	je dépeindrai	je dépeindrais	dépeins	je dépeigne	je dépeignisse
DÉPLAIRE, 4. <i>to displease</i>	déplaissant déploi, f. e.	je déplais see PLAIRE	je déplaisais	je déplais	je déplairai	je déplairais	déplois	je déploie	je déplussé
DÉSAPPRENDRE, 1. <i>to learn</i>	désapprenant désapprent, f. e.	je désapprends [LEARN]	je désapprenais	je désappris	je désapprendrai	je désapprendrais	désapprends	je désapprends	je désapprissé
DÉSSENVIR, 1. <i>to clear the table</i>	désseuvrant désseuvi, f. e.	je dessevis see SERVIR	je dessevais	je dessevis	je dessevirai	je dessevirais	dessevis	je desserve	je desservissé

CORRESPONDENCE

TRAINING COLLEGES

Sir,—As I was fortunate enough to obtain a Government Certificate myself at the last Easter Examination, I shall be very happy if I can in any way assist "Ellen Ada Carden-Jones," mentioned in your last, "in being equally fortunate." It is not quite clear what is the exact information required, but if it be how to proceed in order to obtain a Government Certificate of Merit, I can inform her that an indispensable requisite is, on the part of males, and I believe of females also, that they should have had twelve months training in a "Training-College." If Ellen Ada has not had this (which I assume she has not), she must have it to be successful, and, while in training, every useful information will be imparted by the authorities. "The principal Training-colleges (where, of course, all information as to terms, &c. may be obtained) are:—

The National Society's, Westminster (Church of England);
Buttersea, near London (Church of England);
Cheltenham, Gloucestershire (Church of England);
Worcester Diocesan (Church of England);
Home and Colonial, Gray's-Inn-lane (Mixed);
British and Foreign Society's, Belough (Unsectarian).

If Ellen Ada wishes for any further information which I can give her, I have no objection to her knowing my address.—I am, Sir,
yours obediently,
—W. J. G.

ELOCUTION.

Mr. EDITOR,—I wish to call your attention to a branch of adult education which is greatly neglected; and this neglect is remarkably exhibited in all our public institutions, as well as in every large assembly of men who meet to investigate or discuss any question of political, social, or religious importance. From the debates in the house of commons down to the vestry smokes of a parish, a neglect of the principles of education is equally and painfully apparent. A great number of public men speak in a low, inward, indistinct kind of voice, either disagreeably rapid, or vexatiously slow; while others clip or shorten their words in such a manner that it is impossible to hear what they say; and we are thus compelled to guess at their meaning from that part of their words or discourse which we do hear. Now such speakers are perhaps not so deficient in power as they are in utterance; they may be able to compose eloquent orations, which read well enough in the public papers, if they chance to get there, but which produce very little effect on their hearers. This lamentable deficiency in our public

speakers may be mainly attributed to the want of a proper education. Education has almost ceased to be a part of our scholastic routine, as if the cultivation of that faculty for which we have daily and hourly occasion in the affairs of life, were deemed a matter of trivial moment. Can it be supposed that an accomplishment, in the acquisition of which some of the most distinguished characters in history have devoted the greatest part of their lives, is to be learned without instruction? The practice of the ancients may be fairly adduced in opposition to such a presumption. The Greeks and the Romans, who considered a high degree of education necessary for their public men, ranked the art of *public speaking* as one of the most important studies to which the attention of their youth, and especially those of the higher classes of society, could be directed.

It is hardly necessary, in the present age, to insist greatly on the advantages enjoyed by those who possess an easy, elegant and forcible manner of expressing their thoughts, unobscured or unembarrassed by the number or the dignity of their hearers. Still there are two classes who occasionally urge objections to the cultivation of the art of elocution, especially by those whose trade or profession does not call them to exercise this art as a means of procuring their livelihood. The first class are those ignorant people who ask, What is the use of elocution? This question is rational, and even philosophical, if put with a proper desire for information; but it is rude and shallow when put by those who do not wish for an answer. But these would-be sarcastic questioners might be asked a question in return: Supposing that there is no use in the acquirements of the ready and accomplished speaker, are they quite sure that their time has been more profitably employed than in the acquisition of so agreeable an art? The second class are those prejudiced persons who, by some accident, seem to have come into the world a century too late, and who, deploring these days of general (I wish I could say universal) education, believe that they discover great mischief in the study of the art of public speaking; who think that it takes young men away from their legitimate occupations, and implants in their minds extreme notions of every thing and improper ideas of their own importance; and who imagine that, if pursued to a great extent, this art would lead the possessors of it to certain and utter ruin! Visions of late hours, and profligacy, and great political offences, flit through the minds of these unhappy persons, like the gigantic phantoms and terrible dreams which visit the sleep of a man who is suffering from an overloaded stomach or an impaired digestion. For the satisfaction of such objectors, who either from a vacant mind or a perverted judgment, believe that the study of elocution is the source of so many evil consequences, I wish to assure them that they are mistaken; and to add, that it teaches man to know exactly his own weight and value in society.

to understand his own mental resources in case of need, and to measure his own capacity by that of his respected and honourable opponents. I have thus hinted at the advantages of the study of elocution; and I hope to see the subject taken up in the pages of the "Popular Educator," having been a subscriber to it from the beginning.
Ray-street, Clerkenwell.

ANSWERS TO CORRESPONDENTS.

J. DRAKE (Kirkham): We have already recommended Smart's edition of Walker's Pronouncing Dictionary.—J. C. (Hurst): His penmanship is very good; but, of course, capable of improvement.—Ada (Stoke Newington): A hard task, to explain the difference between the Aristotelian and Platonic philosophy. This can only be done in a few words, by stating that the Aristotelian philosophy was chiefly moral, and partially metaphysical; while the Platonic philosophy was chiefly metaphysical, though also metaphysical. Both aspired at the grand attempt to account for the origin of things. The first sentence of the *TiMa* tells us more than Plato and Aristotle, of the *genus omne*, known to the beginning, the Omnipotent created the heavens and the earth. Plato held the opinion, in a modified form, that matter was eternal; but he conceived that the model of the world existed in the mind of God from all eternity. Aristotle held that the world was the lowest sense of the term. *Heaven* and *Leisure* are pronounced *hain* and *leisure*.—ANATOL SUGENTIAZ (London): His views are under consideration.—T. W. (Lindfield): 1. Lyell's Manual; 2. We don't know; 3. See Murray's Hand-book for Travellers.—G. W. (Dover Castle): Solution right; Weston-on-Sea right.—W. H. MINEA (Ashford): Yes.

OWEN DAVID (Swansea): The "Pen-drawing Machine" we have seen is to be had of Messrs. Jarrold and Son, St. Paul's Churchyard; it is only intended for beginners, to give them some elementary notion of how to hold the pen in a proper manner; we doubt very much whether it would be of use to those whose hand is already formed.—ANXIOUS STUDENT (Morpet): See our latest lessons in Geography for our opinion on Craniology. Read the Music Lessons all through, and you will find an answer. We do not know the names of the publishers of the works on Artificial Memory.—J. C. W. We know no remedy for the matter of which he complains; but we would advise him to do nothing without medical advice.—STRAIGHTFORWARD: It will take ages yet to explore Australia; that continent is scarcely known. The account of the census for 1851, when published, will be the best guide to the villages and the number of inhabitants of each, belonging to this country. Your friend may obtain phantasmagoria lanterns at four and a-half guineas, from Messrs. Watkins and Hill, Charing Cross; glass slides for the same from half-a-guinea to 45 12s.; shifting glass slides from 2s. to 2s. each; astronomical slides from 5s. 6d. to 8s. 6d.; &c.

W. H. H. (Camdenwell) will get what he wants most readily by consulting Palmer's Catalogue, 163, Newgate-street, or Knight and Sons' Catalogue, Foster-lane, Cheap-side.—ARDESS (Lambeth) asks: How long we think a student would be in acquiring a knowledge of Greek sufficient for the Matriculation Examination in the University of London, at the rate of two hours a-day? Such a question as this is really impossible for us to answer, however willing we may be. The successful and rapid study of Greek depends upon previous training, early habits and dispositions, present likes and dislikes, favourable or unfavourable circumstances, and, above all, natural abilities! How can we tell what time any man will take? We have had two students who began under our care the study of the same subject, apparently possessing the same abilities, and under the same circumstances; and yet, how different was the result! The difference was so great, and so complete, that no one would have believed that they had received precisely the same instructions, and from the same tutor. The Greek and Roman Histories most frequently read for Matriculation, are Keightley's volumes.—M. G. W. (Stratford): The book on Algebra will be different from the Lessons in the P. E. The answers to the exercises in the Lessons are inserted by this time.

HACNICOLA should apply to Mr. Bell by letter; his address is 13, Hope-street, Charlotte-square, Edinburgh.—R. H.: The Rhubarb plant is now both a fruit and a vegetable; it is a *vegetable*, because it grows as plants grow; and it is called a *fruit* (from the Latin *fructus*, *I enjoy*), because people enjoy pies made of it, and because it is used as a substitute for *gooseberries*.—HOLDFAST (Waterford): The cause of the flux and reflux of the tide is well known to be the attraction of the sun and moon, combined with the revolution of the earth on its axis; the momentary and constant variations in that flux and reflux, of course, arise from momentary and constant variations in the cause which produces them; the earth, the sun, and the moon are not in the same relative position for a single instant of time. See Dr. Beard's Lessons in English, on the use of the subjunctive mood. We do not know the publisher of the "Minor's Guide." For the Calculus of Finite Differences, see Professor De Morgan's Integral and Differential Calculus. As to the verb *ere*, in the passage quoted, you are right.—J. GOODFELLOW: See our Lessons in Bookkeeping, and study our Lessons in Penmanship.—J. H. EASTWOOD: Received.

PRINTED (Sunderland): Greek can be learned without knowing a word of Latin.—THOMAS W. (Manchester): Read Young's "Night Thoughts," as an antidote and answer to Pope's "Essay on Man." But the "Holy Scriptures" is the best answer. Read the Gospel and the Epistles of John.—SUSANNE (Newington): Two volumes of the P. E. are enough to be bound together. The German and English Dictionary will be published as soon as possible. All Mr. Cassell's publications can be had of Mr. Baillie or of Mr. Castle, booksellers, Ipswich.—HARVEY L'ESTRANGE (Leoville): We think that his master might allow him till 10 p.m. when he knows how well he is employed, viz., attending the Mutual Improvement Society. We advise him to reason respectfully with his master, and he will most likely succeed.—E. DRAKE (Shepton Mallet): The Latin Lessons will be published as soon as possible.—A. C. (Liverpool): Consult some large library, as that of the British Museum, where you will be sure to find the treaty of the Union.

HYPATIA: We are desirous of offering every encouragement; but the specimens sent do not quite come up to the mark. We are almost afraid to offer any advice on the subject referred to; but we prefer didactic poetry and interesting moral tales, allegories, and such like.—AZURE can purchase Electrical Machines, with the necessary apparatus for making experiments, of Messrs. Knight and Son, Foster-lane, Cheap-side, from 4 guineas to 10 guineas and upwards, according to size, varying from 10 to 30 inches in the diameter of the plate, and from 8 inches by 5 to 21 inches by 10 in the dimensions of the cylinder. Voltaic and Galvanic Batteries may also be had at the same place, varying from 8s. to 5 guineas.—W. GOODWIN has calculated the number of grains of wheat which would be required for 365 days' wages, beginning with one grain for the first day and doubling every day's wages successively to the year's end. He has also calculated the diameter in miles of a globe which the year's wages would form, if it could be made to assume this shape; and he is now calculating the number of globes, each equal in magnitude to our earth. He has sent us the first calculation which we find by logarithms is correct in the number of figures and in the first five figures of the answer.—E. Z. (Arundel): *Spoonfuls*, not *spoons*—*ful* is the right plural.—E. KATY (Aberdeen): Received.—J. JAMES (Pembroke Dock): All right.—GARIBOLDI: There are several points of difference between the domestic and the field mouse, which we shall hereafter describe in our Lessons on Natural History. Of the field mouse there is more than one kind.—GEORGE (Okehampton): The cucumber is traced to very remote antiquity. Thus it was cultivated very extensively in ancient Egypt, and is still very general there. Who introduced it into this country is unknown.

A SUBSCRIBER (Covey), wishes to know how to stain paper a pink colour.—J. B. E. (Bideford): The maps will continue till they may form an Atlas. Your penmanship is very like that of an attorney's clerk already.—SODARATES: We advise him to study the Lessons in English above all things; to these he may add *Arithmetic*, and either French or Latin, but not both at once. His writing and spelling are both capable of improvement; to this, he should particularly attend.—E. L. (Bideford), admires a rollicking style of writing; and so we when we have a leisure hour; but our business is to educate, and we must not lose sight of our calling,—a calling for which the public gives us credit in the performance.—PETER (Cupar): We anticipate that Cassell's Latin Dictionary will be superior to any edition of *Ammonius*.—H. ANNOLD (Bristol): In addressing a letter to any one, we ought first to describe the person, and then add any complimentary title: *Michael Edwards, Esq. Junior*, is therefore wrong; but *Michael Edwards, Junior, Esq.* is right; for *Junior* is a word which properly describes the person addressed. In the case of M. P. after *Esquire*, this is quite right; because a gentleman must be an Esquire before he can be an M. P.—P. WYKE: There are many different kinds of Engineers, that it is impossible to define what sort he *should* be; but we would recommend strongly in the first instance the study of the Mathematics, and especially the Lessons in the P. E.

ERRATUM.

In the Key to the Arithmetic, par. 41, page 133—5, for 115-9615 read 166709.

LITERARY NOTICES.

BOOKKEEPING.

The present number of the POPULAR EDUCATOR contains the first of a series of Lessons on Bookkeeping by Double Entry, in which the newest and most approved systems of late years will be followed out and explained in an easy and familiar manner. A complete set of merchants' books will be included in these lessons, showing the routine of a business concern from January to December. To these will also be added Lessons in Single Entry.

CASSELL'S FRENCH DICTIONARY, embracing a greater number of Scientific, Mythological, Geographical, and Historical Names than is to be found in any other Dictionary published in this country, is now in the course of issue, in Weekly Numbers. The price of the work complete will be Eight Shillings and Sixpence, or twenty-six weekly Numbers, price Threepence, of thirty-two pages, of sixty-four columns, demy 8vo. Covers for binding the volume, when completed, will be issued at 9d. The French Department carefully edited by Professor De Loime, and the English Department by Professor Wallace and H. Bridgeman, Esq. The Dictionaries will also be published in Monthly Parts, *One Shilling each*. Each PART will contain *one hundred and twenty-eight pages*. Though these Dictionaries are thus published in periodical portions, to suit the convenience of a majority of purchasers, it will be found that the entire volume will cost no more than if it were purchased at once. Part I., price 1s., is now ready.

CASSELL'S GERMAN DICTIONARY. The 1st Number, price 3d., to be issued on precisely the same plan as the French Dictionary, will be ready July 2.

CASSELL'S LESSONS IN FRENCH (from the "Popular Educator"), in a neat volume, price 2s. in stiff covers, or 2s. 6d. neatly bound in cloth.

CASSELL'S LESSONS IN GERMAN (from the "Popular Educator"), uniform with the above, price 2s. in stiff covers, or 2s. 6d. cloth.

CASSELL'S EUCLID.—THE ELEMENTS OF GEOMETRY. Containing the First Six, and the Eleventh and Twelfth Books of Euclid. Edited by Professor Wallace A.M., price 1s. in stiff covers, or 1s. 6d. neat cloth.

THE SELF AND CLASS EXAMINER IN EUCLID, containing the Enunciation of all the Propositions and Corollaries in Cassell's Edition, for the use of Colleges, Schools, and Private Students, is now ready, price 2d.

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THE ANSWERS TO ALL THE QUESTIONS IN CASSELL'S ARITHMETIC, for the use of Private Students, and of Teachers and Professors who use this work in their classes, is just issued, price 3d.

Printed and Published by JOHN CASSELL, La Belle Sauvage-yard, Ludgate-hill, London.—June 18, 1853.

LESSONS IN GERMAN PRONUNCIATION.—No. I.

The object of learning a modern language is not simply, as in the case of one that is no longer spoken, to be able to read and write, but also to speak it. For this purpose it is obviously necessary to acquire a knowledge of the pronunciation as well as the meaning of the words. Hence we are not surprised at having received many applications from the readers of our lessons in German for some instruction on this subject; and it is our intention to publish in the pages of the POPULAR EDUCATOR a series of German Reading Lessons expressly prepared with a view to teach the proper pronunciation of the language. These lessons will be found much better adapted to answer the purpose than any mere collection of rules, however carefully drawn up, and however clearly expressed. In no case is the principle, that example is better than precept, more applicable than in that of pronunciation, a knowledge of which can only be acquired by frequent exemplification. We have no hesitation in saying, that the study of our lessons will enable the reader to pronounce German, if not with absolute perfection, at least so as to be easily understood by a native, which is after all the only practical object in view.

It is proper to observe, that while the lessons are especially intended to teach pronunciation, they are also calculated to be very useful to our readers as exercises in translation, being easy in construction, simple in style, rich in words, and adapted in substance to persons of all ages. A vocabulary will be appended to each lesson, containing an explanation of the meaning of every word in it which has not been previously explained. As few words will be explained more than once in the whole course of the vocabularies, it will be necessary for the learner to study each with great care on its first occurrence, that he may avoid the inconvenience of having to look through preceding numbers for the meaning.

DIRECTIONS FOR THE USE OF THE INTERLINEAR PRONUNCIATION.

Pronounce every syllable as in English.

To make a vowel long, which otherwise would be short, or might be either short or long, an apostrophe has been placed immediately after that vowel. Thus "foot" will rhyme with "put," but "foot" will rhyme with "boot."

To make a vowel short which otherwise would be long, or might be either long or short, the short sign or breve has been placed over that vowel. Thus "wild" will rhyme with "will," but "mild" will rhyme with "build." "Boot" will rhyme with "root," but "böt" will rhyme with "put."

Äh is long, and sounded as in *father*, ð is short, and sounded as in *castle*.

ey is to be pronounced as in *obey*.

ai, representing the short sound of *a* when unaccented and terminating a syllable, should be pronounced like *cy* in the noun *sur-cy*. The letters *ey* could not well be used for this sound, as they have generally the sound of *ee* when unaccented.

ö, has no corresponding sound in English; place the organs as if to pronounce *o* long, keep them exactly in this position, and then try to pronounce the German *e* or English *a*. For the short sound of this vowel place the organs again as if to pronounce *o*, and without changing try to pronounce *ef*, *el*, *col*, *em*, *en*, *ep*, *er*, *ess*, *et*, and you will utter the sound required. The sound which comes nearest to it is the *e* in *her*.

ü, has no parallel in English. Pronounce *oo* in *ocean*, firmly maintain this position, and try to pronounce long *e* in *cel*, the sound uttered will be the one required. For the short sound, place the organs in a similar position, and without

changing it try to say: *uf*, *il*, *ich*, *im*, *in*, *ip*, *ir*, *iss*, *it*. For those who have studied French it may be well to remark that the German *ü* has the same sound as the French *u*.

ou, is always to be sounded as in *out*, *our*.

gh before *e* and *i* must be pronounced like *g* in *get*, *gimlet*.

The sound of *ch* has no equivalent in English, but is a guttural sound like the *ch* in the Scotch word *loch*, and is very common in Irish. An approximation may be made to it by breathing through the throat at the time of pronouncing the letter *k*.

Das Nothfehden.

Dass rote-kail-chen.

Ein Nothfehden kam in der Strenge des Winters an.
Ine rote-kail-chen kähm ip dair streng-ai dess vin-ter's an.
das Fenster eines frommen Landmanns, als ob es gern
dass fen-ster i'-ness from-men lant-manns, als, op ess gern
hinein möchte. Da öffnete der Landmann sein Fenster,
hin-ine möch-tai. Däh of-nai-tai dair lant-män zine fen-ster,
und nahm das zutauliche Thierchen freundlich in
önt nahm dass tsou-trou-lich-ge teer-chen front-lich in
seine Wohnung. Nun wachte es die Brosamen und
zi-nai vo'-nöök. Noon pick-tai ess dec bro-zäh-men önt
Krimchen auf, die von seinem Tische fielen. Auch hiel-
krüm-chen auf, dec fon zi'-nem tish-shai fee'-len. Auch heel-
ten die Kinder des Landmanns das Bögelin lieb und
ten dec kin-der dess lant-manns, dass bö'-line leep önt
werth. Aber als nun der Frühling wieder in das Land
vairt. Äh-ber als noon dair frü-ling, vee'-der in dass lant
kam und die Gesträuche sich belaubten, da öffnete
kähm önt dec gai-büsh-shai zich bai-laup'-ten, däh of-nai-tai
der Landmann sein Fenster, und der kleine Gast entfloz
dair lant-män zine fen-ster, önt dair kl'-nai gäst ent'-floz.
in das nahe Waldchen, und haute sein Nest und sang
in dass näh-ai velt-chen, önt bou-ai-tai zine nest önt zänk
sein fröhliches Liedchen.
zine frö'-lich-geß leet'-chen.

Und siehe, als der Winter wiederkehrte, da kam
önt zee'-hai, als dair vin-ter vee'-der-kair-tai, däh kähm
das Nothfehden abermals in die Wohnung des Land-
dass rote-kail-chen äh-ber-mähls in dec vo'-nöök dess lant-
manns und hatte sein Weibchen mitgebracht. Der Land-
manns önt hä'-tai zine vipe-chen mit-gai-bracht. Dair lant-
mann äh-ber sammt seinen Kindern freuten sich sehr, als sie
män äh-ber zänt zi'-nen kin-der's frei-ten zich sehr, als sie
die beiden Thierchen sahen, wie sie aus dem klaren Aeng-
dee bi'-den teer-chen zäh'en, vee zee ouss dair kläh'-ren ois-
leif zutaulich wun-der-schauten; und die Kinder
line tsou-trou-lich öpm hair'-shou'-ten; önt dec kinder
sagten: Die Bögelchen sehen uns an, als ob sie
zäh'-ten: Dec bö'-gel-chen zey'-chen öns an, als op zee
etwäs sahen wollten.
et'-wäs zäh'-chen vol'-ten.

Da antwortete der Vater: Wenn sie reden könnten,
Däh ant'-vor-tai-tai dair fäh'-ter: Ven zee rai'-den könn'-ten,
so würden sie sagen: Frendliches Vertrauen er-
zo vür-den zee zäh'-ghen: Froint-lich-geß tsou-trou-er-
wecket Vertrauen, und Liebe erzeuget Gegen-
veck-et tsou-trou, önt lee'-hai er-ri-ought ghai'-ghen-
liebe!
lee'-bai!

[For the Vocabulary, containing the meanings of the words in this lesson, see page 196.]

LESSONS IN MUSIC.—No. XIX.

By JOHN CURWEN.

The tune "Melcombe" in our last lesson, and "Edgeware" in notation only, in order that our pupils may, after the lesson this, will illustrate to our pupils the effect of transition into which follows the next, have an exercise in copying these the key of the dominant. We have given them in the new tunes as well as others into the old notation.

KEY E.

EDGEWARE.

M. 66.

(Music from Handel; Words by Barry Cornwall.)

d : m	r : s	f m : r d	r : s	m : l	t u ₁ : s
Song should breathe of	scents and	flop - ers,	Song should like	a	
d : d	t ₁ : s ₁	d : t ₁ d	t ₁ : s	d : d	r d : t ₁
s : t u ₁	s : —	s : d ¹	l	m s : d ¹ t	l : s
riv - er	flow;	SONG SHOULD BRING BACK	SCENES AND	HOURS,	
l ₁ : r	s ₁ : —	m : m	f : m	d : m s	f : m
m s : d ¹ t	t ₁ l : s	s f : m s	r : —	s : d	m r : d
THAT WE LOVED, FH,	LONG - A	go!	Song should bring back		
d m : m s	s f : f m	m r : d	t ₁ : —	d : d	t ₁ : d
s m : r d	r : d	s : d r	t ₁ f : m r	m : r	d : —
scenes and	hours,	That we	loved, ah,	long a	go.
d : t ₁ d	s ₁ : d	d : d	s ₁ t ₁ : d f ₁	s ₁ : t ₁	d : —

2 Song from baser thoughts should win us;
Song should charm us out of woe;
SONG SHOULD STIR THE HEART WITHIN US,
LIKE A PATRIOT'S FRIENDLY BLOW.

3 Song should spur the mind to duty,
Move the weak, and stir the strong;
EVERY DEED OF TRUTH AND BEAUTY
SHOULD BE CROWNED WITH STARRY SONG!

In the following tune, reprinted from the "Pianoforte and Full Score Edition" of Mr. Curwen's "People's Service of Song," our pupils will find an exquisite example of the sub-dominant transition. Notice the beautiful effect of r₁ in the third line. [Our friends who are studying the old notation will notice that the air of the tune is written on the third staff downward in large notes. The small notes are for the piano. The bass is on the lowest staff. The other parts are named at

the beginning of each staff. Learners should put a square note, to represent the place of don, on the middle line of the staff, except in the bass. There the don (key-note) stands on the second line from the bottom. For the key is a flat.** Observe the dots, which indicate the repetition of music and the corresponding repetition of words.] The tune is also given in the new notation. But the arrangement is for two voices, not for four.

OBERLIN.

8, 7; 8, 7; 7, 7. TROCHAIC. (')

M. 58.

Who is this, that comes from Edom?

We are, Lord, a vineyard planted.

Verse 1 Through the day thy love hath spared us, Now we lay us down to rest;

2 rep. Us and ours pre-serve from dan-gers: In thine arms may we re-pose;

OBERLIN, (Continued).

1 Je - sus, thou our guar-dian be; Sweet it is to trust in thee.

2 And when life's short day is past, REST WITH THEE IN HEAV'N AT LAST.

KEY B flat.

(Music, German; Words by Kelly.)

M. 58.

s ₁ : d	t ₁ : d	r : d t ₁	d : d	m : m	r d : t ₁
Through the	day	thy	love has	spared us,	Now we
m ₁ : d ₁	f ₁ : m ₁	r ₁ : s ₁	m ₁ : m ₁	s ₁ : d	t ₁ d : s ₁
l ₁ : l ₁	s ₁ : —	s ₁ : d	t ₁ : d	r : d t ₁	d : d
down to	rest.	Through the	si - lent	watch - es	guard us -
s ₁ : t u ₂	s ₁ : —	m ₁ : d ₁	f ₁ : m ₁	r ₁ : s ₁	m ₁ : m ₁
m : m	r d : t ₁	l ₁ : l ₁	s ₁ : —	d : f ₁	l ₁ : l ₁
Let no	foe our	peace mo	lest.	Je - sus	now our
s ₁ : d	t ₁ d : s ₁	s ₁ : t u ₂	s ₁ : —	d : m ₁	f ₁ : m ₁
r : d	t ₁ : —	d : r	m : f	m : r	d : —
guar - dian be,	Sweet it is	to	trust in	Thee!	
r ₁ : t u ₂	s ₁ : f ₁	m ₁ : f ₁	s ₁ : l ₁	s ₁ : t ₁	d : —

KEY E.

DELABORE. (To illustrate chromatic notes.)

M. 66.

m : f	f : s	r : s	s : m	s : f	f : m	m : —	r :
Peace be	to	this	ha	bi	ta	tion!	
Peace that	speaks	the	heaven	ly	giv	er;	
d : r	r : m	f : m	m : d	m : r	r : d	d : —	t ₁ :
m : f	f : s	l : s	s : d ¹	t : d ¹	l : d ¹	l : —	s :
Peace to	all	that	dwelt	there	in!		
Peace to	world	ly	minds	un	known.		
d : r	r : m	f : m	m : d	r : m	f : f ₁	f ₁ : —	s :
f : m	r : l	s : f	m : d ¹	l : t	d ¹ : r ¹	d ¹ : —	t :
Peace the	ear	nest	of	sal	va	tion!	
Peace di	vine,	that	lasts	for	e	ver;	
r : d	t ₁ : f	m : r	d : m	f : r	m : f	m : —	r :

DELABORE, (Continued).

s : f	r : f	f : m	d : m	m : r	l : s	f : -	m :
Peace,	that	fruit	or	par	don'd	sin!	
Peace,	the	comes	from	God	a	lone.	
t :	t :	d :	d :	d :	f :	r :	d :
m : f	foi : s	t : l	s : f	m : d	d : t	t : -	d :
Peace	that	fruit	of	par	don'd	sin.	
Peace	that	comes	from	God	a	alone.	
d : r	roi : m	r : f	m : r	d : m	m : r	r : -	d :

The strikingly effective piece which follows, adapted from Handel's "Dead March," in his oratorio of "Saul," and reprinted from the work above named, will exhibit to the pupil the effects of transition in a still more striking manner.

[The key-note *e*, is in the lowest space, except in the bass. There it is in the fourth line from the bottom.] Boyce's Chant illustrates both transitions.

SAUL.

8, 7; 8, 7; 7, 7. TROCHAIC. (')

M. 59.

When we pass through yonder river.

Hark! ten thousand harps and voices.

Verse 1 What is life! 'Tis but a va-pour; Soon it van-ish - es a-way:

2 See that glo - ry; how resplendent! Brighter far than fan - cy paints:

3 Joy - ful crowds, his throne surrounding, Sing with rap-ture of his love;

4 Go, and share his peo-ple's glo - ry; 'Midst the ransomed crowd ap-pear:

SAUL, (Continued).

Verse 1 Why not spread thy wings and fly STRAIGHT TO YON - DER WORLD OF JOY?

2 Spread thy wings, my soul, and fly STRAIGHT TO YON - DER WORLD OF JOY.

3 Spread thy wings, my soul, and fly STRAIGHT TO YON - DER WORLD OF JOY.

4 SPREAD THY WINGS, MY SOUL, AND FLY STRAIGHT TO YON - DER WORLD OF JOY.

KEY F.

(Music from Handel; words by Kelly.)

M. 50.

m : m	m : m	m : m	f : m	r : r	f : f, l	f : - l
What is	life!	'Tis	but	a	va - pour,	soon it
d : d	d : - d	d : - d	d : - d	t : t	r : r	r : - f
s : f	m : r, f	m : -	s : s	s : - l	fi : - l	s : s
es	a	way.	Life	is	like	dy - ing
m : r	d : t	d : -	m : m	m : - f	s : - f	ta - per,
s : f	f : m	m : r	s : f, m	f : m	r : -	m : m, f, s
O	my	soul, why	wish	to	stay?	Why not
m : r	r : d	d : t	m : r, d	t : d	s : -	d : d, r, m
r : d	f : m	r : -	s : d	s : - s	f : m	r : d
WINGS	AND	FLY,	STRAIGHT TO	YON - DER	WORLD OF	JOY?
t : d	r : d	t : -	m : m	m : - d	t : d	s : t

BOYCE'S CHANT.

M. 66.

PSALMS li. cxxxix. ISAIAH lxiii. 1-7, 9-16. ROM. xi. 33-36.
1 COR. xv. 51-58. 1 THESS. iv. 13, 18.

Infinitive.	Participles.	Indicative.	Imperfect.	Past Definite.	Future.	Conditional.	Imperative.	Subjunctive.	Imperative.
EMPREINDRE, 4. to imprint	empreignant, f. e. see CEINDRE	empreins	empreignais	empreignis	empreindrai	empreindrais	empreins	empreigne	empreins-toi
ENCLORE, 4. to enclose	enclos, f. e. see COURIR	enclos	enclois	enclois	encloirai	encloirais	enclois	encloigne	enclois-toi
ENCOURIR, 2. to incite	encourageant, f. e. see COURIR	encourage	encourageais	encourageais	encouragerai	encouragerais	encourage	encourage	encourage-toi
ENDORMIR, 2. to lull asleep	endormant, f. e. see DORMIR	endorme	endormais	endormis	endormirai	endormirais	endorme	endorme	endorme-toi
ENDUIRE, 4. to plaster	enduisant, f. e. see CONDUIRE	enduis	enduisais	enduisais	enduirai	enduirais	enduis	enduis	enduis-toi
ENFREINDRE, 4. to infringe	enfrenant, f. e. see CEINDRE	enfrens	enfrenais	enfrenais	enfrendrai	enfrendrais	enfrens	enfrens	enfrens-toi
ENFUIR, (s') 2. to run away	enfuyant, f. e. see FUIR	enfuis	enfuyais	enfuyais	enfuirai	enfuirais	enfuis	enfuis	enfuis-toi
ENJOINDRE, 4. to enjoin	enjoignant, f. e. see CEINDRE	enjoins	enjoignais	enjoignis	enjoindrai	enjoindrais	enjoins	enjoigne	enjoins-toi
ENNUYER, (s') 1. to be weary	ennuyant, f. e. see APPUYER	ennuie	ennuyais	ennuyais	ennuierai	ennuierais	ennuie	ennuie	ennuie-toi
ENQUÉRIR, (s') 2. to inquire	enquérant, f. e. see ACQUÉRIR	enquiers	enquiers	enquiers	enquerrai	enquerrais	enquiers	enquiers	enquiers-toi
ENTREMETTRE, (s') 4. to interpose	entremettant, f. e. see METTRE	entremets	entremettais	entremettais	entremettrai	entremettrais	entremets	entremets	entremets-toi
ENTREPRENDRE, 4. to undertake	entreprenant, f. e. see PRENDRE	entreprends	entreprenais	entreprenais	entreprendrai	entreprendrais	entreprends	entreprends	entreprends-toi
ENTRETENIR, 2. to entertain	entretenant, f. e. see TENIR	entretiens	entretiens	entretiens	entretiendrai	entretiendrais	entretiens	entretiens	entretiens-toi
ENTREVOIR, 3. to glimpse at	entrevois, f. e. see VOIR	entrevois	entrevois	entrevois	entreverrai	entreverrais	entrevois	entrevois	entrevois-toi
ENVOYER, 1. to send	envoyant, f. e. see VOIR	envoie	envoyais	envoyais	envoierai	envoierais	envoie	envoie	envoie-toi
EPRENDRE, (s') 4. to be smitten	épreignant, f. e. see PRENDRE	éprends	éprendais	éprendais	éprendrai	éprendrais	éprends	éprends	éprends-toi
ESSAYER, 1. to try	essayant, f. e. see APPUYER	essaie	essayais	essayais	essaierai	essaierais	essaie	essaie	essaie-toi
ÉTENDRE, 4. to extend	étendant, f. e. see CEINDRE	étends	étendais	étendais	étendrai	étendrais	étends	étends	étends-toi
ÉTINCÉLER, 1. to sparkle	étincelant, f. e. see APPUYER	étincelle	étincellais	étincellais	étincellerai	étincellerais	étincelle	étincelle	étincelle-toi
ÉTIQUETER, 1. to label	étiquetant, f. e. see ACHETER	étiquète	étiquétais	étiquétais	étiquèterai	étiquèterais	étiquète	étiquète	étiquète-toi
ÉTRE, 4. to be	étant, f. e. see MODÈLE	étais	étais	étais	étrai	étrais	étais	étais	étais-toi
ÉTREINDRE, 4. to press	étréignant, f. e. see CEINDRE	étréins	étréignais	étréignais	étréindrai	étréindrais	étréins	étréins	étréins-toi
EXCLURE, 4. to exclude	excluant, f. e. see CONDUIRE	exclue	excluais	excluais	exclurai	exclurais	exclue	exclue	exclue-toi
EXTRAIRE, 4. to extract	extrayant, f. e. see TRAIRE	extraie	extrais	extrais	extraurai	extraurais	extraie	extraie	extraie-toi

FABLES.

LE CHÊNE ET LE SYCOMORE.

Un chêne était planté près d'un sycomore. Le dernier poussait des [S. 10. 3.] feuilles dès le commencement du printemps, et méprisait l'insensibilité du [S. 3. 1.] premier. Voisin, dit-il, (dire, ir.) le chêne ne compte pas trop sur les caresses de chaque zéphyr inconstant. Le froid peut (pouvoir, 3. ir.) revenir. Pour moi, je ne suis (être, 4. ir.) pas pressé de pousser des feuilles; j'attends que la chaleur soit (être) constante. Il avait raison: [S. 6. 1.] une gelée détruisit (détruire, 4. ir.) les beautés naissantes [S. 11.] du sycomore. Eh bien! dit l'autre, n'aurais-je pas raison de ne pas presser? Ne comptez ni sur [S. 7. 1.] (1) [S. 2.] les caresses ni sur les protestations excessives; [S. 11. 5.] elles sont ordinairement de courte durée.—Perrin.

L'ÂNE ET SON MAÎTRE.

Un âne trouva par hasard une peau de lion. [S. 3. 3.] et s'en [S. 33. (17.)] revêtit, (revêtir, 2. ir.) Ainsi déguisé il alla dans les forêts et répandit partout la [S. 6. 2.] terreur et la consternation. Tous les animaux fuyaient (fuir, 2. ir.) devant lui. Enfin il rencontra son maître qu'il voulait épouvanter; mais le bon homme apercevant quelque chose de [S. 17. 3.] long, aux deux côtés de la tête de l'animal, lui dit: maître baudet, quoique vous soyez [S. 72. 4.]

vêtu comme un lion, vos oreilles vous trahissent et montrent que vous n'êtes réellement qu'un âne.

Un sot a toujours un endroit qui le découvre et le rend ridicule. L'affection est un juste sujet de mépris.—Perrin.

L'AIGLE ET LE HIBOU.

L'aigle et le hibou, après avoir [S. 20. 2.] fait longtemps la guerre, convinrent d'une paix; les articles préliminaires avaient été préalablement signés par des [S. 10. 3.] ambassadeurs: l'article le plus essentiel était que le premier ne mangerait pas les petits de l'autre.—Les connaissances (connaître, 4. ir.) vous, demanda le hibou? Non, répondit l'aigle.—Tant pis.—Peignez, (peindre, 4. ir.) les moi [S. 27. 4.] ou me les montrez; [S. 100. (6)] foi d'honnête aigle je n'y [S. 39. (18.)] toucherai jamais.—Mes petits, répondit l'oiseau nocturne, sont magnifiques, beaux, bien faits; ils ont la voix douce et mélodieuse [S. 11. 5.]; vous les reconnaîtrez aisément à ces marques.—Très bien, je ne l'oublierai pas. Il arriva un jour que l'aigle aperçut dans le coin d'un rocher de [S. 6. 4.] petits monstres très laids, rechignés, avec un air triste et lugubre. Ces enfants, dit-il, n'appartiennent (appartenir, 2. ir.) pas à notre ami; mangeons les: aussitôt il se mit à en [S. 13. 7.] faire un bon repas. L'aigle n'avait pas tort [S. 6. 1.] Le hibou lui avait fait une fausse peinture de ses petits; ils n'en avaient pas le moindre trait.

Les parents devraient (devoir, 3. ir.) éviter avec soin ce faible envers leurs enfants, il les rend souvent aveugles sur leurs défauts.—Perrin.

LESSONS IN GEOLOGY.—No. XXXIV.

By THOS. W. JENKYN, D.D., F.R.G.S., F.G.S. &c.

CHAPTER III.

ON THE INFLUENCE OF ATMOSPHERIC AGENCY ON THE EARTH'S CRUST.

SECTION III.

ON THE EFFECTS OF ELECTRIC DISCHARGES UPON ROCKS.

THE first chapters in the series of these lessons have taught you that there are electric, magnetic, and galvanic influences, operating in and upon the crust of the globe, totally independent of the electricity, which is now to be considered among atmospheric agents. What share the operations of this subtle and powerful force may have in the production of earthquakes, and in the formation of ores and metallic veins, does not concern the business of this section, which is limited to Atmospheric Electricity.

Meteorologists have not succeeded in establishing any sound theory that accounts for the tension of atmospheric electricity in a clear and serene sky. Its origin in the regions of the therm has been ascribed to various sources, such as the evaporation of impure fluids impregnated with earths and certain salts,—the luxuriant growth of plants and trees,—the unequal distribution of heat and cold in various elevations of the atmosphere,—the chemical decompositions which are constantly taking place on the earth's surface, and the permanent supply of negative electricity with which the superficial crust of the globe is charged.

No approach can be made to a satisfactory account of the tension of this subtle power in the atmosphere, without taking into the calculation a great variety of facts and many delicate processes. In estimating it, the meteorologist has to consider the relations which the evaporation ascending from the earth bears to the electric charge, the shape of the clouds in different parts of the day, and at different seasons of the year, the influence of cold and warm zones of the earth on incumbent strata of air, the physical condition of low plains, and extensive table lands, and the periodical character and frequency of thunder-storms.

The influence of electric discharges on the earth's crust must necessarily be confined to the geographical limits of thunder-storms. In the torrid zone, thunder-storms take place at certain seasons of the year, almost every day, in the course of four or five hours after the sun has reached the meridian. To this general rule, the tropical coast of Peru furnishes a striking contrast; for in that district, thunder and lightning are utterly unknown. In high northern regions, especially between the latitudes of 70° and 75°, all navigators in those tracts report that electric explosions are exceedingly rare. Sir Charles Geiseke says, that during the six years he spent in Greenland, it thundered only once. In districts under the influence of the monsoons, the thunder-storms are tremendous at every change of those winds. Where the trade winds prevail, tempests of thunder are almost unknown, except at the extreme outskirts of their range, when electric explosions are frequent and powerful.

It is well known that the atmosphere contains a large amount of electricity, which, in various ways, acts an important part both on organic life and on inorganic elements. It is greatly concerned in the formation of clouds, rain, and similar phenomena. Some of its effects on the surface of the globe are very remarkable, such as the elevation of huge columns of sand, the production of hailstones at night, and the formation of waterspouts. The influence of this power is ever present, ever active, though subtle, and for the most part invisible. It is perpetually producing slow, quiet, changes in the surface of rocks, which escape our notice, except occasionally when the discharge of a thunder-storm arrests our attention.

When Professor JAMES FORBES, of Edinburgh, was near the Col du Mont Cervin, in the Alps, he found that the atmosphere was very turbid, and that the surface of the mountain was covered with half-melted snow, while, at the same time hail began to fall. This was on a tract of the mountain some 1,500 feet below the Col, but yet 9,000 feet above the level of the sea.

While he was walking, the Alpine post in his hand gave forth a curious sound, which the guides explained as proceeding from a worm that was eating the interior of the wood.

Professor Forbes knew that the sound proceeded from the electric fluid with which the air was then charged. As a proof of this, he reversed the stick, so that the point from which it came at first, was put uppermost. In a moment the sound issued from the other end of it. The fact was that at that high elevation, they were so near a thunder cloud as to be, all of them, highly electrified by induction. He held his hand above his head, and immediately all his fingers yielded a fizzing sound. Even all the angular and pointed stones and blocks on the mountain were hissing around them, like the points near a powerful electrical machine when highly charged. He told his guides that they were near a thunder-cloud. The words had scarcely escaped his lips, when a clap of thunder, without any lightning, verified his remark.

In this instance, and indeed, in every case, where the thunder-clouds are low, the electricity produced by induction is so powerful that it escapes from all pointed objects in the shape of a flame, but without heat. This flame is what is called St. Elmo's fire: and is frequently seen, in thunder-storms at sea, at the topmasts of ships, and at the extremities of their yard-arms. On some occasions, even hail stones, drops of rain, and flakes of snow, have appeared luminous with this electric light.

I have enumerated these facts for the sake of illustrating to you the permanent presence of electric agency in the atmosphere.

When the lightning passes from the clouds to the earth, it always follows the best conductor. The best of all conductors are metals: the next are damp and moist substances, which is the reason why men and animals are so frequently struck. If the lightning in its motion, meets with a bad conductor, it shivers it to pieces, and hurries its fragments to a considerable distance. When it strikes a tree, the electric fluid converts the sap into steam, which by its well known expansive force, bursts the tree, and shatters it to atoms. Some of the phenomena connected with the velocity of lightning are curious and unaccountable. A very powerful flash of lightning will scatter gunpowder like a cloud of coal dust in March, while a feeble one sets it all on fire.

A scientific examination of the various phenomena of electric agency has shown, that the hardest and most untractable substances in nature can be artificially dissolved, and be again reconstructed, by this subtle fluid; sometimes by slow and insensible operation, and at others with rapidity and violence. On particular occasions we are made to observe the tremendous effects of electricity, during a thunderstorm; but even these, however signal and extensive, are trifling when compared with the effects that are hourly but insensibly produced by the same agency in the superficial crust of the earth.

When electricity is developed with considerable intensity, as in the explosions of a storm, it not only effects various chemical decompositions in matters found in the air, but produces marked alterations in the surface of rocks. These alterations form the principal subject of this lesson.

The phenomena produced in surface rocks, by electric discharges, may be divided into two classes: the first, produced by the dash and the stroke of the fluid against the crags and precipices of mountains; the second, by the entrance of the fluid into the surface soil.

All who inhabit mountainous districts are familiar with the effects of a discharge, from a thunder-storm, when the electric fluid shivers massive cliffs of rock into pieces, and hurries the fragments from the high crags down to the valleys below. In the rugged district of Funzie, in the island of Fetlar, one of the Shetlands, a signal instance of this destructive agency took place. An enormous rock of mica schist, which was 105 feet in length, 10 feet in breadth, and, in some places 4 feet in thickness, was in an instant torn from its place in the cliff, by a flash of lightning. The stroke of the fluid dashed this immense mass into three large fragments, and a portion of it into several small pieces. One of these fragments, twenty six feet long, ten broad, and four in thickness, was only turned over; but another, which was twenty-eight feet long, seventeen broad, and of the same thickness as the other, was hurled across a high point to the distance of full fifty yards. In the same precipice, a disturbed mass, forty feet long, was thrown and propelled in the same direction, but to a greater distance, and was plunged in the sea.

To appreciate the influence of these facts upon geological inquiry, you must consider that, when lightning from above co-operates with volcanic powers from below, and that both would combine to heap up piles of rocky fragments, whether upon land or in the sea, such an accumulation, if exposed, will be very difficult to account for. This will be particularly the case where such combined agencies have been in activity, and that upon a large scale, for thousands of years. In these processes, masses from upper rocks are thrown down by lightning, and fragments from lower beds are thrown up by volcanic powers, in such a way as to cover them over, or to mingle with them in ruinous confusion.

Sometimes, at an electric discharge, the lightning, instead of shattering the rock, will only fuse the surface of it. The celebrated Saussure mentions that, on Mont Blanc, he found a rock compounded of feldspar and hornblende. The surface of the rock was every where fused and covered with blisters or bubbles; but the effects of the fusion differed as the compound element of the rock differed. On the parts that were feldspar, the bubbles were white; but they were black, on the parts that were composed of hornblende.

The phenomenon of the fusion of rocks by lightning is best seen in the surface sands. In such localities the operation of the electric fluid and the results of its explosion have been remarkably curious; for the loose sand has been found to have been cemented together by absolute fusion. It is probable that the cementing process is owing to the presence of potash in the loose sands. The depth to which such fusion by the electric discharge has extended is frequently more than ten or twelve yards.

It is likewise remarkable that the lightning in entering the soil, forms portions of the loose sand into hollow tubes. The insides of these tubes are vitrified or glazed, something like what you have seen on the outside of an over-burnt brick. These tubes are called *Fulgurites*. Their length is sometimes thirty feet or more. The thickness of the walls or sides of these tubes, is about one-tenth of an inch; and their circumference about two or three inches. They are very rarely found perfectly round, but generally compressed, like a withered bean-stalk, and furrowed downward in the direction of their length. In their descent, they fork and divide in several places. A curious fact, connected with the phenomena of fulgurites, and illustrative of the laws of electric discharges, is, that these fused tubes are generally found in groups, and within a small distance of each other.

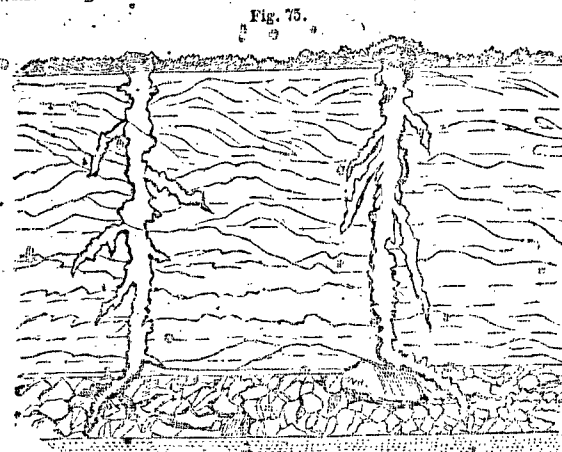
The effects of lightning on loose sand or sandy soils, were first examined by Dr. Priestley. In his neighbourhood, a man, while sheltering under a tree, was killed by an electric discharge. Dr. Priestley examined the sandy soil under the tree, and dug through the sand to follow the progress of the electric fluid. He found that the lightning had fused the sand into imperfect siliceous tubes, and had melted a pebble of quartz.

The attention of geologists was drawn to the formation of fulgurites, by some striking and tolerably perfect specimens of them, which were discovered at Drigg, in Cumberland, in the drifted sandhills which lie at the junction of the river Irk with the Irish Channel.

The sands of the hills or dunes at Drigg consist of grains of quartz, mingled with comminuted particles of hornstone, porphyry, and a few fragments of sea shells. The strata of these sand hills are as follow:—a bed of sand thirty feet deep, which rests upon a bed of pebbles two feet deep. Both these beds rest on a stratum of wet gravel. One of these sand hillocks is altogether forty feet high. It is in this that, some years ago, three hollow tubes of fused sand, or fulgurites, about an inch and a half in diameter, were found, with their inside made vitreous by lightning.

The Drigg fulgurites descended vertically into the sandhill to more than thirty feet in depth; but in descending, the lightning formed them into several branches. At the depth of twenty-nine feet, one of the tubes came in contact with a pebble of porphyry, at which it glanced off at an angle of forty-five degrees, and then resumed its downward direction. Another struck against a pebble of granite, and glanced off in the same manner. The ruggedness or irregularity of the outline of these fulgurites, is to be accounted for by the circumstance that the lightning had to pass through moist sand.

The annexed diagram, fig. 75, represents the manner in which fulgurites are formed.



Fulgurites, showing the effects of Lightning upon Loose Sand, at Drigg, Cumberland.

These fulgurites are found in several parts of the globe. When Mr. Darwin was at Maldonado, on the plains of La Plata, in South America, he found, on the shores of the Plata, a broad band of sand-hillocks, in which he discovered a group of these siliceous and vitrified tubes, formed, like those at Drigg, by the discharge of the electric fluid. Unlike the tubes at Drigg, those in the sands of the Plata were formed with their upper extremities projecting much above the surface. The reason of such an appearance is that the surface of the sands at Maldonado, is not covered with vegetation; and consequently the sands are perpetually changing and shifting; and leaving the upper parts of these tubes exposed. The shifting of the sand had left some of these projecting tubes so defenceless that the force of the wind had broken them to pieces, and numerous fragments of fulgurites lie scattered in all directions on the hillock.

Mr. Darwin discovered that, within a small area, four sets of tubes had entered the sand perpendicularly. Unfortunately, he had no implements with which he could dig into the soil to trace the depth to which they had penetrated; but with his hands he worked off the sand till he could trace one of these tubes to the depth of two feet. He then desisted, and proceeded to collect some of the fragments of these tubes which lie scattered on the sand, but which had evidently, at one time, formed the same tube. When he added these parts to the length that he had found in the soil, he found that the tube was altogether five feet three inches long. The diameter of this tube, as far as it was traced, was nearly equal all the way down. Consequently, as it is known that the lower these tubes descend, the more they taper, we must suppose that all that was found of this tube was only the upper fragment of one, and that originally it must have extended to a far greater depth.

The inside surface of these tubes was completely vitrified, glassy and smooth. The sands of the hillocks are for the most part, it not entirely, siliceous. The thickness of the walls or sides of the tube varies from one-thirtieth to one-twentieth of an inch; but in some parts of it, it equals even one-tenth of an inch. The tubes are generally compressed like those at Drigg, and have deep furrows throughout their lengths, like the cracks which are sometimes found in the bark of old trees. These differ from the tubes at Drigg by having the grains of sand on their outside rounded and slightly glazed in appearance.

The circumference of these tubes was generally about two inches. There were, however, some fragments found, lying about, that were cylindrical in structure and without furrows down their sides, which were even four inches in circumference. It is difficult to account for these longitudinal furrows in the tubes. They are probably due to the compression

which takes place, from the surrounding sand acting, while the fused tube was as yet in a soft state, under the operation of intense heat. The circumference of the fragments found uncompressed show that, in this case, the bore or the diameter of the lightning charge must have been about an inch and a quarter.

I have already mentioned some circumstances in which the tubes at Maldonado, differ from those found in Cumberland. In the Maldonado sands all the tubes enter the soil vertically; but one of these tubes has deviated from the perpendicular line to about thirty-three degrees. This tube had two small branches, one of which slanted downwards, but the other, most remarkably, glanced and pointed upwards; showing that, at this point, the electric fluid must have turned back at the acute angle of twenty-six degrees to the line of its main course downwards.

Of all the phenomena connected with the formation of these tubes, the most remarkable is the number of them which are always found grouped within very limited spaces. On the Drigg sands in Cumberland, three of these tubes were discovered within an area of fifteen yards. On the sands at Maldonado, within the space of sixty yards by twenty, there were certainly more than four. It is not likely that each separate tube is produced by distinct and successive shocks or discharges of the electric fluid. The most natural conclusion is, that the lightning, shortly before entering the ground, divides itself into as many descending sheets or branches as there are found separate tubes.

LESSONS IN LATIN.—No. LVII.

By JOHN R. BEARD, D.D.

CONJUGATIONS OF VERBS.

The student will require time and study before he can thoroughly enter into the usages observed by the Latin writers in the connexion of conjugations and verbs. The matter is the more difficult because the writers are not strictly uniform. In general, however, their practice may with due care be ascertained and imitated. The student should begin with an exact idea of the essential character of the indicative and of the subjunctive mood. The first, let him bear in mind, is the mood of fact and reality; the second is the mood of dependence and unreality; that is, the subjunctive denotes a condition, a concession, an aim, a result—something dependent on the action of a previous verb or the mind of the speaker, or the thought of some person to whom reference or allusion is made. The conjunctions do not create the dependence; they only indicate it, and show its exact nature in each case. Language is an expression of thought; and the business of the student of language should be, to see the thoughts of those who speak the language he studies, as those thoughts arose, and as they existed in their minds.

Quod, the neuter plural of qui, signifying *that*, or *on that account*, has sometimes a merely connecting force, and sometimes gives the reason of a preceding fact or idea. As a connecting particle, it takes its verb in the indicative mood, but if the causal force is brought into relief, or if the statement is made as dependent on the word or the thought of the leading subject, the subjunctive is required. It may be well to exhibit this general doctrine in one or two particulars.

Quod, following and explaining a demonstrative pronoun, takes an indicative mood; e. g.,

Haec hoc optimum in se genere. A generous mind has in it this, *namely* that it is excited to honourable things.

Quod, in English, must be sometimes rendered by the circumstance that; the fact that; or as to, e. g.,

Quod Silius te cum Clodio loqui. As to Silius wishing thee to speak with Clodius, you may do so with care.

Quod, with the subjunctive, may also be construed with *as far as*, e. g.,

Tu, quod poteris, nos consiliis adjuvas. As far as you can, you will assist us with your counsels.

Quam may be used instead of quod, especially after gratias ago, gratulor, gratum facio; the verb is in the indicative; e. g.,

Gratular tibi quam tantum vides apud Dolabellam. I congratulate you that you have so much influence with Dolabella.

Ut, with a subjunctive, may also be substituted for quod after verbs of wishing and exhortation; as, volo, moneo, hortor; also after ita and idcirco; e. g.,

Te hortor ut orationes meas studiose legas. I exhort you to read my speeches carefully.

Ut, expressive of a wish, an effect, an operation, an aim, a result, requires the subjunctive; e. g.,

Evidem vellem ut aliquando redires. I indeed could wish you at length to return.

Quod and ut generally differ, thus: quod means *that*; ut means *in order that*; accordingly, quod denotes a simple fact; ut denotes a purpose, end, or issue.

Ut, with the indicative mood, signifies *as* or *when*, and is sometimes doubled, and sometimes is used as an exclamation; e. g.,

Quid dulcius quam habere quicum omnia audire sic loqui ut tecum? What more sweet than to have some one to whom you may dare to say all things as to yourself?

Ut, joined with quisque and a superlative, denotes proportion; the verb is in the indicative; e. g.,

Ut quisque est optimus, ita difficillime alios esse improbos suspicatur. In the degree in which a person is excellent, it is difficult for him to suspect others to be bad.

Ut and non, with a subjunctive, signify “that not,” “not that,” “not to;” after verbs denoting expressions of the will, ne stands with the signification of *ut non*; e. g.,

Ne obsecras ne obliuiscar vigilare. You beseech me not to (that I should not) forget to watch.

The same ideas expressed after verbs signifying to prohibit, forbid, deter; as, impedio, defendo, prohibeo, deterreo, obsto, per me stat; I offer no obstacle, I forbid, &c., by means of quo minus, equivalent to *eo minus*; e. g.,

Nihil impedit quo minus id quod maxime placeat facere possimus. Nothing hinders us from being able to do that which we chiefly please.

Similar in use and meaning is quin; e. g.,

Germani retineri non poterant quin in nostris tela conficerent. The Germans could not be held back from throwing javelins at our men.

Quam, which, implying its correlative turn, or some other word referring to time, takes an indicative when it indicates merely coincidence or succession of time, but a subjunctive when, like our *since*, it has a causal force; e. g.,

INDIC. : Scribam (tibi) quam frater venit. I was writing when my brother came.

SUBJ. : Redibunt hirundines quam ver reparat. The swallows will return when spring comes.

In the last instance, the subjunctive intimates that the return of spring brings back the swallows,—that is, it is the cause of their coming.

Quoniam (quam and jam), with an indicative, is used to assign the condition; out of which the idea of the chief member of the sentence arises; e. g.,

Quoniam ab inimicis præceps iger, incensum meum ruinâ restitui. Since I am driven headlong by my foes, I will extinguish my conflagration in the general ruin.

Quando and quandoquidem have the same import with some additional force; both require the indicative.

There is a point at which adverbs and conjunctions almost, if not quite, touch each other. For instance: quamdiu is commonly considered an adverb, but dum a conjunction. Yet quamdiu, “as long as,” and dum, “whilst,” that is, “during the time (while, in old English, signifies time) when,” differ little, and both are followed by an indicative mood; e. g.,

QUAMDIU : Tenet se uno loco quamdiu fuit hiems. He kept in one place as long as it was winter.

DUM : Haec dum Romae geruntur, Quintus de agro detruditur. While these things are done at Rome, Quintus is thrust out of his estate.

nitive word; as, ein Deutscher, a German; dieser Deutsche, this German; die Deutsche, the German woman; das Schöne, the beautiful; das Gute, the good; that is, *that which is beautiful; that which is good*. So, also, das Weiße, the white; das Grüne, the green; das Rote, the red; &c.

(6) When of two adjectives preceding a noun, the first is employed as an *adverb* to qualify the second, the former is not declined; thus, ein ganzes neues Haus, an *entirely* new house: not ein ganzes neues Haus, which would mean, an *entire*, new house.

§ 35. COMPARISON OF ADJECTIVES.

(1) In German, as in English, the degrees of comparison are commonly expressed by means of the suffixes *er* and *st*; thus,

Positive.	Comparative.	Superlative.
wild, wild;	wilder, wilder;	wildest, wildest.
fest, firm;	fester, firmer;	festest, firmest.
reich, bold;	reicher, bolder;	reichst, boldest.
los, loose;	loser, looser;	loosest, loosest.
nass, wet;	nasser, wetter;	nassst, wettest.
schnell, quick;	schneller, quicker;	schnellst, quickest.
stolz, proud;	stolzer, prouder;	stolzest, proudest.

§ 36. EUPHONIC CHANGES.

(1) When the positive does not end in *t*, *n*, *s*, *f*, *sch*, or *ch*, the *e* of the superlative suffix (*st*) is omitted; as,

blau, bright;	blauer, brighter;	bluest, brightest.
klar, clear;	klarer, clearer;	klarst, clearest.
rein, pure;	reiner, purer;	reinest, purest.
schön, fine;	schöner, finer;	schönst, finest.

(2) When the positive ends in *e*, the *e* of the comparative and superlative suffixes (*er*, *st*) is dropped; as,

weise, wise;	weiser, wiser;	weisest, wisest.
müde, weary;	müder, more weary;	müdest, most weary.

(3) When the positive ends in *st*, *ch*, or *er*, the *e* of these terminations is commonly omitted, upon adding the comparative or superlative suffix (*er* or *st*); as,

edel, noble;	edler, (not edeler), nobler;	edelst, noblest.
trocken, dry;	trockener, (not trockener) drier;	trockenst, driest.
tapfer, brave;	tapferer, (not tapferer), braver;	tapferst, bravest.

(4) When the positive is a monosyllable, the vowel (if it be capable of it) commonly takes the limit in the comparative and superlative; as,

alt, old;	älter, older;	ältest, oldest.
grob, coarse;	gröber, coarser;	gröbtest, coarsest.
klug, wise;	klüger, wiser;	klügtest, wisest.

(5) EXCEPTIONS. From this last rule, however, must be excepted nearly all those adjectives containing the diphthongs *au*, *as*, *ant* (loud), *lauter*, *lautest*; *rau* (rough), *rauer*, *rauest*. So, also, the following:

bunt, variegated.	knapp, tight.	satt, satisfied.
faul, flat.	lahm, lame.	schlaff, loose.
faß, pale.	lah, weary.	schlank, slender.
faß, fallow.	los, loose.	schief, rugged.
faß, plain.	lust, tired.	starr, stiff.
faß, glad.	nackt, naked.	stolz, proud.
gerat, straight.	platt, flat.	starr, stiff; tight.
glatt, smooth.	plump, clumsy.	stumm, dumb.
hohl, hollow.	rauh, raw.	stumpf, blunt.
heiß, amiable.	rund, round.	toll, mad.
heiß, bald.	sacht, slow.	voll, full.
heiß, stingy.	sacht, gentle.	zahn, tame.

LESSONS IN GEOMETRY.—No. XX.

LECTURES ON EUCLID.*

EXERCISES ON PROPOSITION XI.

I. From the extremity of a given straight line, to draw a straight line which shall make a right angle with it.

In fig. (I) let *AB* be the given straight line, and *B* its extremity; it is required to draw from the point *B*, a straight line that shall make a right angle with *AB*.

In the straight line *AB* take any point *C*, and from it draw *CD* at right angles to *AB*, by Prop. XI. Make *CD* equal to *CB*, by Prop. III. Bisect the angle *BCD* by the straight line *CE*, according to Prop. IX. From the point *C*, draw *CE* at right angles to *CD*, by Prop. XI, and let it meet *BD* in the point *E*, Axiom 12, Book I. Join *BE*, and the straight line *BE* is the perpendicular required.

Because, in the two triangles *CBE* and *CDE*, the side *CE* is equal to the side *CE*, by construction, and the side *CB* is common to both; therefore the two sides *CB* and *CE* of the one, are equal to the two sides *CD* and *CE* of the other; but the angle *BCD* of the one, is also equal to the angle *ECB* of the other, by construction; therefore, the triangle *CBE* is equal to the triangle *CDE*; by Prop. IV.; also, the base *BE* is equal to the base *ED*, and the remaining angles of the one are equal to the remaining angles of the other each to each, viz., those to which the equal sides are opposite. Therefore, the angle *CBE* is equal to the angle *CDE*; but the angle *CDE* is a right angle, by construction; therefore the angle *CBE* is also a right angle; and it is drawn from the given extremity *B*, as required. Q. E. D.

Scholium. In this demonstration, the 12th Axiom of the first book is legitimately employed to show that the straight line *BE* must meet the straight line *CD*, without referring to the doctrine of parallel lines. Had Euclid introduced this axiom at this point of the elements where its application is remarkably obvious, and where it is also positively required to complete the demonstration in a strictly elementary manner, it is highly probable that the endless discussions which have arisen about the 12th Axiom would have been altogether avoided, or at least would have been greatly diminished in number and importance.*

II. In a straight line of unlimited length given in position, to find a point equally distant from two given points.

Of this problem there are several cases:—

1°. When the two points are in the given straight line, or in its continuation.

2°. When the one point is in the given straight line, and the other out of it, but not situated in a perpendicular to it.

3°. When both points are out of the given straight line and are not situated in a perpendicular to it.

4°. When one or both points are out of the given straight line, and are both situated in a perpendicular to it.

Case 1st. If both points be situated in the given straight line, or in its continuation, to find a point in the given straight line equally distant from them.

Bisect the distance between the given points, and the straight lines between them and the point of bisection, will be the straight lines required.

Case 2nd. If the one point be in the given straight line, and the other out of it, but not situated in a perpendicular to it.

In fig. (J) let *AB* be the straight line given in position, and *C* and *D*, the two given points, the one point *C* being in the given straight line, and the other point *D*

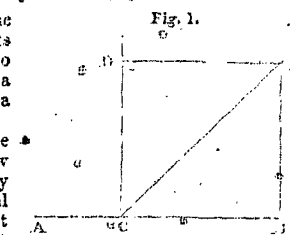


Fig. 1.

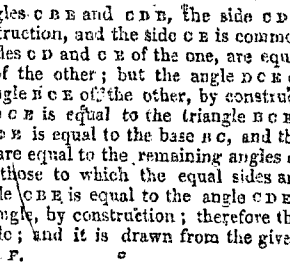


Fig. 2.

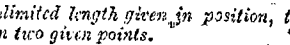


Fig. 3.

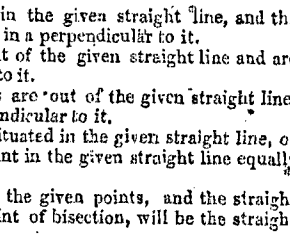


Fig. 4.

* It does not appear that any of our students have solved this exercise in the manner required; with the exception of an old correspondent, J. L. N. Dublin.

out of it, but not both situated in a perpendicular to it. It is required to find a point in *AB* equally distant from the points *C* and *D*.

Join *CD*, and bisect it in the point *E*, by the 10th Prop. From this point, draw *EF* at right angles to *CD*; then *F* must meet *AB* on the side of *CD*, where it makes the least angle with *AB*, by Axiom 12. Let *EF* meet *AB* in *F*, then *F* is the point required. Join *FD*.

Because in the two triangles *FEA* and *FEB*, the side *FE* is equal to the side *FE*, by construction, and the side *FA* is common to both; therefore the two sides *FE* and *FA* are equal to the two sides *FE* and *FB*; also, the angle *FEA* is equal to the angle *FEB*, by construction; therefore, by IV. Prop. the base *EA* is equal to the base *EB*. Wherefore, *F* is the point required.

Case 3rd. If both points be not in the given straight line, and not situated in a perpendicular to it.

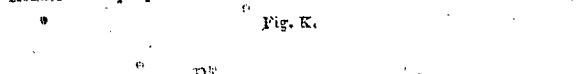


Fig. 5.

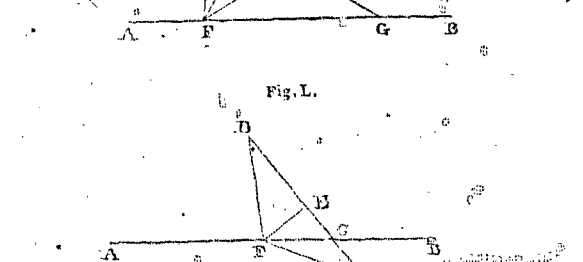


Fig. 6.

In figs. (K) and (L), let *AB* be the straight line given in position, and *C* and *D* the two given points, not in the given straight line, and not situated in a perpendicular to it. It is required to find a point in *AB* equally distant from the points *C* and *D*.

Join *CD*; if necessary, produce *CD*, and let it meet *AB* in *E*. Bisect *CD* in *F*, and from *F* draw *FE* at right angles to *CD*; then *FE* must meet *AB* on the side of *CD*, where it makes the least angle with *AB*, by Axiom 12. Let *FE* meet *AB* in *F*; then *F* is the point required. Join *FD* and *FC*.

Now, it may be proved as in the preceding case, that *FD* is equal to *FC*. Therefore, the point *F* is the point required. Q. E. D.

Case 4th. If both points be situated in a perpendicular to the given straight line, the problem is impossible, except in the case where both points are equally distant from the given straight line, when any point in it will answer the required condition. The reason for this can only be deduced from Prop. XXVIII. of Book I. The attempt to construct this case, however, when the points are unequally distant from the given straight line, will at once show the student its impossibility.

Scholium. It may perhaps be objected to the position of this exercise, immediately after Proposition XI, that the student is not in a condition, by previous knowledge, to demonstrate that the 4th case is impossible in all circumstances but one; and, no doubt, as regards strict geometrical order, this is true. But it is frequently advisable to give the student a foretaste of the difficulties of a problem, in order to put him on his guard against imagining that, because he can solve two or three apparently easy cases of it, therefore he must necessarily know all about it, and think that he has exhausted the subject.*

III. If the three sides of a triangle be bisected, and straight lines be drawn through the points of bisection at right angles to the sides, they shall, if produced, meet in the same point.

* This problem was solved in all its cases, by Thomas Beacock, Great Warley; in three cases, by E. J. Brimmer, Carlisle; in one case, by E. Russ, Islington; T. Watkins, and J. Jenkins, Pembroke Dock; D. H. Driffield; F. H. Toltwell; and others.

In figs. (M and N), let *ABC* be any triangle, and let its three sides *AB*, *BC* and *CA*, be bisected in the points *D*, *E* and *F*. The straight lines drawn at right angles to the three sides, through the points *D*, *E* and *F*, will intersect in the same point.

Draw *DO* at right angles to *AB*, and *EO* at right angles to *AC*, by Prop. XI. Suppose *DO* and *EO* be joined; then, because the angles *ODF*, and *OED* are together less than two right angles, the straight lines *DO* and *EO* meet, by Axiom 12; let them meet in *O*. Join *OA*, *OB*, *OC* and *OF*.

Because, in the two triangles *ADO* and *CEO*, the side *AD* is equal to the side *CE*, by hypothesis, and the side *DO* is common to both; therefore, the two sides *AD* and *DO* are equal to the two sides *CE* and *EO*, each to each; but the angle *ADO* is equal to the angle *CEO*, by construction; therefore the base *AO* is equal to the base *CO*. In the same manner, it may be shown that the base *AO* is equal to the base *BO*; therefore, the base *BO* is equal to the base *CO*, by Axiom 1. Because in the two triangles *BOE* and *COE*, the side *BO* is equal to the side *CO*, and the side *EO* is common to both; therefore the two sides *BO* and *EO* are equal to the two sides *CO* and *EO*, each to each; but the base *BO* is equal to the base *CO*; therefore the angle *BOE* is equal to the angle *COE*, by Prop. VIII. Whence, by Definition 10, the straight line *EO* is at right angles to *BC*, and it is drawn from the point of bisection *E*; therefore, if the three sides, &c. Q. E. D.*

Cor. 1. The point of intersection of the three straight lines drawn from the middle of the sides of a triangle at right angles to these sides, is equally distant from the three angles.

Cor. 2. The same point of intersection, is the centre of a circle which passes through the three angular points of the triangle, the radius of this circle being the distance of this point from each of the angular points.

IV. To describe a square upon a given straight line.

In fig. (O) let *AB* be the given straight line; it is required to describe a square upon *AB*.

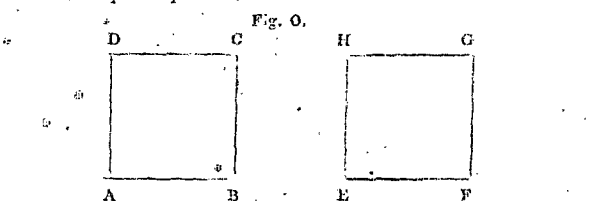


Fig. 7.

At the point *A* draw *AD* at right angles to *AB* by Prop. XI, and make *AD* equal to *AB*. In like manner, from the point *B*, draw *BE* at right angles to *AB*, and make *BE* equal to *AB*. Join *DE*; and the four sided figure *ABED* is a square, let *EF* be a square upon a straight line *EF* equal to the straight line *AB*.

For the seven straight lines *AB*, *AD*, *DE*, *EF*, *BE*, *BC*, and *CE*, and the six angles *BAD*, *ADC*, *DEB*, *EBE*, *BCD*, and *CEB*, are all equal to one another, by construction, by hypothesis and by Definition 30; and if the straight line *EF* be applied to the straight line *AB*, so that the point *E* shall coincide with the point *B*, and the straight line *FE* with the straight line *BA*, the point *F* shall coincide with the point *A*, then, *FE* coinciding with *AB*, the straight

* This exercise was solved by G. L. Hadfield, Bolton-le-Moors; T. Beacock, Great Warley; and others.

line EH shall coincide with AD , because the angle FEH is equal to the angle BAD ; and the point H shall coincide with the point D , because EH is equal to AD : again, AD coinciding with EH , the straight line HC shall coincide with AC , because the angle EHG is equal to the angle ADC ; and the point C shall coincide with the point C . But the point F coincides with the point B ; therefore the straight line CF shall coincide with the straight line CB ; for if not, then two straight lines would enclose a space, which by AXIOM 10. is impossible. Wherefore the straight line CF coincides with the straight line CB ; and the figure $FECH$ coincides entirely, and in all respects, with the figure $ABCD$; but the figure $FECH$ is a square, by hypothesis; therefore, the figure $ABCD$ is also a square, by DEFINITION VIII., and it is described upon the given straight line. Q. E. F.

VOCABULARY TO LESSON I.—PAGE 181.

Das Nothfelfchen.

Das, <i>n.</i> the	sich, himself, herself, itself,
Nothfelfchen, <i>n.</i> red-breast	themselves
roth, red	bedecken, to cover with foliage
Kehle, <i>f.</i> throat	Faub, <i>n.</i> foliage
chen, <i>Affix.</i> sign of diminutive	klein, small
ein, <i>a.</i> one	Gast, <i>m.</i> guest
kommen, to come	entfliehen, to fly away
ret, <i>f.</i> Dat. the, to the	ent, <i>Prefix</i> away, up, forward,
Strenge, <i>f.</i> severity	un, <i>English</i>
Winter, <i>m.</i> winter	ten, <i>Acc. m.</i> the
tes, <i>Gen. m. & n.</i> of the.	nahe, near
an, to	Wald, <i>m.</i> forest
Fenster, <i>n.</i> window	bauen, to build
eins, <i>Gen. m. & n.</i> of a, of one	singen, to sing
Landmann, <i>m.</i> countryman	fröhlich, merry
fromm, pious	fröhlich, glad, cheerful
als, as, when	Lied, <i>n.</i> song, hymn
ob, if, whether	sehen, to see, to look
es, it	lehen, to turn
gern, willingly, with pleasure	ahermals, again
gern mögen, to like	Weibchen, <i>n.</i> Wife, mate, female,
kommen, understood	wife
hin, into	mit, with
hin, along, towards	bringen, to bring
da, then, there	haben, to have
öffnen, to open	sammeln, together with
sein, his	freuen, to enjoy, rejoice
und, and	sehr, very, much
nehmen, to take	beide, both
gutraulich, confiding	wie, how, as, like
trauen, to trust	aus, out, out of
thier, <i>n.</i> animal	klar, clear
freundlich, friendly	Auge, <i>n.</i> eye
Wohnung, <i>f.</i> dwelling	Auglein, <i>n.</i> diminutive, small eye
wohnen, to dwell, reside, live	umher, around, about
nun, now, well	schauen, to look
picken, to pick	uns, us
die, <i>pl.</i> the	ansuchen, to look at
Brotkrumen, <i>pl.</i> scraps	an, <i>Prep. & Pref.</i> at, to, by
Stimme, <i>f.</i> crum	mögen, to wish, want, be willing
auf, up, upon, on	etwas, something, anything
die, relative pronoun <i>pl.</i> which	antworten, to answer
von, of, from	Antwort, <i>f.</i> answer
Tisch, <i>m.</i> table	Vater, <i>m.</i> father
fallen, to fall	mann, if, when
auch, also	sie, they, them, she, her
Kind, <i>n.</i> child	reden, to speak
Vogel, <i>m.</i> bird	Rede, <i>f.</i> speech
lein, <i>sing.</i> of diminutives	fähig, to be able, can
lieb haben, to love	würde, would, should, <i>sign of</i>
wertig haben, to esteem, cherish	the conditional mood.
halten, to hold	sagen, to say
aber, but	zutrauen, <i>n.</i> confidence
ter, <i>Nom. m.</i> the	erwachen, to awake
Grüßling, <i>m.</i> spring	Liebe, <i>f.</i> love
wieder, again, <i>Prefix</i> re	lieben, to love

Geßtes, collective *Noun* bushes, erzeugen, to engender, beget
copse gegen, *Preposition & Prefix*
ge, a *Prefix* showing a mass of counter
things against, return.
Büsch, *m.* bush

ANSWERS TO CORRESPONDENTS.

A RAMBLER (Stepney): See vol. I of the P. E. p. 369.—R. J. STERLE (Canterbury): See p. 78, col. 2, of vol. III., P. E.; also p. 133 of the same vol.—Q. E. DE (Glasgow): See Lessons in Geography, Nos. 25 and 26.—THOMAS FEE (Birmingham): We should be glad to insert the instructions he wants, but at present our hands are too full.—D. B. (Coventry): See p. 120, col. 1, line 52, vol. III.—FAIRFAX (Low-moor): See our articles on Physical Education just commenced. The Lessons republished from the "Working Man's Friend," are different from those republished from the "Popular Educator."—H. W. G. (Portsmouth): There are literal translations of Sallust, Caesar, Virgil, Horace, and Livy, (which are reckoned the best Latin authors), to be had by order of any London bookseller.—L. K. POLLETT (Manchester): Strictly speaking, if any thing is full, it is capable of degrees of fullness; that is, it cannot be fuller, or fullest. Still if you consult Johnson's or any other dictionary, you will find meanings attached to full, which render it capable of comparison, such as abounding, stored, well-supplied, plump, fat, &c.

J. E. GINSBURG (Hull): There is no such map as he describes, that we have ever seen. Ancient and modern maps must be compared with each other, in order to arrive at the required information.—A. G. E. (Greenacres): The letters in brass plates are usually filled up with melted sealing-wax.—H. KOOCH (Brombroke-dock): Right, see p. 120, col. 1, line 52.—F. T. D.: Most probably D. P. (London): The place referred to in Art. I, p. 172, vol. I, is not page 62, but section 62 (60) of Part II, of our French Lessons, which you will find in the numbers of vol. III. now publishing. The change was made in the number from 62 to 60, to admit of its insertion in a particular page of the P. E.

H. R. HIGGINS: We believe the German to be the most useful at present.—S. L. L. (Lymington): We don't know.—E. T. (Hull): Lessons on German Pronunciation are in this number.—H. W. R. (London): We cannot answer all his questions; we recommend him to apply to some gentleman in the Temple.—AMICUS (Mithurst): We know nothing of Dr. Manfred.—F. H. WILLIAMS (Salisbury): See the solutions given in the P. E.—J. SORTINGATE: Yes.—JOHN BRIDGMAN, junr. (Edinburgh), has sent us the following "Analytical Table of the Bible," copied from a card in his possession, which he obtained for one halfpenny:—

ANALYTICAL TABLE OF THE BIBLE.

	Old.	New.	Total.
Books.....	39	27	66
Chapters.....	929	260	1,189
Verses.....	23,214	7,959	31,173
Words.....	595,139	181,253	776,392
Letters.....	2,748,100	843,380	3,591,480

OLD TESTAMENT.

The middle book is Proverbs. The middle chapter is Job, xxix. The middle verse is 2nd Chronicles xx., between the 17th and 18th verses; the least verse is 1st Chronicles i. 25.

NEW TESTAMENT.

The middle book is 2nd Thessalonians. The middle chapter is between Romans xiii. and xiv. The middle verse is Acts xviii. 17; The least verse is John xi. 35.

The middle chapter and least in the Bible is Psalm cxviii. The middle verse is 8th of Psalm cxviii. The middle line is in 2nd Chronicles ix. 18. The word and occurs in the Old Testament 35,543 times; the same in the New Testament occurs 10,684 times. The word Jehovah occurs 6,855 times. The 21st verse of the 5th chapter of Ezra has all the letters of the alphabet: the 19th chapter of 2nd Kings and 37th of Isaiah are alike. The book of Esther has ten chapters, but neither the words Lord nor God in it.

N.B.—The above took three years in casting-up.

LITERARY NOTICES.

In the press, and about to be published shortly, A KEY TO CASSELL'S LESSONS IN FRENCH, containing Translations of all the Exercises, with numerous references to the Grammatical Rules.

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ENGLAND AND WALES.

BOUNDARIES.

NORTH: Scotland.
SOUTH: English Channel.
EAST: North Sea.
WEST: Irish Sea, &c.

COUNTIES IN ENGLAND.

(The assize or county towns are printed in small capital.)

COUNTIES. Chief Towns.
Northumberland, NEWCASTLE-
land, [ON-TYNE.
Cumberland, CARLISLE.
Durham, DURHAM.
Westmoreland, KENDAL,
[APPLEBY.
York, North Riding, SCARBO-
rough, Hull,
East Riding, Hull,
West Riding, LEEDS,
Sheffield, YORK.
Lancaster, MANCHESTER,
LIVERPOOL, LANCASTER.

FIVE EASTERN.

Lincoln, LINCOLN.
Cambridge, CAMBRIDGE.
Norfolk, NORWICH.
Suffolk, IPSWICH.
Essex, COLCHESTER,
CHELMSFORD.

SIX WESTERN.

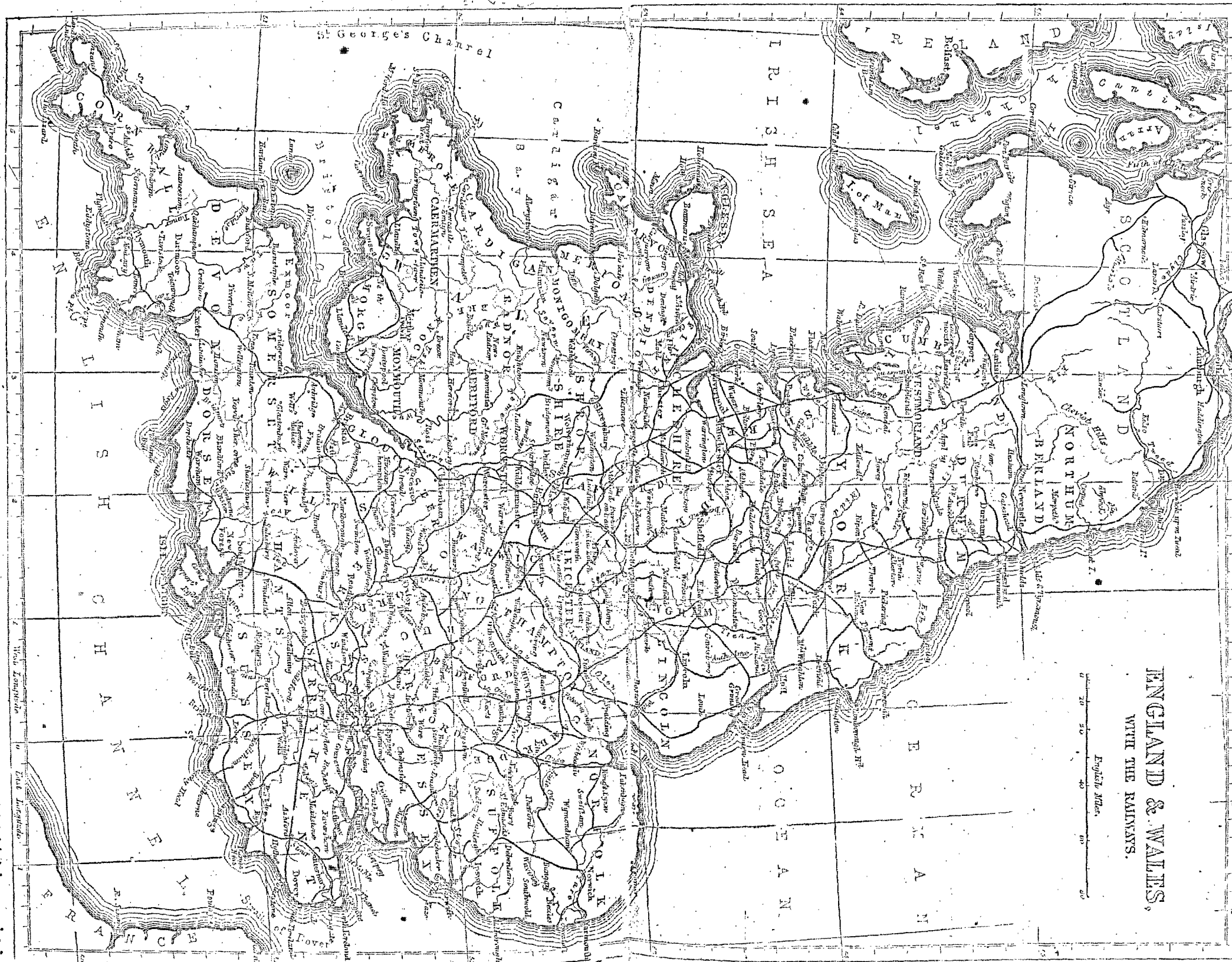
Chester, STOCKPORT,
CHESTER.
Salop, SHREWSBURY.
Hereford, HEREFORD.
Monmouth, NEWPORT,
MONMOUTH.
Gloucester, BRISTOL,
GLOUCESTER.
Somerset, BATH,
TAUNTON.

FOURTEEN MIDLAND.

Stafford, WOLVERHAMPTON,
STAFFORD.
Derby, DERBY.
Nottingham, NOTTINGHAM.
Leicester, LEICESTER.
Warwick, BIRMINGHAM,
WARWICK.
Worcester, WORCESTER.
Oxford, OXFORD.
Buckingham, AYLESBURY,
BUCKINGHAM.
Middlesex, LONDON.
Hertford, HERTFORD.
Bedford, BEDFORD.
Huntingdon, HUNTINGDON.
Northampton, NORTHAMP-
TON.
Rutland, OAKHAM.

NINE SOUTHERN.

Kent, CHATHAM,
MAIDSTONE.
Surrey, SOUTHWARK,
GUILDFORD.



ENGLAND AND WALES.

COUNTIES.

Chief Towns.
Sussex, BRIGHTON,
LEWES.
Berks, READING.
Hants, PORTSMOUTH,
WINCHESTER.
Wilts, TROWBRIDGE,
SALISBURY.
Dorset, WEYMOUTH,
DORCHESTER.
Devon, PLYMOUTH,
EXETER.
Cornwall, TRURO.

COUNTIES IN WALES.

SIX NORTHERN.

Anglesea, HOLYHEAD,
BEAUMARIS.
Caernarvon, CAERNARVON.
Denbigh, WREXHAM,
DENBIGH.
Flint, HOLYWELL,
MOLD.
Merioneth, DOLGELLEY.
Montgomery, NEWTOWN,
MONTGOMERY.

SIX SOUTHERN.

Cardigan, ABERYSTWYTH,
CARDIGAN.
Radnor, NEW RADNOR.
Brecknock, BRECKNOK.
Glamorgan, MERTHYR-
TYDWIL,
CARDIFF.
Caermarthen, CAERMAR-
THEN.
Pembroke, PEMBROKE.

ISLANDS.

Anglesea, Beaumaris.
Holy Island, Holyhead.
Isle of Man, Castletown.
Isle of Wight, Newport.
Thanet, Ramsgate.
Sheppey, Sheerness.
Jersey, St. Helier.
Guernsey, St. Pierre.
Alderney, St. Anne.

ISLETS.

Scilly Isles, S. W. of Corn-
wall.
Eddystone, S. of Cornwall.
Lindisfarne, E. of Berwick.
Coquet, E. of Northumber-
land.
Ferns, E. of Northumber-
land.
Foulness, E. of Essex.
Lundy Isle, British Chan-
nel.
Ramsey Isle, W. of Pem-
brokeshire.
Bardsey Isle, S. of Caernar-
von.
Skerry Isle, N. E. of
Anglesea.

LESSONS IN NATURAL HISTORY.—No. XXII.

THE BABOON—THE MANDRILL—THE BARBARY APE—THE UNGKA APE.

THE pig-tailed baboon, sometimes called the Maimon, has a singular characteristic, in the extreme flaccidity of its flesh. Even when very young, it is sometimes found to have, on each side of the throat, hanging folds of flesh, which might be considered, in other animals, the signs of age. On growing fat, it acquires a strange and repulsive rotundity of form. The native country of these animals is India. They inhabit the forests on the banks of

way than one. Kees drew roots from the ground by a method which was, at once, very ingenious and amusing. When he laid hold of the herbage with his teeth, he placed his fore feet against the ground, and drew back his head, in order to pull out the root; he thus sometimes tasked his whole strength; if this did not succeed, he then laid hold of the leaves as close to the ground as possible, and threw himself heels over head; this expedient gave such a con-



THE MANDRILL, OR RIPPED-FACED BABOON; AND THE BARBARY APE.

the Ganges, and encouraged by the invincible repugnance of the Hindoos to take away life, they come, with impunity, in considerable numbers, into the towns and cities, to search for more agreeable food than they can find in the woods.

A baboon, called Kees, in the possession of the celebrated traveller, Le Vaillant, was rendered serviceable to him in more

cussion to the root, that it never failed to produce the desired effect. Le Vaillant turned this trick of the baboon to his own advantage. "I made Kees," he says, "my taster. Whenever we found fruits or roots with which my Hottentots were unacquainted, we did not touch them till he had tasted them. If he threw them away, we concluded that they were either of a dis-

agreeable flavour or of a pernicious quality, and left them un-
tasted." B. Kees, like the rest of his race, was sufficiently
gregarious, whenever he pleased, to make a broad distinction
between *man* and *man*. In proof of this, Le Vaillant says:—
"I often took Kees with me when I went a hunting; and when
he saw me preparing for sport, he exhibited the most lively
demonstrations of joy. On the way, he would climb into the
aves to look for gum, of which he was very fond. Sometimes he
discovered honey, deposited in hollow trees, or in the clefts of
rocks. But if he happened to have met with neither honey nor
gum, and his appetite had become sharp by running about, I
always witnessed a very ludicrous scene. In such cases he looked
for roots, which he ate with great eagerness, especially a particular
kind, which, to his cost, I also found to be very well tasted and
refreshing, and therefore insisted on sharing with him. But Kees
was no fool. Whenever he found such a root, and I was not near
enough to seize upon my share, he devoured it in the greatest
haste, keeping his eyes all the while rivetted on me. He generally
measured the distance I had to pass before I could get to him, so
that I was almost sure of coming up too late. Sometimes, how-
ever, when he had made a mistake in his calculation, I came upon
him sooner than he expected; he then endeavoured to hide the
root; in this case I compelled him, by a box on the ear, to give
me up my share. But this treatment caused no malice between
us; we remained as good friends as ever."

The mandrill, or ribbed-faced baboon, usually measures five
feet in height, when full grown. The head is very large in pro-
portion to the size of the body. The face, which is naked, presents
a very remarkable appearance, the cheeks being of a clear violet-
blue colour, with various oblique furrows, which is produced by a
singular development of the bone, forming a socket for the roots of
the immense canine teeth, and furrowed also obliquely. A
bright vermilion line begins a little above the eyes, runs down the
nose, and spreads over the lip. The eyes are small, but acute and
sparkling, their irides being of a fine hazel colour. The hair on
the sides of the head is long, mostly growing upwards, and termi-
nating on the crown in an acute pointed form. The beard is long,
erect, and of a yellowish hue. The whole body is covered with
stiff bristle-like hairs, each of which is annulated with black and
yellow. The hands are small, taper, and well made. The arms
and chest are extremely muscular. The food of the mandrill, like
that of the monkey tribe generally, consists of fruit, grain, and
roots. It shows, however, a fondness for animal diet. One of
these animals being offered a live bird, he destroyed it by a bite,
and devoured it, after stripping it of its feathers. A rabbit was
then given to him, which he instantly killed by a bite across the
back, and he was about to devour it, when it was removed. Nor
is this taste one merely of maturity. A young mandrill in one of
our collections, exceedingly relished the boiled meat which was
added to his vegetables. A mandrill which was exhibited in
Wombwell's menagerie was fond of carrots, fruits, potatoes, and
bread. It was very partial to nuts, which he cracked himself.
He liked fermented liquors, and ginger-beer was one of his
favourite beverages. Though well treated, he never lost his
treacherous disposition. "On one occasion," says Captain
Brown, "when Mr. Wombwell was showing me the consistence
of the callosity of his nose, I happened to put my face too near
the bars of his cage, when he forced his hands suddenly through
them, and had nearly deprived me of one of my eyes."

Another specimen of the mandrill was transferred from Cross's
menagerie to the Surrey Zoological Gardens. Jerry, as this
animal was called, was far more domesticated than the former,
and became, in fact, a great favourite. In his cage a strong arm-
chair was placed; on this, when directed, he was accustomed to
sit, and with great gravity and evident satisfaction, to smoke his
pipe and drink his porter. All his manoeuvres were performed
with great slowness and composure. When his keeper lighted his
pipe and presented it to him, he inspected it minutely, sometimes
feeling it with his finger, as if to know whether it was lighted,
before putting it in his mouth. It was then introduced, almost up
to the bowl, but with that part generally downwards, and it was
retained without any appearance of smoke for some minutes,
during which time Jerry filled his cheek-pouches and capacious
mouth, and would then exhale a volume from his mouth, nose, and
sometimes even his ears, sufficient to fill his cage. He does not
appear, however, to have greatly relished smoking, for a bribe of
gin-and-water was generally promised before its commencement;
at its close, the promise was duly fulfilled by a goblet of this

liquid being handed to him, which he lost no time in discussing.
He preferred for his diet cooked vegetables, with meat; and on
one occasion he is said to have aimed at Windsor on hatched
emison, in the presence of King George or King William IV.
but he was still the mandrill; his voice was harsh and guttural;
and however calm he might be on any occasion, his eyes still
betrayed the wild beast of the forest.

The Barbary ape is not confined to the country from whence its
name is derived, but, on the contrary, is common in the forests of
India, Arabia, and Africa.

Its height, when standing upright, is usually between three and
four feet; the colour of the back is a greenish brown, and that of
the belly pale yellow; the cheeks are provided with pouches.

These creatures subsist on vegetables and fruit, and in their
manners are equally fierce and mischievous. Tavernier relates
that he was travelling in India, with an English officer, when
several large apes were observed on the trees around them. The
officer was so much amused that he ordered his carriage to stop,
and desired Tavernier to shoot one of these creatures. The attend-
ants, who were well acquainted with the habits of these animals,
begged him, however, to desist, lest the rest should do the party
some injury in revenge for the death of their companion. But as
the officer still urged his request, Tavernier killed a female, which
fell among the branches, letting her little ones which had clung to
her neck, drop on the ground. Instantly all the remaining apes,
to the number of sixty or upwards, descended in great fury. As
many as could, leaped on the officer's coach, where they would soon
have strangled him had not the blinds been closed, and the number
of attendants so great as to drive off the assailants, a task of no
little difficulty. They however, continued to run after the servants
for at least three miles from the place where their companion was
slain.

The celebrated naturalist, Count Buffon, kept a Barbary ape for
several years. In summer, it delighted to be in the open air; and
even in winter it was frequently kept in a room without fire.
Though long in confinement, it did not become at all
civilized. When food was given to it, it always filled its pouches;
and when about to sleep, loved to perch on a bar of iron, or a
wooden beam.

The Unga ape is one of the animals inhabiting the deep recesses
of the woods which cover so large a portion of the Indian isles. In
the mildness of its temper and the gravity of its manners, it greatly
resembles the orang-outan. But it is considerably smaller in
size; the total length of the adult, when standing upright, being
about two feet four inches.

The arms of this ape seem strangely disproportioned to its
stature, their span extending four feet. Excepting the face and
the palms of the hands, the animal is entirely covered with stiff
hair, of a beautiful jet black. The skin beneath, as well as on the
face, is of the same colour. On a flat surface this creature can
manage to proceed in an erect position, but the gait is unsteady,
and the hands are frequently placed on the ground to assist its
advances. But, should the hands not be so engaged, the arms are
raised perpendicularly above the head, with the hands depending
from the wrist, as if to preserve the balance of the body, or to be
ready to seize any object above and within reach. The legs are
short; the feet, which are long and well-adapted for grasping,
have the first and second toes closely united by a membrane as far
as the last joint. The eyes are dark hazel; the ears are small;
the air-sack extends beneath the skin of the throat, from the chin
to the breast-bone, but when uninflated, is not manifest exter-
nally. It is distended when the animal is angry; and it then utters
a hollow barking noise, which is apparently influenced by this
apparatus.

Some years ago, an adult male of this species died on board the
ship *Sophia*, during her homeward voyage. His favourite food
was rice, plantains, carrots, sweetmeats, and onions. But animal
food was eagerly accepted; fowls were especially preferred; and
when a lizard was caught on board, and placed before the ape, he
took it immediately in his paw and greedily devoured it. Spirits
and wine he determinately refused, but would drink tea, coffee,
and chocolate.

His temper was mild, affectionate, and generally not easily
ruffled. When pleased, he would utter a chirping note; when
irritated, a hollow barking noise; but when frightened or angry,
loud guttural sounds of *ra, ra, ra*, were frequently repeated. So
fond was he of ink, that he would drain the inkstand, and suck the

pens as often as he could; and this was the only annoyance he
occasioned.

Cheerful and fond of play, he preferred children to adults, and
became particularly attached to a little girl, called Elau, a native
of Erromanga, one of the New Hebrides. They were often seen
sitting near the captain, the ungka with its long paws round
Elau's neck, as they lovingly ate biscuit together. With this
child he would romp about the deck, as if in mimic combat; now
attacking, now eluding pursuit, and displaying various antics of
address and agility, but without even a momentary loss of good
temper.

He was desirous of forming an acquaintance with the monkeys
that were on board, but they rudely repelled his advances, and
showed their hostility by acts as well as chattering. One day he
seems to have determined on his revenge for more than usual insult.
Springing himself by a rope towards the nearest of his foes, and
seizing his long tail, he hauled away, until the offender escaped
from his clutches. Again and again he played the same trick;
often did he make his way up the rigging, dragging a monkey after
him, meanwhile preserving the utmost gravity of countenance. At
length, however, the monkey united in so formidable a defence,
as effectually to deter him from any further aggression.

The ungka was very angry, when it became necessary to restrain
his liberty, but his good temper returned as soon as he was released.
As if aware how awkwardly he walked, and how difficult it was to
elude pursuit when on the ground, his first object, in order to
escape out of reach, was to seize a rope, and to swing from his
pursuer. Mounting the rigging, he would also pass from rope to
rope, with astonishing quickness and agility; sometimes hanging
by his hands, at others walking upright along the cords, keeping
the balance true with his arms. He would also spring from one
rope to another at a great distance, or drop from one aloft to
another far below, seizing it in the fall, with astonishing precision.
Pleased to have his own way, he could not endure disappointment.
When refused anything that he coveted, he would act like a spoiled
child. He would lie on the deck, throw his arms and legs in
various directions, dash everything about that might be within
reach, walk about, and then return to the same pranks, uttering
his guttural notes of anger and offended pride.

LESSONS IN ENGLISH.—No. LIX.

By JOHN R. BEARD, D.D.

PRONOUNS.—SIMPLE PRONOUNS.

(Continued from page 187.)

A relative pronoun implies an antecedent. "The antecedent is
the word which goes before the relative, and to which the relative
refers; e. g.

"The seal is set. Now welcome, thou dread power,

Namens, yet thou omnipotent, which here

Walkest in the shadow of the midnight hour."—*Byron*.

Power is the antecedent, and *which* the relative; the sense
shows that the relative *which* has reference to the antecedent power.

This and *that*, demonstrative pronouns, differ thus; *this* points
out the person or thing nearer to the speaker, *that* the more
remote; e. g.

"Bring me *that* book." "This book?" "No, *that* book which
stands on the farthest part of the shelf."

EXERCISE FOR PARSING.

"The prevailing idea with young people has been, the incom-
patibility of labour and genius; and therefore, from the fear of
being accounted dull, they have thought it necessary to remain
ignorant. I have seen, at school and at college, a great many
young men completely destroyed by having been so unfortunate as
to produce an excellent copy of verses. Their genius being now
established, all that remained for them to do was, to act up to the
dignity of the character; and as this dignity consisted in reading
nothing new, in forgetting what they had already read, and in pre-
tending to be acquainted with all subjects by a sort of off-hand
exhibition of talents, they soon collapsed into the most frivolous and
insignificant of men."—*Sydney Smith*.

"I said unto mine own lord

Which of Lancaster is Henry named."—*Chaucer*.

"In the first and best prayer children are taught, they learn to
misuse, who and which; "our father *which* art in heaven" should
be "our father *who* art in heaven."—*Spratt*.

"What shall befall hereafter? God wot."—*Chaucer*.

Charles II. greatly preferred a ridiculous jesting. On one

occasion he asked the famous Stillingfleet how it was that he
always read his sermons before him when he preached elsewhere
without book. Stillingfleet, excused himself on the ground of
appearing before so great and wise a prince. "But pray," con-
tinued the divine, "will your Majesty give me leave to ask you a
question? Why do you read your speeches when you can have no
succession as mine?" "Why, truly doctor," replied the king,
"your question is a very pertinent one, and so will be my answer. I
have asked the two houses so often and for so much money, that I
am ashamed to look them in the face."

"Who first seduced them to that revolt?"

"Th' infernal serpent; he it was whose guile,

Stir'd up with envy and revenge, decid'd

The mother of mankind."—*Milton*.

COMPOUND PRONOUNS.—ADJECTIVE PRONOUNS.

Two pronouns of which we have just treated are simple pro-
nouns. Of these simple pronouns others are formed, which, as
consisting of more than one word, are termed *compound pro-*
nouns.

The reflexive pronoun is compound, and having for its root
the old word *self* (German *selbst*, same) is inflected, thus:—

Singular.		Plural.	
1st PERSON.	Myself	Ourself	Yourselves
2nd PERSON.	Thyself	Yourselves	Yourselves
3rd PERSON.	Himself	Themselves	Themselves

For the sake of distinction and emphasis, the nominative of
the personal pronoun may be prefixed, thus:—

Singular.		Plural.	
1st PERSON.	I myself	We ourselves	
2nd PERSON.	Thou thyself	You yourselves	
3rd PERSON.	He himself	They themselves	

The use of these pronouns will be understood better from an
example or two; e. g.

I struck myself; I will go myself; I myself said it. He hurt himself;
he has gone himself; he himself made the remark.

If you look into the composition of the parts of this pronoun,
you will see that it is somewhat capricious. *I myself* consists of
three words, *I* the personal pronoun, first person singular; *my*,
the possessive pronoun, first person singular; and *self*, an indefinite
pronoun, without personal distinction. The word *he himself* is still
more capricious, for here you have united the subject, or the nomi-
native case *he*, with the object or objective case *him*. A similarly
heterogeneous junction is found in the feminine *she herself*. The
discordance does not occur in such phrases as

He hurt himself; she sold herself;

where *himself* and *herself*, being true reflexive pronouns, referring
the one to the subject *he*, the other to the subject *she*, are severally
the objects to their verbs; but it does occur in these instances:—

He himself stole the book; she herself bought the gown;

where *himself* and *herself* do not perform the office of reflection or
turning back, but are simply employed for emphasis; e. g.

He charged you with stealing the book. Me? He himself stole the
book, and he knows it.

This pronoun is often strengthened by the insertion of *own*; e. g.,
My own self, his own self. Observe that when *own* is thus inserted,
the objective *him* becomes *his*, the possessive; so we say, not
them ourselves, but *their own selves*. This fact may be explained,
thus: *self* is used as a noun, for we say "the love of *self*" under-
mines excellence." *Myself* is employed in the same way; also
himself, and *themselves*; e. g., "It is *myself*," that is, "it is the
person known by such and such a name." Being a noun, *himself*
has the force and the government of a noun. These attributes are
latent until brought out by the insertion of *own* when *him* is
changed into *his*, for we say, "he hurt *his own self*," as well as
"he took *his own hat*." It may, indeed, be doubted whether *his*
is correct to represent *his own self* as a pronoun at all; instead of
so doing, we may regard *own self* as a compound noun, having in
agreement with it the possessive pronoun *his*.

With the aid of *self*, the word *one* forms a compound pronoun, as
one self. This pronoun exists exclusively in the third person singular.
The *one's* is to be written with an apostrophe, it being, in fact, the
possessive case of the general term *one*, governed or required to be
in that case by the noun *self*, according to the rule which will be
formally expounded when we come to Syntax, that *whenever one noun*
is dependent on another, the dependent noun must be in the possessive
case. The student must carefully mark the nature of this word *one*.

Chremes.—Menodemus.

C. Menedeme, videris mihi nimis laborare; es jam sexaginta annos natus.

animos natas.

M. Cur curas quas aliena sunt? mihi sic est usus.

C. Potestne homini usus cessare, ut se ipse cruciet?

M. Mihi est (laerimat).

C. Ne laerima, atque fac ut sciam secretâ tua.

M. Cur hanc rem scire vis?

C. Ilac de causâ, ut te consolari, vel consilio et re iuvare possim.

M. Dicam tibi omnia.

C. At pone interca rastrum; ne labora.

M. Minime! sinis me, ne qua mihi sit recreatio.

C. Non sinas: nunc loquere.

M. Filium unicum habeo: ah, quid dixi? habeo: immo habui; nunc habeam neque spernum est.

C. Quid ita?

M. Scies.

Art thou *Cicero*? No, I am *Lentulus*; surely thou art *Cicero*? by no means; so easily can I believe that thy father is no more; he is no more; where is he? he is not nowhere; where then? he is with God; who art thou? I am John; art thou not James? no, James has gone away home; whether thou art James or John, does not concern me; least of all does it concern me what thou art named; surely my father has come; I fear thy father will not come; will he come or not? I know not whether my sister will ~~confirm~~ not; it concerns thee not whether I rejoice or do not rejoice; art thou going home or somewhere else? whence came the bird? thence; whither does the bird fly? thither; where art thou? here; where is thy brother? there; where the king is, there is the queen.

LIST OF IRREGULAR VERBS, &c. (continued from page 188).

Infinitive.	Participle.	Indicative.	Imperfect.	Past Definite.	Future.	Conditional.	Imperative.	Subjunctive.	Imperfect.
GELER, 1. to freeze. unip. GÉLER, 2. to be defective	gelant gélant, f. e. gisant	il gèle il gît n. gisons v. gliez ils gisent	il gelait il gisait n. gissions v. gliez ils gisaient	il gela il gela n. gissions v. gliez ils gisèrent	il gèlera il gèlera n. gissions v. gliez ils giseront	il gèlerait il gèlerait n. gissions v. gliez ils giseraient	qu'il gèle qu'il gèle n. gissions v. gliez ils gisent	qu'il gèle qu'il gèle n. gissions v. gliez ils gisent	q. gelât q. gelât n. gissions v. gliez ils giseraient
GRASSEYER, 1. to nap GRÉLER, 1. to hail, unip. GRÉSSILLER, 1. to sleet, unip. HAIR, 2. q. hate aux. avoir irregular	grasseyant grassyé grésilant grésillant grésillant haisant hail, f. e.	il grasse il grésille il grésille il grésille il grésille je hais tu hais il hait n. haïsons v. haïsez ils haïssent	je grasseyais je grasseyais il grésillait il grésillait il grésillait je haïssais tu haïssais il haïssait n. haïssions v. haïssiez ils haïssaient	je grassai je grassai il grésilla il grésilla il grésilla je haïssais tu haïssais il haïssait n. haïssions v. haïssiez ils haïssaient	je grasserai je grasserai il grèlerait il grèlerait il grèlerait je haïrai tu haïras il haïra n. haïrons v. haïrez ils haïront	je graserai je graserai il grèlerait il grèlerait il grèlerait je haïrais tu haïrais il haïrait n. haïrions v. haïriez ils haïraient	grasse grasse q. grêle q. grêle q. grêle hais q. haïsse haïssons haïssiez q. haïssent	je grassé je grassé q. grêle q. grêle q. grêle je haïsse tu haïsses il haïsse n. haïssions v. haïssiez ils haïssent	je grassasse je grassasse q. grêlât q. grêlât q. grêlât je haïsse tu haïsses il haïsse n. haïssions v. haïssiez ils haïssent
MARCHELER, 1. to torment IMPORTER, 1. to matter unipersonal. INDICER, 4. to induce INSCRIRE, 4. to inscribe INSTRUIRE, 4. to instruct INTERDIRE, 4. to interdict	marcelant marcelé, f. e. important important induisant induit, f. e. inscrivant inscrit, f. e. instruisant instruit, f. e. interdisant interdit, f. e.	il marcel il marcel il importe il importe il induit il induit il inscrit il inscrit il instruit il instruit il interdit il interdit	je marcelais je marcelais il importait il importait il induisais il induisais il inscrivais il inscrivais il instruisais il instruisais il interdisais il interdisais	je marcelai je marcelai il importa il importa il interdis il interdis il interdis il interdis il interdis il interdis il interdis il interdis	il marcelera il marcelera il importera il importera il interdirai il interdirai il interdirai il interdirai il interdirai il interdirai il interdirai il interdirai	il marcelerait il marcelerait il importerait il importerait il interdirait il interdirait il interdirait il interdirait il interdirait il interdirait il interdirait il interdirait	marcel marcel q. importe q. importe induis induis inscris inscris instruis instruis interdis interdis interdis interdis	je marcelé je marcelé q. importe q. importe induis induis inscris inscris instruis instruis interdis interdis interdis interdis	je marcelasse je marcelasse q. importât q. importât induisse induisse inscrivisse inscrivisse instruisse instruisse interdisse interdisse interdisse interdisse
INTERROMPRE, 4. to interrupt INTERVENIR, 2. to intervene INTRODUIRE, 4. to introduce JETER, 1. to throw aux. avoir peculiar. " 49, (4.)	interrompant interrompu, f. e. intervenant intervenu, f. e. introduisant introduit, f. e. jetant jeté, f. e.	il interromp il interromp il intervient il intervient il introduit il introduit il jette il jette	je interrompais je interrompais il intervenais il intervenais il introduisais il introduisais je jetais je jetais	je interrompis je interrompis il intervenus il intervenus il introduisis il introduisis je jetai je jetai	je interromprai je interromprai il interviendrai il interviendrai il introduirai il introduirai je jetterai je jetterai	je interromprais je interromprais il interviendrais il interviendrais il introduirais il introduirais je jetterais je jetterais	interromps interromps interviens interviens introduis introduis jette jette	je interromps je interromps il intervienne il intervienne il introduise il introduise jette jette	je interrompisse je interrompisse il intervenisse il intervenisse il introduisise il introduisise je jetasse je jetasse
JOINDRE, 4. to join LIRE, 4. to read aux. avoir irregular.	joignant joint, f. e. lisant lu, f. e.	il joint il joint il lit il lit	je joignais je joignais il lisais il lisais	je joignais je joignais il lisais il lisais	je joindrai je joindrai il lira il lira	je joindrais je joindrais il lirais il lirais	joins joins lis lis	je joigne je joigne il lise il lise	je joignisse je joignisse il lût il lût
LIRE, 4. to shine MAINTENIR, 2. to maintain MALHAIR, 4. to do wrong MAUDIRE, 4. to curse aux. avoir irregular.	lisant lui maintenant maintenu, f. e. malhaissant malfait, f. e. maudissant maudit, f. e.	il lit il lit il lit il lit il lit il lit il lit	je lisais je lisais il lisais il lisais	je lisais je lisais il lisais il lisais	je lirai je lirai il lira il lira	je lirais je lirais il lirais il lirais	lis lis q. lise q. lise	je lise je lise il lise il lise	je lusse je lusse il lût il lût
MAINTENIR, 2. to maintain MALHAIR, 4. to do wrong MAUDIRE, 4. to curse aux. avoir irregular.	maintenant maintenu, f. e. malhaissant malfait, f. e. maudissant maudit, f. e.	il lit il lit il lit il lit	je lisais je lisais il lisais il lisais	je lisais je lisais il lisais il lisais	je lirai je lirai il lira il lira	je lirais je lirais il lirais il lirais	lis lis q. lise q. lise	je lise je lise il lise il lise	je lusse je lusse il lût il lût
MÉCONNAÎTRE, 4. to disown MÉDIRE, 4. to slander MÉTAFRASE, 4. to do wrong MENER, 1. to lead, take MENTIR, 1. to lie	méconnaissant méconnu, f. e. médiant médit médisant médis menant mené, f. e. mentant ment	il méconnaît il méconnaît il médit il médit il médis il médis il mène il mène il ment il ment	je méconnaissais je méconnaissais il médiais il médiais il médisais il médisais je menais je menais	je méconnus je méconnus il médiais il médiais il médisais il médisais je menais je menais	je méconnaîtrai je méconnaîtrai il médiera il médiera il médira il médira je mentirai je mentirai	je méconnaîtrais je méconnaîtrais il médierait il médierait il médirait il médirait je mentirais je mentirais	méconnais méconnais médie médie médis médis mène mène	je méconnais je méconnais il médise il médise je médisse je médisse je mène je mène	je méconnusse je méconnusse il médiasse il médiasse je médisasse je médisasse je menasse je menasse

LESSONS IN BOOKKEEPING.—No. II.

INTRODUCTION.

In our first lesson, we made some general observations tending to explain the difference between Single and Double Entry; and giving some notion of the books which are necessary to be kept in a Merchant or Tradesman's counting-house. In order more fully to explain the nature of Bookkeeping by Double Entry, however, we must now give some general explanations and rules.

1. When a Customer buys goods of a Merchant on trust or credit, he becomes the *Debtor* and the Merchant becomes the *Creditor*. The *quantity* and the *value* of the goods bought by the customer, or sold by the merchant, are then entered in the Merchant's books to the Customer's *debit*, that is, on the *Dr.* side of the customer's account; and the *quantity* and *value* of the same goods are also entered in the Merchant's books to the Merchant's *credit*, that is, on the *Cr.* side of the Merchant's Account of the Goods. Let us illustrate this rule by an example:—January 15th, 1853, Robert Brown, a customer of

mine, bought of me, a Cotton Merchant, or I sold to him, on credit, 10 bags of cotton, containing 3,000 lbs. at 9s. per lb., value £100. Here, Robert Brown becomes my *Debtor*, and I become his *Creditor*. I must therefore enter his name and an account of this transaction in my books, in the following manner:—

January 15th, 1853.
Robert Brown Dr. to Cotton
For 10 bags, wt. 3,000 lbs. at 9s. per lb., £100 0 0

In a proper set of Books kept by Double Entry, such an entry as this would appear *first* in the *Day-Book*, or some substitute for it; *secondly*, in the *Journal* or *Month-Book*, or *Sub-Ledger*; and *lastly* in the *Ledger* itself.

In the *Journal*, the form of the entry would be altered for the purpose of admitting references to the *Ledger*, and sometimes of combining similar entries together before posting them into the *Ledger*. If no combination took place, the entry of the preceding transaction in the *Journal* would be as follows:—

(Page 2.)

Date.	Folio.		January, 1853.	Dr.	Cr.
15	3	Robert Brown, Dr.	...	£. 100	s. 0 d. 0
	7	To Cotton	...		£. 100 s. 0 d. 0

In this entry, which exhibits the most improved form of a *Journal*, there are *five* columns or spaces enclosed by parallel lines: 1°. For the Date; 2°. For the Folio of the *Ledger*; 3°. For the names of the *Dr.* and *Cr.*; 4°. For the sum due by the *Dr.*; 5°. For the sum due by the *Cr.*. The use of these five columns will be more fully explained by-and-by.

In the *Ledger*, the form of the same entry would be again altered for the purpose of showing more distinctly the nature of the transaction; and it would be entered *twice* in a different

(Folio 3.)

Dr.	ROBERT BROWN.	Cr.
1853.		
Febry. 15	To Cotton ... 2	£. 100 s. 0 d. 0

(Folio 7.)

Dr.	COTTON ACCOUNT.	Cr.
1853.		
Jany. 15	By Robert Brown ... 2	£. 100 s. 0 d. 0

In the first of these entries, the entry reads thus: *Robert Brown Dr. To Cotton*; and in the second, *Cotton Account Cr. By Robert Brown*. Thus you see that, for every *Debit* there is a corresponding *Credit*. You see, also, that the *Dr.* in the *Ledger* is *real* or *personal*, being the *Customer*; but that the *Cr.* is *unreal* or *fictitious*, being the *Goods Account*, that is, *Cotton*. Hence arises the distinction between *real* or *personal* accounts, and *unreal* or *fictitious* accounts in the *Ledger*. But let it be remembered that these accounts which on account of their names are called *unreal* or *fictitious*, are quite as *real* and *personal* as any other, because they represent the *Merchant himself*; and if the Merchant's name were *John Cassell*, the actual meaning of the second of the preceding entries in the *Ledger* would be: *John Cassell Cr. By Robert Brown*.

2. When a Customer who bought goods on credit, pays the value in money or in bills, the nature of the transaction above

described is in one sense reversed; for the Merchant is now considered to become the *Debtor*, and the Customer to become the *Creditor*. That this is not strictly the case, according to the original meaning of these words, you know; but these words are strictly applicable, if we take the following broad principle of Bookkeeping into account, a principle not only of simple justice, but of stern necessity. It is this: That a Merchant or a Customer is a *Debtor* for whatever he receives, and a *Creditor* for whatever he gives away. The justice of this principle must be obvious to every one; in fact, it may be considered as the fundamental axiom of Bookkeeping; but the stern necessity of it may not be so obvious; this, however, we shall endeavour to show. We have said that for every *debit* there is, a corresponding *credit*; and we may add, that for every *credit* there is a corresponding *debit*. Now, if in the *Ledger* a Customer is *debited* for goods that he buys on credit, it stands

to reason, that for money he pays on account of these goods, he should be *credited*; and if, in the *Ledger*, a Merchant is *credited* for goods that he sells on credit, it stands equally to reason, that for money he receives on account of these goods, he should be *debited*. It is plain, then, that the amount of the money or bills paid by the Customer for goods purchased on credit, must be entered in the Merchant's books to the Customer's *credit*, that is, on the *Cr.* side of the Customer's account; and that the same sum must be entered in these books to the Merchant's *debit*, that is, on the *Dr.* side of the Merchant's account of Money or Bills. In this manner is the transaction settled, and

accounts balanced between the Merchant and his Customer. Let us now take an illustration of this rule, by an example connected with the former: Febry. 15th, 1853, Robert Brown, a customer of mine, paid me, or I received from him, £100 for Cotton sold to him on the 15th of January last. Here, I the Merchant become *Debtor* to my Customer, for what I receive, and Robert Brown becomes my *Creditor* for what he has given away. I must accordingly enter his name and an account of this transaction in my books, that is, in the *Cash-Book*, in the following manner:—

Dr.	CASH ACCOUNT.	Cr.
1853.		
Febry. 15	To Robert Brown ... 100	

This entry in the *Cash-Book* would be transferred to the *Journal*, at the time when it was made up, as follows:—

(Page 4.)

Date.	Folio.		February, 1853.	Dr.	Cr.
15	2	Cash, Dr.	...	£. 100	s. 0 d. 0
	3	To Robert Brown	...		£. 100 s. 0 d. 0

Again, this entry in the *Journal* would be posted into the *Ledger*, as in the following examples:—

(Folio 3.)

Dr.	CASH ACCOUNT.	Cr.
1853.		
Febry. 15	To Robert Brown ... 4	£. 100 s. 0 d. 0

(Folio 3.)

Dr.	ROBERT BROWN.	Cr.
1853.		
Jany. 15	To Cotton ... 4	£. 100 s. 0 d. 0
Febry. 15	By Cash ... 4	£. 100 s. 0 d. 0

In the first entry here from the supposed *Ledger*, the form of the account and the entry itself are exactly the same as in the *Cash-Book*. Nor can this be otherwise; for the *Cash-Book* is merely an abstraction of the *Cash Account* from the *Ledger* as kept on the old Italian system, for the sake of the division of labour; so that the *Cashier* may have only this *Account* to attend to in a large establishment; while the *Book-keeper* attends to the other *Accounts*. In small concerns, the *Cash Account* may still be kept in the *Ledger*, instead of being

kept in a separate book called the *Cash-Book*; but this system we would by no means recommend.

In the second entry above from the supposed *Ledger*, we have combined the former transaction with the present, in order to show how matters are settled between the Merchant and his Customer. The account of Robert Brown in the *Ledger* is now considered closed or balanced; and may be considered as struck off, unless he renews transactions with the Merchant by fresh purchases, and subsequent payments.

SHORT SHORT-HAND.

Since the publication of our lessons in *Phonetic Short-hand*, we have received a variety of communications on the subject. To these we have given answers in our notices, as they occurred. We have also received books on the subject of Short-hand; of these, some contain new systems, or rather modifications of old ones; but all seem to us to be inferior to that which we have adopted in our lessons. Though we are thus explicit in regard to this matter, we do not mean to say that the *ne plus ultra* of stenographic invention has been attained. In our observations lately appended to some communications on *Phonetic Short-hand*, we have acknowledged

the defect of phonography, in general, to be the want of sufficiently distinctive marks for each separate sound or letter; for we hold, and we are backed in our opinion by practical men, that the system of *thick and thin characters*, of the same form *exactly*, for letters pronounced by the same organ, is not sufficient for the ordinary purposes of reporting from the mouth of a rapid speaker; and that it is next to impossible for the hand so to guide itself, as *always and at all times* to be able to observe the distinction between the *thick and thin marks*, so that they shall never be confounded in writing. Hence, if these marks are apt to be confounded in writing, they are equally apt to be confounded in reading, and thus the object of the reporter will be defeated. Absolute variety and dis-

inctiveness of character, therefore, we hold to be the essential feature of a correct and explicit system of Short-hand.

Short Short-hand (by Laming Warren Tear,) is a rare specimen of impracticable ingenuity. We shall perhaps give a clear idea of it, by saying that it consists in writing on a chess-board, each square of which furnishes nine "positions" for the placing of letters; and as each position has the value of a letter, every stroke made at the beginning of a word stands for two letters—the one written, and the other implied by the position of the character. In this way, the author says, he can express, by three marks of the pen, an average of four syllables. A great saving, certainly; but does he not lose far more than he gains by the constant dodging after the right positions? To learn the values of these eighty-four positions, and of the vast number of arbitrary marks (not alphabetic) for double letters, conjunctive and disjunctive terminations, pronouns, auxiliary verbs, 'contractions' and 'abbreviations,' may be possible, but he who has performed this feat may be fairly rated as a mnemonic prodigy. Supposing these elements to be perfectly committed to memory, the continual perplexity of the eye and hand in selecting and pouncing upon the right positions, would be quite incompatible with quick and accurate writing. The plan of indicating auxiliary verbs, and other subordinate words, by variously placed dashes, dots and commas, is somewhat like that in Fancutt's "Stenography Remodelled," but the latter has the advantage of being greatly more simple—to the learner at least.

The alphabetic part of the system is founded on the old principle of following the spelling rather than the sound; the orthographic writing must therefore be full of literal ambiguities. The marks and positions for alphabetic combinations may, however, if they can be brought into use, preserve the writing from this source of difficulty. The alphabet used is Gurney's, with some alterations; but that generally important rudiment, an alphabet, is of very subordinate consequence in a system where the positions play so large a part as is expressed in the author's extraordinary paradox, that "the subject-matter written down is more than half written before the speaker opens his lips." Just as the marble quarry contains the sculptures, before mallet or chisel has been applied, so does the chess-ruled page contain the discourse before it has been planned or uttered by the speaker.

All that is gained by the use of the eighty-four positions is that the writing of initial letters and combinations may be dispensed with. In the P. E. system of Phonetic Short-hand, these initial elements being reduced in size to mere ticks, are written with the next character almost as rapidly as it could be written alone. And being, besides, all alphabetic, they impose no burden on the learner's memory.

The amount of time necessarily sunk in the acquisition of "Short Short-hand" would undoubtedly require a greater return in the way of practical saving, than could possibly be gained, to make the instrument profitable. Learners, it is to be feared, would think it a very long short-hand—or at least very long in being short.

ANSWERS TO CORRESPONDENTS.

W. NEWTON (Oldham): See the concluding Lessons in Latin, in the P. E.—A. ATKIN (Newcastle) differs from John Biggar, junr., in the number of verses in the Bible.—E. WHISLER: See W. H. Woodbury's Catalogue of Maps.—H. YOUNG (Aldershot): Thanks for his suggestions; they are very good.—T. BOOCOCK: Received.—R. J. CHAIN (London): See the first Lessons in Latin for the pronunciation.—F. H. (Manchester): His verses are creditable, both to his head and heart; but we cannot now insert them.—NOT DISCIPULUS (Bradford): We cannot tell.—J. WEXLEY (Reading): Received.—T. GUY (Hoborn): The information conveyed in his note would have been acceptable, had it been sent a month before the Lectures were begun; it is of no use to announce them now, as they will be finished before the information reaches our subscribers.—YOUNG SHORT-HAND: The "repeater" always implies a vowel before the repeated letter in combination; if that, therefore, in such cases as "cal cal" in calculate, it could not be without strict accuracy. The t in this word might be more neatly written upward. Your writing of "colloquy," "chewy," "claw," "pray," "argumative," is quite correct. The horizontal mark under the r in "ornamental" (p. 350) is the vowel a, which might safely be omitted in ordinary writing. The final dot in "fragmentary" should be placed below, and not at the end of the s. The "w-repeater" is a small w-curve at the end of a straight line, and cannot be confused, if well delineated, with the crossing so for "ward." Even if it did, however, there are no two words in the language that would be liable to misapprehension from the ambiguity.—Lead-pencils are preferable to pens for short-hand writing;—a moderately hard and dark pencil is the

best.—Reduce the size of your contracted letters to mere ticks; make the full-sized characters as large as you like.

T. M. (Bridport): Thanks for his valuable suggestions. We are preparing to follow out the subject he mentions.—J. W. (East-bridge), should write to Mr. Abbott, according to the address we have given; he will readily communicate the improvements he has made on Taylor's system.—J. F. R. SWYTH (Stoke Newington), wishes to know where a Latin grammar can be had, and what sort of a college Victoria College, Jersey, is. Perhaps some correspondent can inform him. No one can matriculate in the University of London without the knowledge of the classics prescribed in the regulations, see vol. II. of the P. E. p. 137. *Esther*, the name of the queen of Ahasuerus, is rightly spelt so; as to the name *Healer* we know it not.—W. M. (Norwood): Not having Schiller by us, we cannot, at the present, give an opinion of his translation. His "remarks on Genesis" are very useful and ingenious. The Hebrew lessons preparing for the P. E. will, of course, include the system of points. We advise him to get Hengstenberg's edition of Gesenius's Hebrew Lexicon and Grammar. If he wishes to study that language, Mr. Brock, will find a solution of the question proposed by Ellington as beyond the bounds of Elementary Geometry, in Cassell's Euclid, Prop. XXVII, Book VI., the demonstration depending wholly on the first book of Euclid.—GREENW (Birmingham): Get Wilson's catalogue (late J. W. Norie and Co. Publishers) 157 Leadenhall-street, London.

T. S. (Edinburgh): The common translation of the New Testament is correct in the places cited; and deserves to be imitated.—GEORGE AMMONS (Daincham): Yes.—B. BRUCE (London): Many thanks; but we stick to our own opinion.—E. ROSS (Pentridge): Received.—J. and W. FRANKLIN (Hants): We are much indebted to them for their admirable letter, and we would insert it at once; only that it is too flattering to ourselves.—ANTHONY (Burslem): We really can give no advice; but we recommend him to apply instantly to some well known medical man, whose character stands high with the public.—R. B. (Dukinfield): The cause of magnetism is as unknown as the cause of gravitation; we can only say that God has so willed it. The magnetic needle points northward, because the earth is a great magnet, and its poles are therefore magnetic and attract the poles of the needle. In Johnson's Dictionary is the following explanation of the word *check or cheque*: "The corresponding cipher of a bank-bill. This word is often corruptly used for the draft itself of the person on his banker." The noun *cheque* is more often used than *check*; it is supposed to come from *eschequer*.

LITERARY NOTICES.

IMPORTANT ANNOUNCEMENT TO OUR LATIN STUDENTS.—With a view fully to carry out the object of the Popular Educator as a means of educating the people, it is our intention shortly to commence the publication of a series of works on Classical Literature, to be entitled CASSELL'S CLASSICAL LIBRARY. This series will contain the productions of the most eminent Classical Authors, with other works calculated to assist in the acquisition of a general knowledge of the languages and literature of ancient Greece and Rome—the whole published at such a moderate price as to place them within the reach of all. A number consisting of twenty-eight pages, crown octavo, printed on the same paper as the fine edition of the Popular Educator, will appear every week, price twopence. The first number will be published on the 1st of August, and will contain the commencement of a Latin Reader, prepared for the use of beginners. Among the reading lessons, of which this work will consist, will be found easy and amusing Fables, Mythological Legends, Anecdotes of Eminent Men, an Epitome of the History of Rome from the earliest time to the Emperors, and a useful chapter on the Geography of the Nations of Antiquity. These will be accompanied by a Dictionary of all the Latin Words, Explanatory Notes, and Grammatical References; the whole forming, when complete, a cheap and convenient Introduction to Latin Literature. It will consist of ten numbers, and cases for binding will be issued at sixpence each. This work will be followed by Latin Exercises, intended to ground the student in the Syntax of the language, and thus prepare him for entering with advantage upon the study of more difficult authors.

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PHYSICAL EDUCATION.—No. II.

PHYSICAL Education, as a science, was unknown to the ancients; their gymnastic exercises, no doubt, tended powerfully to develop the organs of the body, and to increase their natural powers; but the scientific ideas which are included in the exercises of the modern gymnastics were undeveloped. We proceed, then, to examine the nature of the causes which have led to our improved views on this subject.

The motive agents in the human body are of two kinds: the passive, in which cases are contained the bones; and the active, to which class belong the muscles. No physical law is more evident than that any organ is increased in size by the exercise of it. The arm of a blacksmith, which is always found developed to a great extent, may be adduced as a proof of this. Most persons will find the fingers of the right hand larger than those of the left. Workmen engaged in trades in which the right hand is more exclusively employed, will exhibit this difference in size to a more marked extent. Phrenologists tell us that even the more noble organs of the mind follow this fundamental law, and that according as the different faculties of the mind are exercised or cultivated, the brain is actually altered in form or increased in size, in the parts where they say the organs of these mental powers lie.

From this fact it follows that the first effect of exercise must be to develop the muscles, which are in fact nothing but carnified blood; as blood has been said to be flesh in a fluid state. The appropriation of a greater quantity of blood to the muscles, occasions a proportionate increase in the production of this fluid itself; otherwise the whole system would be impoverished to supply the muscles. Then again, the muscles cannot contract without acting upon the bones to which they are attached; and thus the bones, too, are increased in strength and size. The development of the muscles is found much more strongly marked (other things being equal) in the male than in the female skeleton; simply because the muscular action of the male sex is greater than that of the female sex.

Certain bones cannot be increased in their size, without producing a most important effect in the enlargement of the

cavities formed by their union. We may instance the case of the ribs, to which are attached several of the muscles which move the arm and the shoulder. To raise a weight, or to suspend the body by the hands, the great pectoral muscle, amongst others, is forcibly contracted, and drags at the ribs in which it is inserted. The effect of this is easily understood: the ribs, incessantly drawn outwards, increase the space to be occupied by the lungs; the lungs are enlarged to fill up this increased space; more blood is admitted into the lungs at each respiration, and the vital action of the lungs upon the blood is carried on more largely.

This enlargement of the chest, and greater activity of respiration, are some of the valuable effects of the exercise of the superior members; muscular exertion, however, acts in other ways to make the respiration more active; every exertion of any consequence, requires a suspension of breathing after a long inspiration, so that the chest may furnish a firm point of support to the muscles, which it could not do, were the respiratory motions continued. The result of this is also to enlarge the lungs by the very circumstance of their being kept dilated for a longer or shorter space of time, and this dilatation being frequently repeated.

The breathing cannot be affected without the heart, in its turn, feeling the influence of it. If the lungs are increased in size, the heart must be increased in energy of action, so as to proportion the size of the sanguineal stream to the space it has to fill, and afterwards to drive the blood sent back from the lungs through the thousand channels of the body. Digestion, too, participates in the benefits of exercise. The digestive organs require certain movements, by the aid of which the food in the stomach is more easily penetrated by the gastric juices, and more thoroughly elaborated. These movements generally take place in the gastro-intestinal tube itself, the walls of which are in part muscular; but it is known that these motions are powerfully seconded by the muscular action of the abdominal walls.

Now in nearly all actions of the body of any consequence; for example, in that of walking, the great abdominal muscles are put into operation.

If, as we have seen, the breathing, the circulation, and the digestion are thus rendered active, there are three important



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.

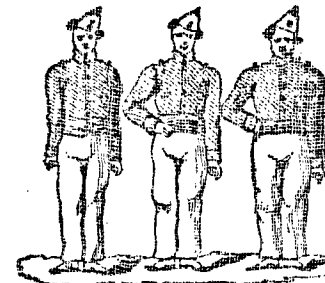


Fig. 7.

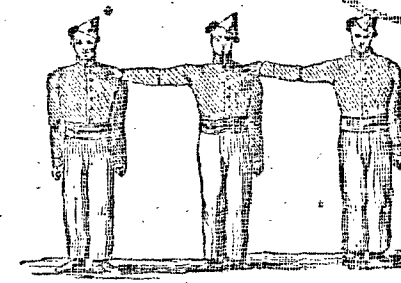


Fig. 8.

reasons why the nutrition of the body, or the actions by which the different organs appropriate the food taken into the stomach, should be rendered equally active. But there is a fourth reason for the increase of the nutritive action of the body, as a result of exercise.

Heat is increased by motion; the contraction of a muscle, without actual locomotion, is sufficient to elevate the temperature of the muscle half a degree. Muscular movements, repeated with sufficient energy, have thus the effect of rendering composition and decomposition more rapid. In short, the energetic operation of all the particles in the human body is accelerated by exercise. Besides, we cannot suppose that all the physical functions of the system can be thus accelerated, without the mind being in some degree beneficially affected. We all know how intimate is the connexion between mind and matter. We know how languid is the mind, when the body is unwell; and we cannot, therefore, believe that the exercises which impart such activity to the body can be without its effects in invigorating the mind.

Physical exercise, however, which possesses so many advantages, may also, like everything else, have its evils. But it is the province of gymnastics, that is, exercise raised to a science, to prevent these evils as much as possible. Amongst the evils to which we refer, the following may be named:—Excessive exercise produces fatigue—a sensation differing from those properly so called, inasmuch as it operates without the intervention of any active agent. It has its seat in the muscles, but it spreads over the whole body, and even the mind does not escape. Some men are more capable of resisting fatigue than others, according to their constitution, temperament, habits, and diet. Persons engaged in excessive exercise require plenty of nourishment. The lack of this, with an excess of labour, frequently brings on typhoid fever.

The muscles or their tendons may be broken by violent muscular contraction; and even the bones themselves may be broken by this means; but this case is rare, though well authenticated instances of it are on record.

The lungs suffer by an excessive and too-often repeated expansion of their tissue; the pulmonary cells being extended beyond the proper degree, lose their elasticity, and are even sometimes ruptured, producing the disease called *pulmonary emphysema* (inflation of the lungs).

The retention of the venous blood in the veins (occasioned by the suspension of respiration) is capable of producing serious consequences, by injuring the heart and the veins. There is no doubt that an excessive degree of exercise favours a predisposition to *aneurism* (nervelessness) of the heart. Digestion, too, which is aided by exercise, when moderate, suffers materially from it when taken in a violent and unseasonable degree.

The same cause will also affect the whole of the nervous system. The walls of the abdomen, too, are also sometimes injured by the action of their internal organs, through excessive exercise.

Gymnastics, however, being defined as a science applied to muscular movements, will, if properly taught, deprive exercise of its evils, and impart fully its benefits. Gymnastic exercises are useful to all; but to the soldier, the sailor, or the traveller, they are indispensably necessary.

GYMNASTIC EXERCISES.

We propose to divide our brief treatise upon gymnastics into three parts:—1°. The Elementary Movements; 2°. The Exercises of Wrestling, Walking, Running, and Jumping; 3°. The method of Climbing knotted and smooth Ropes; Exercises with Poles; Sphaeristic Exercises (such as throwing of balls or other projectiles); and the Art of Swimming.

I. Before commencing our instructions, we would especially impress upon the mind of the pupil the advantages of singing while performing the elementary Gymnastic Exercises. Not only will the respirative organs be thus well developed—an essential point in a good constitution, but the regular cadences of the rhythm will so enable the pupil to keep time in each action, that he will find himself able to keep up the exercise for a length of time which would otherwise be impossible. In singing for this purpose, words need not be sung, all that is required is the rhythm or cadence. We would even not point out any particular tune; the pupil may sing whatever pleases him best; for we repeat that all that is requisite in these exercises, is the rhythm to enable him to keep regular time to his movements.

As a proof of the sustaining power of a tune, we might point out many instances. Look at those young ladies—pale, delicate-looking creatures, with weak, nervous constitutions! How would they endure the toil of dancing through a whole night did not the evidence of the music come to their aid. A regiment of soldiers, tired with a long march, can start afresh and feel no more fatigue, when they hear the drum and fife. A sailor sings as he works at the capstan, or hauls in a rope. Scores of other instances might be given of this effect of music, or, rather, of rhythm in sustaining the regular action of the muscles.

This being understood, we proceed to our exercises. The pupils are arranged in a straight line, about two feet apart from one another, and the teacher then puts them into the following position:—The heels upon the line, and close together; the toes well turned out; the body upright; the shoulders kept well down; the arms hanging down by the sides, and the hands closed lightly with the nails forward; the head straight see fig. 1.

The teacher having fixed the pupils in this position, makes them execute the following elementary exercises:—

Exercise 1. Turning the head; when the teacher gives the following words of command:—

1. *Head to the right!*
2. *Move!*
3. *As you were!*

At the word *Move*, the pupils all move their heads towards the right shoulder and back again gradually and successively bringing it to the furthest possible point.

At the words, *As you were*, the pupils bring their heads back again to the straight position.

The head is turned to the left, by reversing the above orders. The next part of this exercise is to turn the head (fig. 2) alternately each way. These being the words of command:—

1. *Head alternately to the right and to the left!*
2. *Move!*
3. *As you were!*

Exercise 2. The head is turned alternately backwards and forwards. The words of command are the following:—

1. *Head backwards and forwards!*
2. *Move!*
3. *As you were!*

At the word *Move*, the pupil turns his head alternately backwards and forwards by a slow and regulated motion. At the words, *As you were*, the head is restored to its original position (fig. 3).

Exercise 3. The head is inclined alternately to the right and to the left, the words of command being given in the same way as before, (fig. 4); that is, the head is inclined to the right and to the left by alternating the motion.

For the performance of the following exercises, it is requisite to have regular distances between each of the pupils. There are two distances, the *half* and the *full* distance.

For the exercise of the *half* distance, the words of command are:—

1. *To the right, half distance!*
2. *Move!*
3. *As you were!*

At the word *Move*, the pupil at the right extremity of the line does not move; the others keep their left arms unmoved, but place their right hands on their haunch, the four fingers being in front, and the thumb behind, so that the elbow of each pupil touches the left arm of his neighbour on the right, fig. 5.

At the words, *As you were*, the arms are brought down to the sides as before.

For the exercise of the full distance, the words of command are:—

1. *To the right, (or, to the left) Full distance!*
2. *Move!*
3. *As you were!*

At the words, *Move*, the pupil at the right extremity of the line does not move; the others keeping their left arms unmoved, move their right arms slowly from their sides, stretching them out, and placing their right hands on the left shoulder of the pupil who is next to each on the right, the thumb being in front and the four fingers behind; at the words, *As you were*, the hands and arms are restored to their first position. Fig. 6. The reverse means are employed in taking the distances to the left.

LESSONS IN ENGLISH.—No. LV.

By JOHN R. DEARD, D.D.

(Continued from page 200.)

ADJECTIVE PRONOUNS, OR PRONOMINAL ADJECTIVES.

As already intimated, the union in one word of the attributes of an adjective and those of a pronoun, gives birth to a class of terms which may be designated as *adjective pronouns, or pronominal adjectives*. We give the ensuing list:—

Another	One	Some
Any	The one	Some one
Each	The other	Such a one.
Each other	One another	also,
Either	Own	The former
Neither	Same	The latter
Every	The same	

There are other forms of words, such as *all, anybody, somebody, &c.*, which have been ranked under our present head, but which, to me, appear to fall under other categories. *All*, for instance, is clearly an adjective; *somebody* is made up of *some*, an adjective, and *body*, a noun. It must, however, be admitted that the lines of demarcation here are not very clear, and a word which appears to one person as an adjective, may to another seem to take rank among pronouns. But it may be suggested that, whatever other quality a word may possess or acquire, it must, in order to take rank among pronouns, be capable of standing instead of a noun, and that independently, and not merely as an adjective having its noun understood.

The derivation of the words which form the foregoing list is sufficiently clear without additional remarks.

Some of the words remain uninflected; as, *any and own*. Most of them are, however, capable of a possessive case; as, *another's, each other's, one, another's, either's, neither's, the former's, the latter's*; e.g.,

Thomas and William fought; the former broke the latter's left arm, and the latter knocked out the former's right eye.

EXERCISES.—COMPLETE.

The Seventy's translation of the Old Testament is very valuable. The boy is not only young, but he is also wealthy.

"Attend to what a lesser muse indites."—Addison.

Barcelona was taken through a most unexpected accident. The watch is beautiful, but it is dear. Are you the bridegroom? No, I am not he. I will not destroy the city for twenty's sake. The inhabitants of the lesser Asia (Asia Minor) are dark-skinned. Manslaughter is not murder. Jesus answered: "If I honour myself, my honour is nothing; it is my Father that honoureth me, of whom ye say that he is your God; yet ye have not known Him, but I know Him." They sat down in ranks by hundreds and by fifties. God made two great lights; the greater light to rule the day, and the lesser light to rule the night. These shoes are home-made. Suicide is self-murder. The avaricious man is a self-tormentor. Whatever is humane is wise; whatever is wise is just; whatever is wise, just, and humane, will be found the true interest of states.

"I will had hopes, my latest hours to crown,
Amidst these humble bow'rs to lay me down."—Goldsmith.

A boy should understand his mother-tongue well before he enters upon the study of a dead language; or, at any rate, he should be made perfect master of the meaning of all the words which are necessary to furnish him with a translation of the particular one which he is studying. No discipline is more suitable to man, or more congruous to the dignity of his nature, than that which refines his taste, and leads him to distinguish, in every subject, what is regular, what is orderly, what is suitable, and what is fit and proper. These words which were formerly current and proper have now become obsolete and barbarous. Alas! this is not all: fame, too, in time tarnishes; and men grow out of fashion. Charles was the tallest, the handsomest, and the strongest man of his time; his appearance was truly majestic, and he had surprising agility in all sorts of manly exercises. Money, like other things, is more or less valuable, as it is more or less plentiful.

"His words bore sterling weight, nervous and strong."
In many tides of sense, they roll'd along."—Churchill.

"To make the humble proud, the proud submit,
Wiser the wisest, and the brave more brave."—W. S. Landon.

I am satisfied that in this, as in all cases, it is best and safest, as well as most right and honourable, to speak freely and plainly. The Gospel, under the aid of God's Holy Spirit, has power to make the proud humble, the selfish disinterested, the worldly heavenly, and the sensual pure. God's providence is higher, and deeper, and larger, and stronger than all the skill of his adversaries; and his pleasure shall be accomplished in their overthrow, unless they repent and become His friends. Words are voluntary signs; and they are also arbitrary, except a few simple sounds expressive of certain internal emotions, and certain external movements, which sounds being the same or nearly the same in all languages, must be the work of nature; thus the unpremeditated tones of admiration are the same in all men.

It may serve to show the student the changes our language has undergone, if I subjoin an exercise for correction, the corrections to be made according to the statements and rules laid down under each head. My purpose can be answered only by the instances being taken from authors of high repute. From such authors, consequently, they will be taken. The term "correction" may lead to a false impression. Let no one who makes the required corrections, suppose that he writes better English than the writers whose names will follow. The truth, in general terms is, their English was perfect in their day. The occasion for correction arises from the fact that since their time our language has undergone much change, and it is the English of the present day that the student must aim to write.

EXERCISES FOR CORRECTION.

"Our language is now certainly properer and more natural than it was formerly."—Bishop Burnet. "Four of the ancientest, soberest, and discreetest of the brethren shall regulate it."—Locke. "What heaven's Great King hath powerfulest to send against us."—Milton. "Benedict is not the unhopofulest husband that I know."—Shakespeare.

"That what she wills to do or say,
Seems wisest, virtuousest, discreetest, best."—Milton.

For we which live, are always delivered unto death for Jesus' sake."—Paul. "They which believe in God must be careful to maintain good works."—Barclay. "Before his book he placeth a great list of that he accounts the blasphemous assertions of the Quakers."—Barclay. "More shame for ye; holy men I thought ye."—Shakespeare.

"There is no vice so simple but assumes
Some mark of virtue on his outward parts."—Shakespeare.

"Unless when ideas of their opposites manifestly suggest themselves."—Wright's Grammar. "Every one of us, each for himself, laboured how to recover him."—Sidney.

SPECIMEN OF PARSING.

"Judges ought to be more learned than witty, more reverend than plausible, more advised than confident; above all things, integrity is their portion and proper virtue."—Lord Bacon. "Who art thou that judgest another man's servant?"—Paul. *Judges*, from *judge* (Latin, *judex*), a common noun, masculine gender, plural number, of the third person, the subject to the verb *ought*.

Ought, from *to owe*, a verb in the past tense, third person singular number, agreeing with its subject *Judges*.

To, a preposition.

Be, a verb in the infinitive mood, dependent on *to*.

More, an adverb, qualifying *learned*.

Learned, a participle, compared by the adverb *more*.

Than, a conjunction, required after *more*, thus, *more than*.

Witty, an adjective, may be compared thus, *wittier, wittiest* or *witty, more witty, most witty*.

Reverend, an adjective, from the Latin participle *reverendus*, which is connected with *revereor, I respect, I fear*.

Plausible, an adjective, compared by *more* and *most*, as being a polysyllable.

Advised, a participle, used as an adjective, compared by *more* and *most*.

Confident, an adjective, from the Latin *confidens, with, and fides, trust*, compared by *more* and *most*.

Above, a preposition.

All, an adjective, qualifying *things*.

Things, a noun neuter, in the plural number, dependent on the preposition *above*.

Integrity, an abstract noun (from the Latin *integer, whole, sound, uninjured*), in the singular number of the neuter gender, the third person, being the subject to *is*.

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- It*, a verb, present time, agreeing with its subject *integrity*;
Their, a possessive pronoun, third person plural, constructed with a noun.
Portion, a noun neuter, singular number, third person, explanatory of the noun *integrity*.
And, a conjunction.
Proper, an adjective, qualifying *virtue*; *proper* is one of those nouns which do not admit of comparison.
Virtue, an abstract noun, neuter gender, third person singular.
Who, an interrogative pronoun.
Art, a verb, second person singular, present indicative, of the verb *to be*.
Thou, a personal pronoun, of the second person singular.
That, a relative pronoun, agreeing with its antecedent *thou*.
Judgest, a verb, in the second person singular, to agree with *that*.
Another, an adjective, qualifying *man*; had the words run "another's servant," then *another's* would be commonly accounted a pronoun.
Man's, a common noun, of the masculine gender, third person, singular number, in the possessive case, governed by *servant*.
Servant, from the Latin *servus*, a slave, a noun of the common gender, the object to the verb *judgest*.

WORDS WITH THEIR PROPER PREPOSITIONS.

- Enjoin on*, immediately from the French *enjoindre*; to command; and through that from the Latin *injungere*, *in*, on, or upon, and *jungo*, I join.
Enter in, into, immediately from the French *entrer*, to go in; so from the Latin *intra*, within.
Envious of, French *envie*, pain at others' success, and Latin *invidia*, of similar import.
Equal to, Latin *aequalis*, and that from *aequus*, properly a level, *fast*, or *plane*, hence *equal* or *just* in a moral sense.
Equivalent to, *aequus*, and *valco*, I am strong.
Esponse to, from the French *epouser*, to marry; and that from the Latin *spondere* (whence *sponsus* and *sponsa*, a bridegroom and a bride), to promise, betroth; the *in* espouse is derived from the obsolete form *esposue*, and belongs to the *Toot*, as is seen in *spondere*, *sponsus*, and *sponsa*.
Estimated at, French, *estimer*, and that from the Latin *aestimo* (*aes*), to give, the value of.
Estranged from, French *etranger*, a foreigner; Latin *extraneus*, living beyond the borders.
Exception to, *ex*, from, and *capio*, I take; Latin.
Excluded from, *ex*, out of, and *claudio*, I shut; Latin.
Expelled from, *ex*, out of, and *pello*, I drive; Latin.
Expert in, at, from the Latin *expertus*, having learned by trial.
Exposed to, *ex*, out; and *pono*, I place; Latin.
Expressive of, *ex*, out, and *premo*, I press; Latin.

LESSONS IN GERMAN.—No. LVI.

§ 43. THE NUMERALS.

In German, as in other languages, the numerals are arranged into classes according to their signification, viz. CARDINAL, ORDINAL, DISTRIBUTIVE, &c. will be explained under their respective heads.

§ 44. THE CARDINAL NUMBERS.

The cardinal numbers, whence all the others are derived, are those answering definitely to the question: "How many?" They are the following:

Ein (eig. eine, ein)	1.	dreißig	30.
zwei	2.	ein und dreißig	31. &c.
drei	3.	vierzig	40.
vier	4.	fünfzig	50.
fünf	5.	sechzig (not sechszig)	60.
sechs	6.	siebenzig or sieben	70.
sieben	7.	achtzig	80.
acht	8.	neunzig	90.
neun	9.	hundert	100.
zehn	10.	hundert und eins	101.
elf	11.	hundert und zwei	102.
zwölf	12.	hundert und drei	103. &c.
dreizehn	13.	zwei hundert	200.
vierzehn	14.	drei hundert	300.
fünfzehn	15.	tausend	1000.

sechzehn	16.	zwei tausend	2000.
siebenzehn or siebzehn	17.	drei tausend	3000.
achtzehn	18.	zehn tausend	10,000.
neunzehn	19.	hundert tausend	100,000.
zwanzig	20.	eine Million	1,000,000.
ein und zwanzig	21.	zwei Millionen	2,000,000.
zwei und zwanzig	22.		

(1) OBSERVE that the cardinals are, for the most part, indeclinable.

(2) *Ein*, (*one*) however, is declined throughout like the indefinite article. It is, in fact, the same word with a different use; and is distinguished from it in speaking and writing, only by a stronger emphasis and by being usually written with a capital initial. This is the form which it has, when immediately before a noun, or before an adjective qualifying a noun. Thus:

	Masculine.	
Nom.	Ein Mann, One man.	
	Ein guter Mann, One good man.	
Gen.	Eines Mannes, of One man.	
	Eines guten Mannes, of One good man.	
	Feminine.	
Nom.	Eine Frau, One woman.	
	Eine gute Frau, One good woman.	
Gen.	Einer Frau, of One woman.	
	Einer guten Frau, of One good woman.	
	Neuter.	
Nom.	Ein Kind, One child.	
	Ein gutes Kind, One good child.	
Gen.	Eines Kindes, of One child.	
	Eines guten Kindes, of One good child.	

(3) In other situations, *ein* follows the ordinary rules of declension: thus in the

	a. Old Form.	
N. einer,	eine,	eines,
G. eines,	einer,	eines,
		one.
		of one &c.
	b. New Form.	
N. der eine,	die eine,	das eine,
G. des einen,	der einen,	des einen,
		the one.
		of the one, &c.
	c. Mixed Form.	
N. mein einer,	meine eine,	mein eines,
G. meines einen,	meiner einen,	meines einen,
		my one.
		of my one &c.

In relation to the numeral *ein* note, further, these three things:

1. That in merely counting, it has the termination of the neuter, with *e*, however, omitted; as *eins*, *zwei*, *drei*, *one*, *two*, *three*, &c.

2. That *ein*, may be used in the plural, when the design is to distinguish classes of individuals; as, *die Einen*, the ones, *der Einen*, of the ones, &c. just as, in English, we say, *the ones*, *the others*.

3. That *ein*, unlike the English *one*, cannot be employed so as to fill the place of a noun: thus, we cannot say, in German, a new one, a good one, &c. In such cases, the adjective stands alone.

(4) *Zwei* (*two*) and *drei* (*three*), when the cases are not sufficiently pointed out by other words in the context, are declined thus:

N. Zwei, two,	drei, three,
G. Zweier, of two,	dreier, of three,
D. Zweien, to or for two,	dreien, to or for three,
A. Zwei, two,	drei, three,

In place of *Zwei*, *beide* (*both*) which is declined like an adjective in the plural, is often employed; as *beide Augen*, both eyes; *die beiden Brüder*, both the brothers. The neuter *beides* never refers to persons. (Sect. 33. I.)

(5) All the rest of the cardinals, when employed substantively, take *en* in the dative: except such as already end in these

letters; as, *ich habe es Ihnen gesagt*, I have told it to five (persons).

(6) *hundert* and *tausend* are often employed as collective (neuter) nouns, and regularly inflected; as, singular nom. *das Hundert*, the hundred, gen. *des Hunderts* of the hundred, &c.; plural nom. *die Hunderte*, the hundreds, &c.; *Million*, million, is, in like manner, made a noun (feminine), and is in the singular always preceded by the article; as, *Eine Million*, a million.

(7) In speaking of the cardinals, merely as figures or characters, they are all regarded as being in the feminine gender: as, *die Eins*, the one, *die Zwei*, the two, *die Drei*, the three; where, in each case, the word, *Zahl*, (*number*) is supposed to be understood: thus *die (Zahl) drei*, the (number) three.

§ 45. ORDINAL NUMBERS.

(1) The ordinal numbers are those, which answer to the question: "Which one of the series?" They are given as follows, with their corresponding cardinals; they are regularly inflected according to the rules already given for the declension of adjectives.

CARDINALS.		ORDINALS.
Ein (ein, eine, ein)	1.	der erste, the first.
zwei	2.	zweite, the second.
drei	3.	dritte, the third.
vier	4.	vierte, the fourth.
fünf	5.	fünfte, the fifth.
sechs	6.	sechste, the sixth.
sieben	7.	siebente, the seventh.
acht	8.	achte, the eighth.
neun	9.	neunte, the ninth.
zehn	10.	zehnte, the tenth.
elf	11.	elfte, the eleventh.
zwölf	12.	zwölfte, the twelfth.
dreizehn	13.	dreizehnte, the thirteenth.
vierzehn	14.	vierzehnte, the fourteenth.
fünfzehn	15.	fünfzehnte, the fifteenth.
sechzehn	16.	sechzehnte, the sixteenth.
siebenzehn or siebzehn	17.	siebenzehnte or siebzehnte, the seventeenth.
achtzehn	18.	achtzehnte, the 18th.
neunzehn	19.	neunzehnte, the 19th.
zwanzig	20.	zwanzigste, the 20th.
ein und zwanzig	21.	ein und zwanzigste, the 21st.
zwei und zwanzig	22.	zwei und zwanzigste, the 22nd.
dreißig	30.	dreißigste, the 30th.
ein und dreißig	31.	ein und dreißigste, the 31st.
zwei und dreißig	32.	zwei und dreißigste, the 32d. &c.
vierzig	40.	vierzigste, the 40th.
fünfzig	50.	fünfzigste, the 50th.
sechzig (not sechszig)	60.	sechzigste, the 60th.
siebenzig or sieben	70.	siebenzigste or siebenste, the 70th.
achtzig	80.	achtzigste, the 80th.
neunzig	90.	neunzigste, the 90th.
hundert	100.	hundertste, the 100th.
hundert und eins	101.	hundert und erste, the 101st.
hundert und zwei	102.	hundert und zweite, the 102nd.
hundert und drei	103.	hundert und dritte, the 103rd.
zwei hundert	200.	zweihundertste, the 200th.
drei hundert	300.	dreihundertste, the 300th.
tausend	1000.	tausendste, the 1000th.
zwei tausend	2000.	zweitausendste, the 2000th.
drei tausend	3000.	dreitausendste, the 3000th.
zehn tausend	10,000.	zehntausendste, the 10,000th.
hunderttausend	100,000.	hunderttausendste, the 100,000th. &c.

(2) OBSERVE that, in the formation of the ordinals from the cardinals, a certain law is observed: viz from *zwei* (*two*) to *neunzehn* (*nineteen*) the corresponding ordinal, in each case (triple and *acht* excepted), is made by adding the letters *te*; as, *zwei*, *two*; *zweite*, the second; *vier*, *four*; *vierte*, the fourth, &c. Beyond that number (*nineteen*), the same effect is produced by adding *te*; as, *zwanzig*, *twenty*; *zwanzigste*, the twentieth; &c. *Größe* is from *er* (*before*).

(3) Note, also, that *der andere* (*the other*) is often used in

place of *der zweite*; but only in cases where two objects alone are referred to.

(4) In compound numbers, it must be observed that the last one only, as in English, bears the suffix (*te* or *ste*); but in this case, the units usually precede the tens: thus, *vier und zwanzigste*, the four and twentieth.

(5) We have also, a sort of interrogative ordinal, formed from *wie* (*how*) and *viel* (*much*), which is used when we wish to put the question: *Which of the number?* as, *Der wievielte ist heute?* what day of the month is to-day? *Das wievielte ist es?* how many does that make?

LESSONS IN GERMAN PRONUNCIATION.—No. III.

Die Canarienvögelchen.
Dee ká-náh'-ree-en-fó'-ghel-chen.

Ein kleines Mädchen, Namens Carolina, hatte ein
 Ine, kll'-ness máit'-chen, páh'-menss Cá-ro-lee'-ná, háy'-tai ino
 oherliebtes Canarienvögelchen. Das Thierchen
 ál'-ler-leep'-stess ká-náh'-ree-en-fó'-ghel-chen. Dáss teer'-chen
 sang vom frühen Morgen bis an den Abend und war
 zánk fom frú'-hen mor'-ghen biss án dain áh'-bend, dónt váhr
 sehr schön goldgelb mit schwarzem Häubchen. Carolina
 zair shón golt'-gáib mit shwárt'-sem hoipt'-chen. Cá-ro-lee'-ná
 aber gab ihm zu essen Saamen und kühendes Kraut,
 áh'-ber gáib eera tsóo ess'-en záh'-men dónt kú'-len'-dless kroat,
 auch zuweilen ein Stückchen Zucker und täglich
 óuch tsóo-ví'-len ino stúck'-chen tsóók'-ker dónt táig'-lich

frisches Wasser.
 frish'-shless wáss'-ser.

Aber plötzlich begann das Vögelchen zu trauern,
 áh'-ber plóts'-lich báig'-ann dás só'-ghel-chen tsóo trau'-ern,
 und eines Morgens, als Carolina ihm Wasser bringen
 dónt i'-nes mor'-ghens, áls Cá-ro-lee'-ná eem wáss'-ser bring'-en
 wollte, lag es todt im Käfig.
 wóll'-tai, láh'-ess toat im kái'-sh.

Da erhob die Kleine ein lautes Wehklagen um
 Dá err'-hóp'-doo kll'-nai'-ino lou'-tess vái'-kláh'-ghen óóm

das geliebte Thier und meinte sehr. Die Mutter des
 dás gelíebte Thier und meinte sehr. Die Mutter des
 dás gáí-leep'-tai teer dónt ríno'-tai zair. Deo móót'-ter, dess

Mädchens aber ging hin und kaufte ein anderes, das
 máit'-ghens áh'-ber ghink hin dónt kauf'-tai ine án'-dai'-ress, dás

nach schöner war an Farben und eben so lieblich sang wie
 noch shó'-ner váhr án fárbén ént aí'-ben zo leep'-lich záng wóo

jenes, und that es in den Käfig.
 yá'-ness, dónt thát ess in dain kái'-sh.

Allein das Mädchen weinete noch lauter, als es das
 ál'-líné dás máit'-líné ví'-nai'-tai noch lou'-ter, áls es dás

neue Vögelchen sah. Da wunderte sich die Mutter
 nóí'-ai só'-ghel-chen záh. Dáh wóón'-der-tai záh doo móót'-ter

sehr und sprach: Mein liebes Kind, warum weinst du
 sehr und sprach: Mein liebes Kind, wárm weínest du

zair dónt spráhh: Mine lee'-hess kínd, wáh'-róóm ví'-nest doo

nach, und bist so sehr betrübt? Deine Thränen werden
 noch, dónt bist zo zair báí-trúpt? Dí'-nai tráí'-nen váí'-den

das bestorbene Vögelchen nicht in das Leben rufen,
 dás bestór-béne báí-nai só'-ghel-chen níht in dás láí'-ben roo'-fen,

und hier hast du ja ein andres, das nicht schlechter ist
 und hier hást du já ein ándres, dás níht shleeht'-ter íst,

denn jenes. Da sprach das Kind: Ich liebe Mutter, ich
 denn jenes. Dá sprach dás kínd: Ich lee'-bai móót'-ter, íh

habe Unrecht gegen das Völkchen gehandelt, und
hah'-bai dön'-recht ghey'-ghen däss teer'-ghen gai-hän'-delt, dön
nicht alles an ihm getan, was ich sollte und konnte.
nigt ät'-less än eem gai-täh'n, vass ich zoll'-tai önt kon'-tai.

Liebe Lina, antwortete die Mutter, du hast kein
Lee'-bai lee'-näh, änt'-vor-tai-tai des mödt'er, du häst' zine
ja sorgfältig gepflegt. Ach nein, erwiderte das
yäh zör'-fel-täh gai-pläht'. äh nine, err-voe'-der-tai däss
Kind, ich habe noch kurz vor seinem Tode ein Stückchen
Kind, ich häb'-bai nöch kört's fore zi'-nem to'-dai ins stück'-ghen
Bücher, das du mir für dasselbe gabst, ihm nicht
rsöök'-ker, däss doo moer füt'r däss-vel-bai gähpst, eem nicht
gebracht, sondern selbst gegessen. So sprach das
gai-bräht', zön'-dem zelpst gai-ghess'-em. Zo sprähst däss
Mädchen mit betrübtem Herzen. Die Mutter aber
mait'-ghen mit bai-trü'-p'teilt herrt'-sen. Deo mödt'-ter äh'-ber
lächelte nicht über die Klagen des Mädchens, denn sie
losh'-ghel-tai mait' ü'-ber des kläh'-ghen dess mait'-ghens, denn zoo
erkannte wohl und verehrte die heilige Stimme der
err-kän'-tai vole önt ferr-äir'-tai des hi'-gh-ai stim'-mai dair
Natur in dem Herzen des Kindes. Ach! sagte sie, wie
nä-toor' in dem herrt'-sen des kin'-dess. äh! zähst'-tai zee, voo
mag dem undankbaren Kinde zu Muthe sein am
mähst dem dön'-dähk-bäh-ron kin'-dai tsoo möo'-tai zine äm
Grate der Eichen.
gräh'-bai dair el'-tern.

VOCABULARY.

Das Canarienvögelchen.

Canarien, canary	allein, but, alone
Vögelchen, bird	neu, new
Name, n. name	sich wundern, to wonder
liebste, most lovely	lieb, dear
Abkömmling, little creature	tu bist, thou art
von, of, from	betrübt, sad
früh, early	betrüben, to afflict
Morgen, m. morning	bitt, thy
bis, till	Träne, f. tear
Abend, m. evening	rufen, to call
hüben, beautiful	werden, to become, sign of the
gelb, yellow	Future Tense, shall, will; sign
mit, with	of the Passive Voice, to be, to
schwarz, black	be being
stirben, n. tuft	sterben, to die
haupte, f. cap	leben, n. to-life
geben, to give	schlecht, f. better, bad, worse
ihm, to him (it)	ach, oh
zu, to	anteln, to act
essen, to eat	unrecht, wrong
Samen, m. seed	un, Prefix un, not
hühen, to cool	was, what
kraut, n. herb	selten, to be obliged, should
zuweilen, sometimes	sein, finer, Genitive of it, of him
Stück, n. piece	sorgfältig, carefully
Zucker, m. sugar	nein, no
frisch, fresh	antworten, to reply
Wasser, n. water	kurz, short, -ly
plötzlich, suddenly	Tod, m. death
trauern, to grieve	dativ, Dative to me
liegen, to lie	für, for
tot, dead	selbst, the same
Räth, m. cage	sondern, but
erheben, to raise, lift up	selbst, myself, yourself, &c.
laut, aloud	Herz, n. heart
Becklagen, n. lamentation, v. n.	lächeln, to smile
to lament	über, at, over
Klage, f. complaint, lament	erkennen, to recognize
weil, woe	necht, indeed, well
weinen, to weep	verehren, to honour

um, for, about, around
kaufen, to buy
ander, other
noch, yet, still
Farbe, f. colour, dye, paint
eben, to just so
jener, jene, theirs, that
ihm, to put, to do

Ghre, f. honour
Stimme, f. voice
mögen, may
zu Muthe sein, feel
Muth, m. courage, mind
sanfter, grateful
bar, Affix productive of, able
Grab, n. grave

LESSONS IN LATIN.—No. LX.

By JOHN R. BEARD, D.D.

IDIOM.

Idiom is a word of Greek origin, signifying *what is one's own*. Hence idiom, as applied to a language, denotes that which is peculiar to that language.

In the study of languages, we find that which is common and that which is peculiar. The union and systematic arrangement of what is common to languages, gives rise to general grammar. The selection and exhibition of the qualities which are peculiar to any one language, form what is called the idiom of that language. On general grammar and on idiomatic usages is founded the philosophy of language, which is commonly called *philology*; whose business it is to discover and set forth the universal principles of language considered as the chief instrument of thought, considered also as a picture of the human mind, and a guide in *ethnology*, or the science which treats of the derivation of nations; and considered moreover as an auxiliary in general history.

A full treatise on Latin Idiom would itself require a volume. Already have many idiomatic usages been pointed out and explained. To a great extent the laws of Latin syntax are an exhibition of Latin idioms. Several of these laws, however, have their counterparts in other tongues. These accordingly belong to general grammar. Other usages are in strictness peculiar to the Roman writers and their imitators. For instance, the *ablative absolute* is not found in other languages; in Greek the *absolute case* is the *genitive*; in English, the *absolute case* (rarely used) is the *objective*.

I subjoin a few idiomatic usages with accompanying explanations, more for the sake of directing and encouraging the learner than to impart systematic instruction. With a few remarks on the collocation of words, a very important branch of idiom, I shall close these lessons, and therewith terminate a treatise, in which I have endeavoured to simplify the Latin grammar and facilitate the acquisition of the Latin language; aiming not so much at completeness as usefulness; for those who have diligently and intelligently accompanied me in this course of instruction, will find no difficulty in carrying forward their studies with the aid of the ordinary manuals. While, however, I do not profess to have exhausted the subject, I have, I believe, omitted nothing of consequence which ought to enter into an elementary treatise designed to assist the untaught, the half-taught and the self-taught to read the Latin prose classics.

When two nouns come together of which one denotes a class and the other some members of that class, the former in Latin as well as in English is generally put in the genitive case; e. g.,

Militem quam plurimi interfecti sunt.
Of the soldiers very many were killed.

In Latin, however, instances occur in which the former noun, the noun representing the class, is in the same case as the noun representing the members of the class; e. g.,

Duae filiae, altera occisa, altera capta est;
The two daughters, the one was killed, the other taken.

The two daughters, in English, would be of the two daughters. I give another example or two:

Mauri, impetratis omnibus rebus, tres Romanos profecti.
The Moors, all things being obtained, three proceeded to Rome.
Duo ad regem redeunt.
Two return to the king.

The Latin, admitting of greater compression of style than the English, sometimes employs, as attributives, nouns or adjectives

in cases where the sense in our language requires some explanatory word or words; e. g.,

C. Junius aedem Salutis, quam consul roborat, censor locavit, dictator dedicavit.

C. Junius, when censor erected, and when dictator dedicated a chapel in honour of Salus, which he had vowed when he was consul.

There are occasions when, in the Latin, the explanatory word is given; e. g.,

Cicero cecinit ea ut eges, (Corn. Nep.)
Cicero sang these things as a prophet.

The word on which a genitive depends is sometimes omitted. The omission takes place when the word can be easily supplied from the context. Thus the governing word is left out in a second clause or number of a sentence when it can readily be taken from the previous one; e. g.,

Quam Atheniensium opes senescere, contra Lacedaemoniorum crescere viderent.

When the resources of the Athenians seemed to waste away, those of the Lacedaemonians, on the other hand, seemed to increase.

The genitive Lacedaemoniorum depends on opes, understood from the opes which appears in the former part of the sentence. Observe, by the way, that the English requires the leading verb seemed to be repeated; whereas the Latin viderent governs both senescere and crescere. This is an advantage which ensues from throwing the verb to the end of the sentence.

The Romans employed adjectives of number, &c. instead of adverbs; e. g.,

Ego prius hanc orationem legi;
I first read that oration.

Where, in the Latin, prius agrees with ego. Here you have a case of agreement, that is, an adjective agreeing with a pronoun, which you should compare with what has been said under the second head of agreement.

Considerable care is necessary to render these instances of idiom correctly; e. g.,

Hanc prius hanc orationem legi.

The words literally rendered are, I read this first oration, or I read this oration first; neither rendering gives the meaning, which is,

This is the first oration which I read.

The pronouns in Latin present many instances of idiom, of which the more simple will be found already explained under the proper heads. Some that may involve difficulty to the student may be here noticed.

The adjective, which in sense belongs to the antecedent, is separated from it, and put after and in concord with the relative; e. g.,

Consilii pare, quae nunc pulcherrima Nautes dat.
Let. To the counsels yield, which now very beautiful Nautes gives.
Idiom. Obey the very excellent counsels which Nautes now gives.

Here, in construction, the adjective pulcherrima agrees with the relative quae, whereas in sense it is to be taken as if in concord with the antecedent consilii. In rendering such passages, the beginner will do well to alter the arrangement so as to make it correspond with the sense before he begins to construe, thus:

Consilii pulcherrima pare, quae nunc Nautes dat.

The Romans, fond of the relative, frequently use it when, in English, we employ a demonstrative pronoun, and bring also inclined to put together, for the sake of broad contrast, two related words, they in questions place a relative and an interrogative side by side; e. g.,

Quo quid potest esse turpius?
What can be more base than that?

When the relative refers to a fact or a clause of a sentence, it frequently takes before it the demonstrative pronoun, and thus arises the form, id quod; e. g.,

Num me fellel res tanta, et, id quod magis est, admirandum, dici?
You do not think, do you? that so important a fact, and what would be more wonderful, the day escaped my notice?

The pronoun is, ea, id, is used in the sense of our phrases and that, and that too; e. g.,

Unam rem explicabo, camque maximam;
One thing I will explain, and that not the least.

The pronoun is, or hic, is often not found in Latin in forms of speech where the English usage would lead you to expect it; e. g.,

Xerxes proposuit praemium qui invenisset novam voluptatem.
Xerxes offered a reward to him who should discover a new pleasure.

Eligere (to him) would be looked for before qui; its absence is idiomatic.

Whether the demonstrative is employed, it may stand, not, as in English, before, but after the relative; e. g.,

Tarquinius non novam potestatem nactus, sed quam habebat, ed, usus est injuste.

Tarquin obtained not new power, but he used the power he had unjustly.

Important idiomatic usages are connected with the Latin participle. That of the *ablative absolute* has been sufficiently spoken of. Another idiom or two may here be noticed.

The Latin has no participle perfect active, corresponding to our having read; the meaning may be given by a verb and a conjunction, e. g., Quam epistolam legisset, abiit Cicero; Cicero, having read the letter, departed. The past participle of deponent verbs has an active signification; e. g.,

Cesar milites hortatus extra movit.
Cesar having exhorted the soldiers, moved his camp.

The participle passive in dus, agrees with the noun or pronoun with which it is connected; e. g.,

Legendi sunt libri,	books are to be read,
Causa legendi libri,	for the sake of reading a book.
Ad legendum librum,	to read a book.
In legendo libro,	in reading a book.
Ad legendos libros,	to read books.
In legendis libris,	in reading books.

After the *verba curare, dare, sumere, relinquere, &c.*, this participle is common in a usage which requires attention; e. g.,

Hanc domum aedificandam mihi condaxi;
I have contracted to build this house.
Hanc domum aedificandam tibi locavi;
I have let to thee the building of this house.

The present participle active is used after a verb instead of an infinitive, when it is intended to show that the act is at the moment proceeding; e. g.,

INFINITIVE. Te ridere vidi;
I saw thee laugh.
PRES. PART. ACTIVE. Te ridentem vidi;
I saw thee laughing.

The force of the participle in rus cannot be given in English, without a circumlocution; e. g.,

Tiberius trajecturus Rhenum comestum praenitit.
Tiberius, when on the point of passing the Rhine, sent before him all his supplies.

The participle perfect passive is used after habeo, teneo, possideo, &c., to give the idea of *being* so past as to have become a settled condition; e. g.,

Illud exploratum habeto, nihil fieri posse sine causa.
Around this a settled point, that nothing can take place without a cause.

In sentences constructed in English with two independent verbs, the Latins prefer employing one verb and the passive participle; e. g.,

Dionysius Syracensis expulsus Corinthum se contulit;
Dionysius was expelled from Syracuse and went to Corinth;
or,
When Dionysius was expelled from Syracuse he went to Corinth.

The participles in Latin have sometimes a causal force, which can be fully given in English only by the aid of a conjunction; e. g.,

Nihil affirmo dubitans et mihi ipso diffidens;
I assert nothing, because I doubt and because I distrust myself.

The passive participle in us, is sometimes used with a noun in such a way as to require to be put into English by a noun; the compound phrase demands two nouns in a state of regimen;

thus, *occisus* Caesar; literally, *Caesar being slain*, must be rendered *the slaying of Caesar*; e. g.,

Occisus dictator *Caesar* *alii* *pessimum*, *alii* *pulcherrimum* *fajious* *videbatur*.

The slaying of Caesar, the dictator, appeared to some a very shameful act, others, a very noble deed.

Hence arise the phrases *Post Christum natum*; literally, *after Christ born*; that is, *since the birth of Christ*; *ab urbe condita*, *from the foundation of the city* (of Rome).

EXERCISES—LATIN-ENGLISH.

Cato quem scilicet cognovi; *Sarmatis* neque *conli*, neque *gladii*, quos *praelongos* utraque *manu* *regunt*, *usui* *erant*; *tempestivis* *conviviis* *delector* *cum* *aqualibus*, *qui* *pauli* *admodum* *resistant*; *Agamemnon*, *quam* *devovisset* *Dianae* *quod* *in* *suo* *regno* *pulcherrimum* *natum* *esset*, *immolavit* *Iphigeniam*; *exempla* *quaeruntur*, *et* *ea* *non* *antiqua*; *uno* *atque* *eo* *facili* *praelio* *caesi* *sunt* *hostes*; *Galli* *legionem* *neque* *eam* *plenissimam*, *propter* *paucitatem* *despiciebant*; *Crassum*, *cognovi* *studii* *optimis* *deditum*, *idque* *a* *puero*; *ego* *unus* *familialem* *tuum* *vidi*; *unum* *familialem* *tuum* *vidi*; *familialem* *tuum* *vidi* *salute*, *sermone* *cum* *eo* *non* *habui*; *non* *nobis* *salutanti* *sumus*; *Hannibal* *princeps* *in* *proelio* *ibat*, *ultimus* *conserto* *praelio* *excedebat*; *lupus* *gracilis* *nocturnus* *obambulat*; *haec* *orationem* *primum* *legi*, *deinde* *transcripsi*; *hodie* *postremum* *me* *vides*; *Sulla* *in* *operibus*, *in* *agmine* *atque* *ad* *vigilias* *multus* *adcrat*; *Sextus* *ab* *armis* *gulis* *diseedit*.

ENGLISH-LATIN.

Religion destroyed, the world is in darkness; the death of thy wife (thy wife dead) has caused thee great pain; the scholars have come to read Cicero; in reading this book, I became learned; by reading the Bible, men become wise; I have engaged thy brother to build me a house (I have let to thy brother a house to be built); it is a settled point with me that nothing takes place without God; being about to visit Rome, I have sent thither some garments; they saw thee laughing; the master saw his scholars reading their books; he entered the town a boy, and left it an old man.

LESSONS IN GEOLOGY.—No. XXXV.

By THOMAS W. JENKYN, D.D., F.R.G.S., F.G.S., &c.

CHAPTER III.

ON THE INFLUENCE OF ATMOSPHERIC AGENTS ON THE EARTH'S CRUST.

SECTION IV.

ON THE EFFECTS OF WINDS ON SURFACE ROCKS.

WINDS affect the surface of the earth in many ways, and produce great changes in the physical aspect of rocks. It is by winds that the waves of the sea are impelled against the base of rocky cliffs, both to undermine and to shatter them. Winds exert a great power in driving the moisture of the atmosphere against the sides and into the crevices of cliffs and precipices, to abrade and moulder them. It is also by the agency of winds that many districts of the earth are covered with sandhills and dunes.

Facts of this description show that winds, especially gales and hurricanes, are agents of great geological importance. Their mechanical force, as they rush with impetuosity along the surface of the globe, is enormous. Meteorologists have ascertained, with an approach to accuracy, that some hurricanes travel with a velocity of from eighty to a hundred miles an hour. It seems also that small and confined storms are generally more rapid than those of great magnitude and extent. Sometimes a hurricane is split or divided by a mountain into two separate storms, each of which takes a new course of whirling and gyrations, and that, sometimes, with increased violence.

The force which we have just described is more than sufficient to level whole forests, to throw down massive buildings, and to hurl to destruction a large amount of animals and human beings. These powerful and terrific agents, in a few hours, convert an extensive district of fertility studded with pastures and villages, into a scene of ruin and wild desolation. Furious torrents of winds will occasionally sweep away a large amount of uprooted trees and dead animals to a considerable distance; and, in other places, scoop out deep ravines

in the sandy surface, like the excavating flood of a river. In mountainous districts, gales and hurricanes contribute much to the production of landslips.

This power of the hurricane has been demonstrated in many melancholy instances. In August 1831, the West Indies was visited with a tremendous hurricane. Large edifices and strong buildings were levelled with the earth, and plants and trees, and the bodies of men and animals, were entombed beneath masses of earth, which had been scooped up from one place and spread over another. In Barbadoes, the trees that were not uprooted, were stripped of all their foliage. This sight, of a forest of leafless trees, was a phenomenon strange and quite new, in a tropical climate.

The hurricane of Jamaica, in 1815, brought with it such an enormous quantity of rain, and blew so furiously on the swollen rivers, that the flood of the river Yallahs actually swept away all the fish that were in it, and that so thoroughly, that ten years after, no fresh water fish could be found in the stream.

The geological results of such a hurricane, are worth noticing. The fish of the river would perish in the sea, and their remains would mingle with the shells and exuviae of marine animals. Thus a large amount of terrestrial animals, and vegetables, in addition to land detritus, would be deposited on the bottom of the sea. Here the bones of men, quadrupeds, birds, land reptiles, fresh water tortoises and crocodiles, might be carried out to sea—some of them, perhaps, devoured by sharks and other sea animals. The river detritus, the sands and the muds of the shallow sea, stirred up by the force of the hurricane and the action of the waves, would combine to entomb in one bed the remains of terrestrial, aquatic, and marine animals. Should this bed ever be brought up above the waves to be examined by a geologist, it would require considerable skill and caution to account for such a mixture of animal remains. The deposit would have all the appearance of being an estuary bed; but in reality, it is the result of a violent transport into the bed of the ocean.

In tropical climates, especially in the districts of sandy deserts, whirlwinds are frequent. In the deserts of Arabia, several whirlwinds, or groups of whirlwinds, are often seen at the same time. The different whirlwinds are of all magnitudes, from a few feet to some hundred yards in diameter. They occur in all kinds of weather, by night and by day, and frequently without the smallest notice. In their movements over the ground, they uproot trees, throw down houses, raise up sands in clouds, or in columns that move about like water-spouts, and then overwhelm whole caravans of men and beasts, and cover a fertile district with sand-floods.

The principal design of this lesson is to illustrate the agency of winds in covering the surface of the earth with sand.

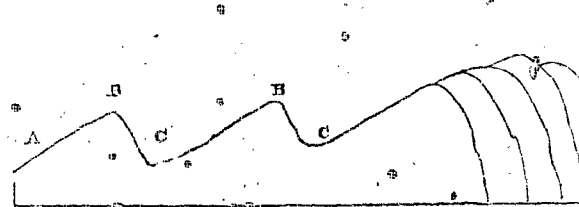
The subject of dunes has already been mentioned in Lesson xxviii, where they were represented solely as examples of the reconstructive agency of the ocean. Your observation was, in that lesson, limited to dunes of sand as formed on sea coasts, and as tending to encroach on fertile lands and human habitations. In the phenomena of dunes, the sand at the bottom of shallow seas was considered as being first disturbed by the action of the waves, and then propelled and driven on the shore, by the combined impetuosity of the breaking billows, and the furious gale. Our present lesson is on the influence of the wind in spreading these sands over the earth, so as to form extensive and increasing deserts.

Sand hills generally commence by clouds of fine sand being blown on as to cover the shore until they meet with some check from shingle or shrubs, when it is formed into a ridge, and eventually into a series of ridges. Each ridge has one side slightly inclined upwards, and the other steep. The windward side has a gentle slant, and the lee side is always steep and almost abrupt. The mode of advance in these sandhills is effected by the continued drifting of grains of sand up the windward slope. Many of the grains, when they reach the top of the slope, fall over the scarp, and are sheltered from the wind, while others are driven far over the scarp to form the commencement of another sloping ridge.

These inclined slopes on the windward sides of dunes and sandhills, and the steep slant on the lee side are represented in fig. 76. The wind is represented to be blowing from A towards B. It first pushes the sand up the inclined side of

the hill, and then drives it over the scarp from B to C. The sand, which finds shelter between B and C remains stationary for some time, but the grains which have been driven over the scarp B, are again blown up to the scarp of a next hill, and so on from one hill to another in succession. In this manner a series of sandhills is formed, at first, and then all the sandhills are put in motion, according to the force and the constancy of the winds, and the dunes advance at the rate of sixty and seventy feet per annum.

Fig. 76.



The formation and the advance of Sandhills and Dunes.

The phenomena of moving sandhills, or, as they are sometimes called sand floods, may be advantageously studied on many parts of the coasts of Portugal, France, Belgium, Holland, and England, where there are numerous villages that are almost, or entirely, overwhelmed and entombed by the advance and encroachment of sand drifted by strong winds.

Some of the best examples of the operations of sandfloods are to be seen in Morayshire, in the north of Scotland. There, to the west of the river Findhorn, was once a fertile district ten miles square, which was called the granary of Moray; but it has been, for nearly two centuries, inundated with sand floods driven by the east winds, so as to be now a sandy desert. Of these sands a great quantity was driven to the river Findhorn, which bore it down to its junction with the sea, where the sands formed a firm bar as to prevent the stream from entering the ocean. The river was then obliged to cut for itself a new channel, and the people of Findhorn had to remove their town from the east side to the west bank of the stream. Even to this day, the sands, borne down by the river, form so high a bar as to prevent the entrance of large vessels.

In another part of Scotland, along the west coast of the outer Hebrides, the bottom of the sea appears to consist of sand, with a few interruptions of rugged rocks. These sands are constantly drifting, so as to submerge a large tract of good land under sand hills. These sands consist chiefly of shattered and comminuted shells, apparently of the same species as now live in the neighbouring sea. The sand is, of itself, rather coarse, but such is the action of high and furious winds upon it, that by rubbing the particles of it against each other, a sort of small and almost impalpable dust is formed, which at a distance resembles a cloud of smoke. In this form, it is frequently seen driven upwards of two miles into the sea, where it descends like a thin white fog.

Cuvier, in his "Theory of the Earth" has shown that in districts much exposed to certain prevalent winds, the advance of these sandhills before strong gales and hurricanes is irresistible. He mentions that, in his day, there were ten villages on the shores of the Bay of Biscay that were threatened with destruction. It seems that one of these villages, Mimisan, has been for more than twenty years striving against the encroachment of sand dunes, and that, in its neighbourhood, one sandhill in particular, which was more than sixty feet high, might be almost said to be seen to advance. Their progress not only drives lakes backwards upon cultivated fields and villages, but it also changes the course of rivers. He supposes that, if they travel at their present rate of about twenty yards per annum, they will reach and overwhelm Bourdeaux in two thousand years.

The grand theatre for witnessing the effects of wind in the production of sandstorms and sandfloods, is some extensive sandy desert that covers some thousands of square miles on the surface of the globe. Such a theatre is presented in that trackless ocean of sand, called the Sahara desert towards the northern part of Africa. This sandy waste covers an area of about eight hundred thousand square miles, extending almost from

the Nile to the Atlantic. Its sandhills not only reach the Atlantic, but they are prolonged even to the bed of that ocean, where they form sand banks composed of grains driven to the sea by the powerful east winds, which blow in that district for nine months in the year.

At the equinoxes, these easterly winds blow into a hurricane, take up immense bodies of sand, and drive them along in clouds so thick as, at midday, to produce the darkness of night, represented in fig. 76. but upon a scale immensely large. The sand is heaped up in waves and ridges like those of the sea. The very atmosphere itself is sand, and the sandy waves are driven onward with fearful rapidity, till whole caravans, that travel in their line, are overwhelmed and destroyed by them. During such a sandstorm, the heated air is like red vapour, and the setting sun looks like a volcanic fire. Some parts of these deserts have large and shallow salt lakes; other portions are plains covered over with thick incrustations of dazzling salt. The particles of this salt are taken up by the whirlwind, borne aloft by the gale, and flash in the sun like diamonds.

The effects of the encroachment of drifted sand, contemplated upon an extensive scale, are well developed in the changes which have taken place in the physical configurations of the Land of Egypt. It is well known that fertile districts of this country, lying to the west of the river Nile have been extensively invaded by sterile sands, which have been driven upon them from the deserts of Libya by strong westerly and north-westerly winds.

The sands drifted from Libya have already destroyed a great number of cities, once very celebrated in Egypt, such as Abydos, Memphis, Bahnsa, and a whole tract of country from Saccara to Abu Hehe. The ruins of some of these towns and villages are still to be seen. These inundations of sand have taken place even since the conquest of the country by the Mohammedans, for the summits of the minarets of some of their mosques are seen projecting out of the sands. In walking over these sandy wastes, and striking our foot against the pinnacle of some house or temple, it is melancholy to reflect that you are treading on what was once a scene of high cultivation and flourishing villages.

M. Denon has remarked that, were it not for a ridge of mountains called the Libyan Chain, which borders the west bank of the Nile, and forms, in the parts where it rises, a barrier against the invasion of sand, the shores of the river on that side would long ago have ceased to be habitable.

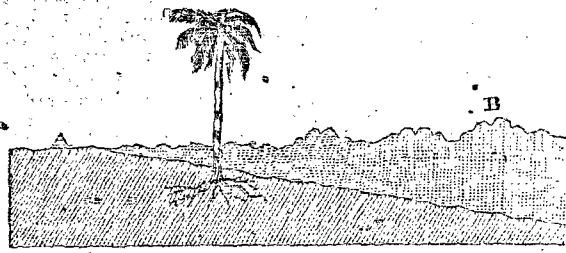
Some scientific writers have, with Sir G. Wilkinson, asserted that the annual increase of the alluvium of the Nile was gaining ground on the western sands; but Capt. Newbold has demonstrated that upon the whole the encroachment of the sands is increasing. This advancement of the sands was naturally to be expected, when we consider that the westerly and north-westerly winds blow during nearly nine months in the year, which incessantly drift the sands from Libya towards Egypt; and that since the age of the Pharaohs, the artificial checks opposed to the progress of sandhills by certain plants and other means, have been greatly diminished by the want of industry, agriculture and population. But the most satisfactory proof of this encroachment of the sand upon cultivation, is the fact that, both in Upper and Middle Egypt, trees appear to grow out of the sandy waste; but, as they are traced downwards, their roots are always found embedded in the sediment once deposited by the Nile and now covered by drifted sand, as represented in fig. 77.

The progress of the sands as indicated by this tree is further proved by several facts. Not only have many buildings of ancient Egypt been overwhelmed, but even ruins that have been partially cleared, are again much covered with sand. The great Temple of Abusambel, discovered by Burckhardt was almost buried with sand drift to a great depth. Belzoni cleared away thirty-one feet of this deep drift to enable him to arrive at the entrance. Since then the sand has commenced to reinvest it. The great Sphinx which, thirty years ago, was disinterred from sand in which it was buried up to the neck, is again covered up to the shoulders. Plains and even mountains near the ancient town of Dimay, have been overwhelmed with vast mounds of sand. Every traveller can almost see its advance on the western side of Fayoom, it has drifted so much as to cover extensive ranges of the desert mountains to such a

depth, that only their summits and a few of their craggy pinnacles are visible above the undulating waste.

In the course of centuries these blown sandfloods will materially alter the aspect of the valley of the Nile. So long as the prevailing winds blow from the north and the north-west, or until the supply of sand in the Libyan desert be diminished or become exhausted, the western parts of this valley must suffer from sand drifts. There are two or three physical circumstances that are likely to tend to retard this encroachment. The surface of the Libyan desert is very rugged, having many

Fig. 77.



A Tree imbedded in A, the Alluvium of the Nile, covered by B, the Drifted Sand.

deep ravines and abrupt cliffs. At the depth of these hollows, and checked by these almost vertical cliffs, the sand collects and is detained for an indefinite period; and in this manner, furnishes a barrier against its own progress. As powerful gales drive the sand towards the east, the escarpment of the hills on the east side of the river prevent its further progress in that direction, and causes much of it to fall into the stream of the Nile, which carries off the lighter particles towards the sea. The heavier particles of the sand falling to the bottom, tend to raise the bed of the river, which will cause the waters to extend their alluvium further and wider, until it encroaches, as it actually does in many places, upon the drifting sand.

I shall close this lesson by relating a few very curious phenomena that have resulted, in the surface of the earth, from the combined actions of wind and sand.

Near Messina, in Sicily, drifted and loose sands have become so indurated as to supply a good quarry of building stones. Several portions of this mass have been excavated for this purpose. But the excavations which are made by the quarrymen are, in the course of some years, again filled with sand which the winds drift into them. This sand becomes consolidated, and is also, in its turn, quarried for building materials.

On the coast of the Great Canary, there is a remarkable formation of limestone and sandstone, that is the result of wind action. Between the town and Isleta, the ground abounds with light fragments of broken shells, and comminuted and rounded grains of the basalt and trachyte rocks of the island. The violent winds of the north, take up these particles, drive them over the narrow tongue of land of Guanatemé, so as to form dunes of from thirty to forty feet high. The water behind these dunes acts upon the sand, and unites it into a compact mass. During the greater part of the year, this water is 77° Fahr.—a temperature which greatly promotes its action on the calcareous particles. The sandstone is a real oolite, like Bath stone. Most of the grains composing the stone are round and calcareous; the calcareous matter surrounding a nucleus of trachyte, basalt, or a diminutive fragment of a shell.

At the Cape of Good Hope, a little to the east of Simon's Town, there is a large sand bank rising from the sea, to the height of a hundred feet. This sand hill is composed of broken shells and grains of sand, and is formed by having been thrown up by the south-east wind. In this sand hill there are numerous cylindrical bodies, which have much the appearance of bones that had been long bleached by the atmosphere. Many of them throw out branches like those of a shrub, or small tree. Some of them, plant-like, rise out of the surface soil, as if they were so many vegetating bones actually in a state of growth, and putting forth branches that ramify from a stem beneath, that is thicker than themselves.

This is curious enough; but it is more curious still, to find that these sandy bones turn out to be real and true vegetable plants. They are very rarely solid. Their centres are either hollow, or are filled up with a granular matter that is of a blackish colour. The form of these blackish granular particles is that of the oolite, or Bath stone. The outer crust of these cylinders is composed chiefly of a large proportion of sand, and a small amount of calcareous matter supplied by shattered shells. In many of the larger specimens, the incrustation contains fragments of iron stone, and pieces of quartz about an inch square.

That these ramifying cylinders are real incrustations of plants that have decayed in consequence of being incrustated with blown sand, is proved by the different degrees of change that has taken place in the internal parts of different specimens. In some the organized tissue of the plant remains sufficiently distinct to verify its vegetable nature. The nearer you go to the sea, the more instances will you see of the different stages of the incrustation. You may see the very commencement of it taking place in some of the large fuci, or sea-weeds, which strew the shore.

Vegetable substances in similar situations were found to have undergone similar changes by M. Peron, in Australia. He thinks that the matter of the sea shells has been chemically decomposed, and that then it forms a cement with the sand; that the vegetable matter of the plant also becomes altered, and is finally replaced by the sand with which the different winds have invested it. The process leaves nothing to show its origin but its plant-like form.

In one part of this lesson, I mentioned that at the Hebrides, clouds of impalpable sand dust were driven, in the form of white smoke, some two miles into the sea. This appearance is witnessed in many parts of the world. In the heated districts bordering the Red Sea and the Nile, numerous little whirlwinds take up a large quantity of the finer superficial sands of the desert, and even small marine, land, and fluviatile shells, and seeds of plants, which they transport and distribute in all directions. In the Red Sea, the deck and shrouds of vessels are sometimes found covered with fine sand blown from the Egyptian desert. There is no doubt that these impalpable sands are transported completely over the gulf of Suez, even so far as the groups of the Sinai mountains. This will probably account for the singular musical sounds which are heard on the western slope of the mountain of the Bell, near Sinai. It arises from the motion which the wind gives to the fine sands which cover the side of that mountain. The sound is thus accounted for by Sætzén and Ehrenberg. Mr. Darwin mentions a similar phenomenon in Northern Chili at a mountain called El Hramador.

LESSONS IN ARITHMETIC—No. XXVII.

COINS, WEIGHTS AND MEASURES.

In our last lesson, we gave a full account of the acts of Parliament which produced the change in our weights and measures during the second quarter of the present century. Subsequent to the passing of these acts, other two acts were passed, one in 1834, and another in 1835. The object of the former act was to legalize the use of weights and measures differing in shape from the models proposed in the acts cited in our last lesson, and to abolish the use of *Heaped measure*, besides making better arrangements for carrying the provisions of the said acts into effect. In this act, the use of the stone of fourteen pounds *Avoirdupois* was fully recognised, and that of eight pounds *Avoirdupois*, which had been used in London, was abolished. The distinction between *Avoirdupois* weight and Troy weight was also recognised and allowed; the latter being employed in the sale of gold, silver, platinum, and precious stones, as well as in the sale of drugs by retail. Sales by the Winchester bushel and the Scotch ell were declared illegal, and liable to fine and confiscation. Power was given to inspectors of weights and measures; verification of these enforced; forms of convictions for infraction of the act given; and penalties appointed; and lastly, a schedule of fees for examining, comparing and stamping weights and measures, appointed for the United Kingdom.

In the subsequent act, of 1835, that of 1834 was repealed, and new provisions were made instead thereof. These pro-

visions, however, as far as the standard weights and measures are concerned, were essentially the same as before; but some latitude was allowed for the sale of articles in vessels not represented to the purchaser as imperial measures. *Heaped measure* was still abolished; but *sale by weight* was permitted instead; and in the article of coal it was especially enforced. The stone of fourteen pounds *Avoirdupois* was also recognised in preference to any other weight, and considered as imperial. Weights made of lead or other soft materials were strictly abolished; the mode of appointing inspectors was prescribed, and penalties for the infraction of the new regulations were appointed. The powers and duties of inspectors were more clearly defined, the mode of defraying their expenses appointed, and forms of suing for penalties prescribed. A new schedule of fees for examining, comparing and stamping was given, and the whole act was made more imperative than any of the former acts. It is under this act that we now carry on the daily transactions of business throughout the United Kingdom; and with the exception of *Heaped measure*, which is abolished, and the sale of coal, culm, &c. by weight, which is enforced, every thing remains the same as given in our last lesson.

The loss of the Standard Weights and Measures by the burning of the Houses of Parliament in 1834, occasioned the appointment of a Royal Commission "to consider the steps to be taken for the restoration of the Standards of Weights and Measures." The report of this Commission was presented to both Houses of Parliament by command of the Queen in 1841; and since that period, we believe nothing has been done to affect the operation of the act of Parliament of 1835, relating to the use of our present weights and measures. In this report, the Commissioners describe the state of the Standards recovered from the ruins of the House of Commons, as ascertained by their inspection of them, made 1st June 1838, and declare that the legal Standard yard referred to in preceding acts is, for the purposes of comparison, completely destroyed; that the legal Standard Troy pound is lost; and that steps must be taken for making and legalising new Standards of length and of weight.

The commissioners next declare their entire disapproval of the methods appointed in the acts of Parliament for the restoration of these standards; they then suggest that copies be made of accurate existing copies of the original standards; that these be legalised as the true standard of weights and measures; and that no reference be made to any natural basis or standard, such as the pendulum, in future. They recommend that the standard of weight be made a certain piece of metal or other durable substance; that the standard of capacity be defined by the capacity [that is, the vessel], which, under certain circumstances of the barometer and thermometer, contains a certain weight of distilled water; but that it be in no way defined by reference to the standard of length.

The commissioners also recommend that the *Avoirdupois* pound, of 7000 grains, be adopted instead of the *Troy pound*, of 5760 grains, as the standard of weight; and that no change be made on the standard of length, viz. the *Imperial yard*. They also recommend that no standard of capacity be constructed; but that the definition of the *Imperial gallon*, as the capacity [or vessel] which contains ten pounds [*Avoirdupois*] weight of distilled water weighed in air at the temperature of 62° Fahrenheit, the barometer being at 30 inches, be retained.

The next subject of recommendation, which the commissioners take up, is the general question of the introduction of the *Decimal Scale* into the moneys, weights and measures of this country. On this subject we entirely differ from the said commissioners, and from several eminent scientific men who have expressed their opinions repeatedly in public. We confess that, at one period of our life, we were converts to this new-fangled doctrine of the first French Revolution; and we thought, of course, that because men had ten fingers, and ten toes, there was a *double reason* for adopting the decimal system of division; but we have seen the folly of this; and notwithstanding the upstart pride of the present age, we do believe that age gives wisdom, and that the hoary head is a crown of glory, if it be found in the way of righteousness. If we are to be ruled in this matter by numbers, the *doubles*, or the *binary system*, will have the preference; for men have two legs, two feet, two arms, two hands, two eyes, two ears, two cheeks, two nostrils, two jaws; and almost every organ in the

body is *two-fold*. "Besides, there are *two* sexes in the whole of the animal and vegetable world; and numerous transactions in the sale of articles are conducted by *pairs*. Nevertheless, independently of these considerations, we find that, in actual business, almost every thing is measured by halves, quarters, eighths and sixteenths, not to speak of the parts below these, proceeding according to the same law of progression; when we wish to ascend the scale, we go on doubling, quadrupling, octupling, &c. that is, doubling every time till we reach the number or quantity to which we desire to attain." The *binary system* then seems to be the most natural, if we attend to the actual practice of mankind. In this, of course, we speak of weights, measures, and coins, in their actual use in business. Thus, in coins, we have the sovereign, the half-sovereign or angel, the quarter-sovereign or crown, and the eighth of a sovereign or the half-crown; next, the shilling, the half-shilling or sixpence, and the quarter-shilling or three-pence, with the double shilling or florin; to this might be added, for the convenience of the community, the quadruple shilling or double florin, which would be the four-shilling piece. It is true that the florin was coined with the view of introducing the decimal system into our coinage, because it is the *tenths* part of a pound or sovereign. It is most probable that we owe this change to the suggestion of the commissioners; for they say, "We beg leave to invite the attention of the Government to the advantage and facility of establishing in this country a decimal system of coinage. In our opinion, no single change which it is in the power of a Government to effect in our monetary system, would be felt by all classes as equally beneficial with this, when the temporary inconveniences attending the change had passed away." The facility consists in the ease of interposing between the sovereign (or pound) and the shilling a new coin equivalent to two shillings (to be called by a distinctive name), of considering the farthing (which now passes as the $\frac{1}{40}$ th part of a pound) as the $\frac{1}{1000}$ th part of that unit; of establishing a coin of equal value to the $\frac{1}{100}$ th part of the pound; and of circulating, besides these principal members of a decimal coinage, other coins of values bearing a simple relation to them, including coins of the same value as the present shilling and sixpence. No circumstance whatever would contribute so much to the introduction of the decimal scale in weights and measures, in those respects in which it is really useful, as the establishment of a decimal coinage."

If the recommendations made in the preceding extract, which, as we have seen are partially adopted in the introduction of the florin into our currency, we should have some of the strangest anomalies to contend with that ever yet attended a change in our moneys, weights and measures. The coin answering to the *hundredth* part of a pound would be in value 2½d. that is, *two-pence and two-fifths of a penny*. Now, supposing that this coin, which of course would be *one-tenth* of a florin, were introduced, and called, in imitation of the French, the *Deciflorin*, not one person in a thousand would know its real value, although we have just stated it correctly above; and most people would be dreadfully puzzled and annoyed to get at the real value of any number of these new coins. The following table will show the labour of conversion from the one scale to the other, and the consequent difficulties which the public should have to contend with.

Deciflorins or Tenths of Florins.	Values in our present coin.		
	sh.	d.	far.
1	0	2	1½
2	0	4	3
3	0	7	0½
4	0	9	2½
5	1	0	0
6	1	2	1½
7	1	4	3
8	1	7	0½
9	1	9	2½
10	2	0	0
11	2	2	1½
12	2	4	3
&c.	&c.	&c.	&c.

* The italics are ours; but the public will do well to pause on the inconveniences.

The next difficulty would be the material of which this coin should be made; if it were made of copper, each deciflorin would be rather more than double the weight of a penny, and a given number of deciflorins, would, of course, weigh more than double that number of pence in the pocket. This would not answer our fine ladies and gentlemen, who love pence, although they affect to despise the trouble of carrying them. Again, if it were made of silver, it would be nearly one-third smaller than our present threepenny pieces, and would accordingly become a most unhandy coin, slipping through the fingers, disappearing through small holes in the pocket, and when dropped, lost, from its smallness of size, in the twinkling of an eye. Silver two-penny pieces, and even one-penny pieces have been coined, but only as matters of curiosity; and these deciflorins would become the same, inasmuch as the people would prefer the old pence to which they had been accustomed, or fall upon some substitute to avoid the inconvenience of the government money. Moreover, after all the attempts to introduce a decimal coinage the public would grumble, until they got the binary system introduced in some shape or the other; so that we should have double deciflorins, quadruple deciflorins, octuple deciflorins, &c. as well as half deciflorins, quarter deciflorins, and half-quarter deciflorins; the values of these would be as follows:—

New Coins.	Values.	s.	d.	far.
Octuple deciflorin	...	1	7	0 1/2
Quadruple deciflorin	...	0	9	2 1/2
Double deciflorin	...	0	4	3 1/2
Deciflorin	...	0	2	1 1/2
Half deciflorin	...	0	1	0 3/4
Quarter deciflorin	...	0	0	2 1/4
Half-quarter deciflorin	...	0	0	1 1/8

The commissioners also propose to reckon every farthing the tenth part of a deciflorin, which, in imitation of the French, might be called a centiflorin. By this scheme, forty farthings, or ten pence, would be lost by the government, or by the holders of the old coin, on every pound; that is, four farthings, or one penny, on every florin. The blunders, mistakes and complaints which this equalization of the coin would occasion look small upon paper, but it would be found to be large in practice; and could only be adjusted by calling in the old coinage and issuing a new one, giving the holders of the old full value in the new for their money. In issuing this new farthing coinage there would require to be some coins also adapted to the binary system; for instance, we should require, double centiflorins, quadruple centiflorins, and octuple centiflorins; the values of these would be as follows:

New Coins.	Values.	s.	d.	far.
A centiflorin	...	0	0	0 1/4
A double centiflorin	...	0	0	1 1/4
A quadruple centiflorin	...	0	0	3 1/4
An octuple centiflorin	...	0	1	3 1/4

We need hardly make any additional observations on the very awkward and untoward circumstances in which the new coinage would thus place the country.

In commenting upon the subject of the decimal scale, our pupils will find that the remarks we have made are not uncalled for, when they read the following admissions made by the commissioners themselves: "With regard to the decimal system in general, we think it undesirable to enforce it exclusively on all parts of the various scales of weight and measure even were the attempt likely to be attended with fewer difficulties than would be experienced in this country. In our opinion, the scale of binary subdivision is well adapted to the small retail transactions which seldom become the subject of written accounts, and which constitute a large part of the daily transactions in every country."

Before proceeding farther with our observations on the proposed changes in our Coins, Weights and Measures, we shall now lay before our readers a popular view of their actual state at present, with some practical notes on their past state, for the purposes of comparison.

STERLING MONEY

English or sterling money means the "money current with the merchants" of Great Britain and Ireland.

Money of Accounts.

2 Farthings (1/4d.) make	1 Halfpenny, marked 1/2d.
4 Farthings	1 Penny " 1d.
12 Pence	1 Shilling " 1s.
20 Shillings	1 Pound " £1.

Current Money.

Farthings, halfpence, pence, shillings, and pounds, are our standard coins; the pound-coin being called a sovereign. The following are also in daily use:

3 Pence make	1 Threepenny, or quarter-shilling.
4 Pence	1 Fourpenny, or groat.
6 Pence	1 Sixpence, or half-shilling.
2 Shillings	1 Florin, or double shilling.
2 1/2 Shillings	1 Half-crown, or half-quarter sovereign.
5 Shillings	1 Crown, or quarter-sovereign.
10 Shillings	1 Half-sovereign, or angel.
20 Shillings	1 Sovereign, or Gold Victoria.

Other coins besides these were formerly in use. The guinea, worth 21 shillings; the half-guinea, 10 1/2 shillings; the 7 shilling-piece; the noble, 6s. and 8d.; the mark, 13s. and 4d.; the pistole, 16s. and 10d.; and the moidore, 27s. The characters *l.*, *s.*, and *d.* are the initials of the Latin words *Libra*, *Solidus*, and *Denarius*, which respectively signify Pound, Shilling, and Penny.

TROY WEIGHT.

Troy weight is used by goldsmiths and apothecaries, but their sub-divisions of the ounce are different.

Goldsmiths' Weight.

24 Grains (grs.) make	1 Pennyweight, marked dwt.
20 Pennyweights	1 Ounce, " oz.
12 Ounces	1 Pound, " lb.

Hence, this pound contains 5760 grains, and the ounce 480 grains. The Troy pound, though lost, is still the standard weight of the empire.

Apothecaries' Weight.

20 Grains (grs.) make	1 Scruple marked ℥
3 Scruples	1 Dram " ʒ
8 Drams	1 Ounce " ʒ
12 Ounces	1 Pound " lb.

Apothecaries and chemists use this weight in mixing medicines, making experiments, &c.; but they buy and sell by Avoirdupois Weight.

Avoirdupois Weight.

Avoirdupois Weight is sometimes called Grocers' (Grossier, Fr.) Weight, because large articles of trade are weighed by it. The pound avoirdupois is larger than the pound troy, and weighs 7000 troy grains, by legal enactment. This weight is so extensively used in all the commercial transactions of the empire, that it may be properly called the Imperial Weight. It is differently divided in some parts of the country, and for some particular purposes. The following is the usual division:—

Grocers' Weight.

16 Drams make	1 Ounce	marked oz.
16 Ounces	1 Pound	" lb.
14 Pounds	1 Stone	" st.
2 Stones, or 28 pounds	1 Quarter hundred-weight	" qr.
4 Stones, or 56 pounds	1 Half hundred-weight	" cwt.
8 Stones, or 112 pounds	1 Hundred-weight	" cwt.
20 Hundred-weight	1 Ton	" ton.

In weighing coals, it is of importance to observe that a sack now weighs, in London, 2 hundredweight, or 224 lbs.; and a top, ten sacks, or 2240 lbs. Half a sack, of course, weighs 112 lbs.

(To be continued.)

LESSONS IN FRENCH.—No. LXV.

By Professor Louis FASAPPELLE, LL.D.

LIST OF IRREGULAR VERBS, &c. (continued from page 203).

Infinitive.	Participles.	Indicative.	Imperfect.	Part. Definite.	Future.	Conditional.	Imperative.	Subjunctive.	Imperfect.
MÉPRENDRE, 4. (se) to mis- take. ref.	se méprenant mépris, f. e.	je m. méprends tu méprends il méprend elle méprend nous méprenons vous méprenez ils méprennent elles méprennent	je me méprenais tu me méprenais il me méprenait elle me méprenait nous me méprenions vous me mépreniez ils me méprennaient elles me méprennaient	je me mépris tu me mépris il me mépris elle me mépris nous me méprîmes vous me méprîmes ils me méprîrent elles me méprîrent	je me méprendrai tu me méprendras il me méprendra elle me méprendra nous me méprendrions vous me méprendriez ils me méprendraient elles me méprendraient	je me méprendrais tu me méprendrais il me méprendrait elle me méprendrait nous me méprendrions vous me méprendriez ils me méprendraient elles me méprendraient	me méprends-toi méprends-tu méprends-elle méprends-nous méprends-vous méprends-ils méprends-elles	je me méprenais tu me méprenais il me méprenait elle me méprenait nous me méprenions vous me mépreniez ils me méprennaient elles me méprennaient	
METTRE, 4. to put aux. avoir irregular.	mettant mis, f. e.	je mets tu mets il met elle met nous mettons vous mettez ils mettent elles mettent	je mettais tu mettais il mettait elle mettait nous mettions vous mettiez ils mettaient elles mettaient	je mis tu mis il mit elle mit nous mîmes vous mîmes ils mirent elles mirent	je mettrai tu mettras il mettra elle mettra nous mettrons vous mettrez ils mettront elles mettront	je mettrais tu mettrais il mettrait elle mettrait nous mettrions vous mettriez ils mettraient elles mettraient	mette mets mettons mettez mettez-moi mettez-vous mettez-ils mettez-elles	je mettais tu mettais il mettait elle mettait nous mettions vous mettiez ils mettaient elles mettaient	
MOUDRE, 4. to grind aux. avoir irregular.	moulant moulu, f. e.	je mouls tu mouls il moule elle moule nous moulons vous moulez ils moulent elles moulent	je moulais tu moulais il moulait elle moulait nous moulions vous mouliez ils moulent elles moulent	je moulus tu moulus il moulut elle moulut nous mûlâmes vous mûlâmes ils mûlèrent elles mûlèrent	je moudrai tu moudras il moudra elle moudra nous moudrons vous moudrez ils moudront elles moudront	je moudrais tu moudrais il moudrait elle moudrait nous moudrions vous moudriez ils moudraient elles moudraient	mouls moulons moulons-moi moulons-vous moulons-ils moulons-elles	je moulais tu moulais il moulait elle moulait nous moulions vous mouliez ils moulent elles moulent	
MOURIR, 2. to die aux. être irregular.	mourant mort, f. e.	je meurs tu meurs il meurt elle meurt nous mourons vous mourrez ils meurent elles meurent	je mourais tu mourais il mourait elle mourait nous mourions vous mouriez ils mouraient elles mouraient	je mourus tu mourus il mourut elle mourut nous mourûmes vous mourûmes ils moururent elles moururent	je mourrai tu mourras il mourra elle mourra nous mourrons vous mourrez ils mourront elles mourront	je mourrais tu mourrais il mourrait elle mourrait nous mourrions vous mourriez ils mourraient elles mourraient	meurs meurs-moi meurs-vous meurs-ils meurs-elles	je mourais tu mourais il mourait elle mourait nous mourions vous mouriez ils mouraient elles mouraient	
MOUVOIR, 3. to move aux. avoir irregular.	mouvant mu, f. e.	je meus tu meus il meut elle meut nous mouvons vous mouvez ils meuvent elles meuvent	je meuais tu meuais il meuvait elle meuvait nous mouvions vous mouviez ils meuvaient elles meuvaient	je meus tu meus il meut elle meut nous mouvûmes vous mouvûmes ils mouvurent elles mouvurent	je mouvrai tu mouvras il mouvra elle mouvra nous mouvrons vous mouvez ils mouvront elles mouvront	je mouvrais tu mouvrais il mouvrait elle mouvrait nous mouvriions vous mouvriez ils mouvraient elles mouvraient	meus meus-moi meus-vous meus-ils meus-elles	je meuais tu meuais il meuvait elle meuvait nous mouvions vous mouviez ils meuvaient elles meuvaient	
MOUVOIR, (se) 3. to move reflective.	se mouvant mu, f. e.	je me meus tu me meus il me meut elle me meut nous me mouvons vous me mouvez ils me meuvent elles me meuvent	je me meuais tu me meuais il me meuvait elle me meuvait nous me mouvions vous me mouviez ils me meuvaient elles me meuvaient	je me meus tu me meus il me meut elle me meut nous me mouvûmes vous me mouvûmes ils me mouvurent elles me mouvurent	je me mouvrai tu me mouvras il me mouvra elle me mouvra nous me mouvrons vous me mouvez ils me mouvront elles me mouvront	je me mouvrais tu me mouvrais il me mouvrait elle me mouvrait nous me mouvriions vous me mouvriez ils me mouvraient elles me mouvraient	me me meus-moi me meus-vous me meus-ils me meus-elles	je me meuais tu me meuais il me meuvait elle me meuvait nous me mouvions vous me mouviez ils me meuvaient elles me meuvaient	
NAÎTRE, 4. to be born aux. être irregular.	naissant né, f. e.	je nais tu nais il naît elle naît nous naissons vous naîtrez ils naissent elles naissent	je naissais tu naissais il naissait elle naissait nous naissons vous naîtrez ils naissent elles naissent	je naquis tu naquis il naquit elle naquit nous naquîmes vous naquîmes ils naquirent elles naquirent	je naîtrai tu naîtras il naîtra elle naîtra nous naîtrons vous naîtrez ils naîtront elles naîtront	je naîtrais tu naîtrais il naîtrait elle naîtrait nous naîtrions vous naîtriez ils naîtraient elles naîtraient	naiss naissons naissons-moi naissons-vous naissons-ils naissons-elles	je naissais tu naissais il naissait elle naissait nous naissons vous naîtrez ils naissent elles naissent	
NÉGLIGER, 1. to neglect	négligeant négligé, f. e.	je néglige tu négliges il néglige elle néglige nous négligeons vous négligez ils négligent elles négligent	je négligeais tu négligeais il négligeait elle négligeait nous négligions vous négligiez ils négligeaient elles négligeaient	je négligeai tu négligeai il négligea elle négligea nous négligâmes vous négligâmes ils négligèrent elles négligèrent	je négligerai tu négligeras il négligera elle négligera nous négligerons vous négligerez ils négligeront elles négligeront	je négligerais tu négligerais il négligerait elle négligerait nous négligerions vous négligiez ils négligeraient elles négligeraient	néglige néglige-moi néglige-vous néglige-ils néglige-elles	je négligeais tu négligeais il négligeait elle négligeait nous négligions vous négligiez ils négligeaient elles négligeaient	
NEIGER, 1. to snow. unip.	neigeant neigé, f. e.	je neige tu neiges il neige elle neige nous neigeons vous neigez ils neigent elles neigent	je neigeais tu neigeais il neigeait elle neigeait nous neigions vous neigiez ils neigeaient elles neigeaient	je neigeai tu neigeai il neigea elle neigea nous neigâmes vous neigâmes ils neigèrent elles neigèrent	je neigerai tu neigeras il neigera elle neigera nous neigerons vous neigerez ils neigeront elles neigeront	je neigerais tu neigerais il neigerait elle neigerait nous neigerions vous neigiez ils neigeraient elles neigeraient	neige neige-moi neige-vous neige-ils neige-elles	je neigeais tu neigeais il neigeait elle neigeait nous neigions vous neigiez ils neigeaient elles neigeaient	
NIVELER, 1. to level	nivellant nivelé, f. e.	je nivelle tu nivelles il nivelle elle nivelle nous nivelons vous nivelez ils nivelent elles nivelent	je nivelais tu nivelais il nivelait elle nivelait nous nivelions vous niveliez ils nivelent elles nivelent	je nivelai tu nivelai il nivela elle nivela nous nivelâmes vous nivelâmes ils nivelèrent elles nivelèrent	je nivellerai tu nivelleras il nivellera elle nivellera nous nivellerons vous nivelez ils nivelleront elles nivelleront	je nivellerais tu nivellerais il nivellerait elle nivellerait nous nivellerions vous nivelleriez ils nivelleraient elles nivelleraient	nivelle nivelez nivelez-moi nivelez-vous nivelez-ils nivelez-elles	je nivelais tu nivelais il nivelait elle nivelait nous nivelions vous niveliez ils nivelent elles nivelent	
NUIRE, 4. to injure	nuissant nuisant nuis, f. e.	je nuis tu nuis il nuit elle nuit nous nuisons vous nuirez ils nuisent elles nuisent	je nuisais tu nuisais il nuisait elle nuisait nous nuisions vous nuiriez ils nuisaient elles nuisaient	je nuisis tu nuisis il nuisit elle nuisit nous nuisîmes vous nuisîmes ils nuisirent elles nuisirent	je nuirai tu nuiras il nuira elle nuira nous nuirons vous nuirez ils nuiront elles nuiront	je nuirais tu nuirais il nuirait elle nuirait nous nuirions vous nuiriez ils nuireraient elles nuireraient	nuis nuisons nuisons-moi nuisons-vous nuisons-ils nuisons-elles	je nuisais tu nuisais il nuisait elle nuisait nous nuisions vous nuiriez ils nuisaient elles nuisaient	
OBTENIR, 2. to obtain	obtenant obtenu, f. e.	je obtiens tu obtiens il obtient elle obtient nous obtenons vous obtenez ils obtiennent elles obtiennent	je obtenais tu obtenais il obtenait elle obtenait nous obtenions vous obteniez ils obtenaient elles obtenaient	je obtins tu obtins il obtint elle obtint nous obtînâmes vous obtînâmes ils obtinèrent elles obtinèrent	je obtiendrai tu obtiendras il obtiendra elle obtiendra nous obtiendrons vous obtenez ils obtiendront elles obtiendront	je obtiendrais tu obtiendrais il obtiendrait elle obtiendrait nous obtiendrions vous obtiendriez ils obtiendraient elles obtiendraient	obtiens obtiens-moi obtiens-vous obtiens-ils obtiens-elles	je obtenais tu obtenais il obtenait elle obtenait nous obtenions vous obteniez ils obtenaient elles obtenaient	
OFFRIR, 2. to offer	offrant offert, f. e.	je offre tu offres il offre elle offre nous offrons vous offrez ils offrent elles offrent	je offrais tu offrais il offrait elle offrait nous offrions vous offriez ils offraient elles offraient	je offris tu offris il offrit elle offrit nous offrîmes vous offrîmes ils offrirent elles offrirent	je offrirai tu offriras il offrira elle offrira nous offrirons vous offrez ils offriront elles offriront	je offrirais tu offrirais il offrirait elle offrirait nous offririons vous offririez ils offrireraient elles offrireraient	offre offre-moi offre-vous offre-ils offre-elles	je offrais tu offrais il offrait elle offrait nous offrions vous offriez ils offraient elles offraient	
OUVRIR, 4. to open aux. avoir irregular.	ouvrant ouvert, f. e.	je ouvre tu ouvres il ouvre elle ouvre nous ouvrons vous ouvrez ils ouvrent elles ouvrent	je ouvrais tu ouvrais il ouvrait elle ouvrait nous ouvriions vous ouvriez ils ouvraient elles ouvraient	je ouvris tu ouvris il ouvrit elle ouvrit nous ouvriâmes vous ouvriâmes ils ouvrirent elles ouvrirent	je ouvrirai tu ouvriras il ouvrira elle ouvrira nous ouvrirons vous ouvrez ils ouvriront elles ouvriront	je ouvrerais tu ouvrerais il ouvrirait elle ouvrirait nous ouvririons vous ouvririez ils ouvreraient elles ouvreraient	ouvre ouvre-moi ouvre-vous ouvre-ils ouvre-elles	je ouvrais tu ouvrais il ouvrait elle ouvrait nous ouvriions vous ouvriez ils ouvraient elles ouvraient	
PAÎTRE, 4. to graze aux. avoir defective	paissant pâti	je païs tu païs il pâit elle pâit nous paissions vous paîtrez ils paissent elles paissent	je paissais tu paissais il paissait elle paissait nous paissions vous paîtrez ils paissent elles paissent	je paissai tu paissai il pâta elle pâta nous paissâmes vous paissâmes ils paissèrent elles paissèrent	je paîtrai tu paîtras il paîtra elle paîtra nous paîtrons vous paîtrez ils paîtront elles paîtront	je paîtrais tu paîtrais il paîtrait elle paîtrait nous paîtrions vous paîtriez ils paîtraient elles paîtraient	païs païs païs-moi païs-vous païs-ils païs-elles	je paissais tu paissais il paissait elle paissait nous paissions vous paîtrez ils paissent elles paissent	
PARFAIRE, 4. to complete	parfaisant parfait, f. e.	je parfais tu parfais il parfait elle parfait nous parfaisons vous parfaietez ils parfont elles parfont	je parfaisais tu parfaisais il parfaisait elle parfaisait nous parfaisions vous parfaietez ils parfontaient elles parfontaient	je parfaisai tu parfaisai il parfaisa elle parfaisa nous parfaisâmes vous parfaisâmes ils parfaisèrent elles parfaisèrent	je parferai tu parferas il parferà elle parferà nous parferons vous parfaietez ils parferont elles parferont	je parferais tu parferais il parferait elle parferait nous parferions vous parfaietez ils parferaient elles parferaient	parfais parfais-moi parfais-vous parfais-ils parfais-elles	je parfaisais tu parfaisais il parfaisait elle parfaisait nous parfaisions vous parfaietez ils parfontaient elles parfontaient	
PARCOURIR, 4. to appear	parcourant parcouru, f. e.	je parcours tu parcours il parcourt elle parcourt nous parcourons vous parcourez ils parcourent elles parcourent	je parcourais tu parcourais il parcourait elle parcourait nous parcourions vous parcourez ils parcourentaient elles parcourentaient	je parcourus tu parcourus il parcourut elle parcourut nous parcourûmes vous parcourûmes ils parcoururent elles parcoururent	je parcourrai tu parcourras il parcourra elle parcourra nous parcourrons vous parcourez ils parcourront elles parcourront	je parcourrais tu parcourrais il parcourrait elle parcourrait nous parcourrions vous parcourriez ils parcourraient elles parcourraient	parcours parcours-moi parcours-vous parcours-ils parcours-elles	je parcourais tu parcourais il parcourait elle parcourait nous parcourions vous parcourez ils parcourentaient elles parcourentaient	
PARTIR, 2. to depart	partant parti, f. e.	je pars tu pars il part elle part nous partons vous partez ils partent elles partent	je partais tu partais il partait elle partait nous partions vous partiez ils partaient elles partaient	je partis tu partis il partit elle partit nous partîmes vous partîmes ils partirent elles partirent	je partirai tu partiras il partira elle partira nous partirons vous partez ils partiront elles partiront	je partirais tu partirais il partirait elle partirait nous partirions vous partiez ils partiraient elles partiraient	parte parte-moi parte-vous parte-ils parte-elles	je partais tu partais il partait elle partait nous partions vous partiez ils partaient elles partaient	

List of Irregular Verbs, &c., continued.

Infinitive.	Participles.	Indicative.	Imperfect.	Past Definite.	Future.	Conditional.	Imperative.	Subjunctive.	Imperfect.
PARVENIR, 2. to succeed, &c.	parvenant, f. e. parvenu, f. e.	je parviens	je parvenais	je parvins	je parviendrai	je parviendrais	parviens	je parvienne	je parviusse
PAYER, 1. to pay.	payant, f. e. payé, f. e.	je paie	je payais	je payai	je paierai	je paierais	paie	je paie	je payasse
PEINDRE, 4. to paint.	peignant, f. e. peint, f. e.	je peins	je peignais	je peignis	je peindrai	je peindrais	peins	je peigne	je peignisse
PELER, 1. to peel.	pelant, f. e. pelé, f. e.	je pèle	je pelais	je pelai	je pèlerai	je pèlerais	pèle	je pèle	je pelasse
PERMETTRE, 4. to permit.	permettant, f. e. permis, f. e.	je permets	je permettais	je permis	je permettrai	je permettrais	permets	je permette	je permisso
PLAINdre, 4. to pity.	plainant, f. e. plaint, f. e.	je plains	je plainais	je plainis	je plaindrai	je plaindrais	plains	je plains	je plainisse
PLAINdre, 4. (se) 1. to complain.	se plainant, f. e. plaint, f. e.	je me plains	je me plainais	je me plainis	je me plaindrai	je me plaindrais	plains-toi	je me plains	je me plainisse
PLAIRE, 4. to please.	plaisant, f. e. plu	je plais	je plaisais	je plus	je plairai	je plairais	plais	je plaise	je plussse
PLEUVOIR, 3. to rain.	pleuvant, f. e. plu	il pleut	il pleuvait	il plut	il pleuvra	il pleuvrait	pleuve	il pleuve	il plu
POURSUIVRE, 4. to pursue.	poursuivant, f. e. poursuivi, f. e.	je poursuis	je poursuivais	je poursuivis	je poursuivrai	je poursuivrais	poursuis	je poursuive	je poursuivisse
POURVOIR, 3. to provide.	pourvoyant, f. e. pourvu, f. e.	je pourvois	je pourvoisais	je pourvus	je pourvoirai	je pourvoirais	pourvois	je pourvoie	je pourvusse

FABLES.

LE LOUP DÉGUIsé.

Un loup, la terreur d'un troupeau, ne savait (savoir, 3. tr.) comment faire pour attraper des [S. 10. 3.] moutons; le berger était continuellement sur ses gardes. L'animal vorace s'avisait de se déguiser [S. 43. (6.)] de la peau d'une brebis qu'il avait enlevée [S. 134. (4.)] quelques jours auparavant. Le stratagème lui [S. 26.] réussit pendant quelque temps; mais enfin, le berger découvrit l'artifice, agrippa les chiens contre lui; ils lui [S. 26.] arrachèrent la toison de dessus les épaules, et le mirent (mettre, 4. tr.) en pièces. Ne vous fiez pas toujours à l'extérieur. Un homme de jugement et de pénétration ne juge pas selon les apparences.—Perrin.

LE BERGER ET LE TROUPEAU.

Quand vous voyez quelquefois un nombreux troupeau qui répandu sur une colline vers le déclin d'un beau jour, paît (paître, 4. tr.) tranquillement le thym et le serpolet, ou qui broute dans une prairie une herbe menue et tendre qui a échappé à la faux du moissonneur, le berger, soigneux et attentif, est debout auprès de ses brebis; il ne les perd pas de vue, il les suit (suivre, 4. tr.) il les conduit, il les [S. 26. 7.] change de pâturage, si elles se dispersent, il les rassemble; si un loup avide paraît, il lâche son chien qui le met en fuite; il les nourrit [S. 86.] il les défend; l'aurore le trouve déjà en pleine campagne, d'où il ne se retire qu'avec le soleil. Quels [S. 30. (10.)] soins! quelle vigilance! quelle servitude! Quelle condition vous paraît la plus délicieuse et la plus libre, ou du berger, ou des brebis? Le troupeau est le fait pour le berger, ou le berger pour le troupeau? Image naïve [S. 11. 5.] des peuples, et du prince qui les gouverne, s'il est bon prince.—La Bruyère.

LE PAYSAN ET LA COULEUVRE.

Un paysan, allant au bois avec un sac pour y [S. 30. (18.)] mettre des noisettes (c'était [S. 81. 1.] la saison), trouva une couleuvre. Ah! ah! dit le manant, je te tiens (tenir, 2. tr.) à présent; tu ne m'échapperas pas: tu viendras (venir, 2. tr.) dans ce sac et tu mourras (mourir, 2. tr.) L'animal pervers (je veux dire [S. 31. 5.] la couleuvre, et non pas l'homme), lui dit: qu'ai-je fait pour mériter un pareil traitement?—Ce que tu as fait? Tu es le symbole de l'ingratitude, le plus odieux de tous les vices.—S'il faut (falloir, 3. tr.) que les ingrats meurent, répliqua hardiment le paysan, vous vous condamnez vous-même: de tous les animaux

l'homme est le plus ingrat.—L'homme! dit le paysan, surpris de la hardiesse de la couleuvre; je pourrais (pouvoir, 3. tr.) l'écraser dans l'instant, mais je veux (vouloir 3. tr.) m'en rapporter à quelque juge.—J'y consens [S. 39. (13.)] Une vache était à quelque distance: on [S. 41. (4.)] l'appelle, elle vient (venir, 2. tr.); on lui propose le cas.—C'était bien la peine de m'appeler, dit-elle la chose est claire; la couleuvre a raison. Je nourris l'homme de mon lait; il en fait du beurre et du fromage; et pour ce bienfait, il mange mes enfants. A peine sont-ils nés (naître, 4. tr.) qu'ils sont écorchés [S. 134. (2.)] et coupés en mille morceaux. Ce n'est pas tout: quand je suis vieille, et que je ne lui donne plus de lait, l'ingrat m'assomme sans pitié; ma peau même n'est pas à l'abri de son ingratitude; il la tanne et en fait des bottes et des souliers. De là, je conclus que l'homme est le vrai symbole de l'ingratitude. Adieu; j'ai dit ce que je pense.

L'homme, tout étonné, dit au reptile; je ne crois pas que cette radoteuse a dit; elle a perdu l'esprit: rapportons-nous en à la décision de cet arbre.—De tout mon cœur.—L'arbre étant pris pour juge, ce fut bien pis encore.—Je mets l'homme à l'abri, [S. 63. 1.] des orages, de la chaleur, et de la pluie. En été, il trouve sous mes branches une ombre agréable; je produis des fleurs et du fruit; cependant, après mille services, un manant me fait tomber à coups de hache: il coupe toutes mes branches, en fait du feu, et réserve mon corps, pour être scid en planches. L'homme se voyant ainsi convaincu: je suis bien sot, dit-il, d'écouter [S. 20. 2.] une radoteuse et un jaseur. Aussitôt il foula la couleuvre aux pieds et l'écrasa.

Le plus fort a toujours raison, il opprime le plus faible. La force et la passion sont sourdes à la voix de la justice et de la vérité.—Perrin.

LE SINGE.

Un vieux singe malin étant mort, son ombre descendit dans la sombre demeure de Pluton, où elle demanda à retourner parmi les vivants. Pluton voulait [S. 119.] la renvoyer dans le corps d'un âne pesant et stupide, pour lui ôter sa [S. 21. (2.)] souplesse, sa vivacité, et sa malice. Mais elle fit tant de tours plaisants et badins, que l'inflexible roi des enfers ne put [S. 133. (2.)] s'empêcher de rire, et lui laissa le choix d'une condition. Elle demanda à entrer dans le corps d'un perroquet.—Au moins, disait-elle, je conserverai par là quelque ressemblance avec les hommes que j'ai longtemps imités. Étant singe je faisais des gestes comme eux; et, étant perroquet, je parlais avec eux dans les plus agréables conversations.

A peine l'ombre du singe fut introduite dans ce nouveau métier qu'une vieille femme causeuse l'acheta. Il fit (faire, 4. tr.) ses dévotions; elle le mit dans une belle [S. 11. 6.] cage. Il faisait bonne chère, et discourait toute la journée avec la vieille radoteuse, qui ne parlait pas plus sensément que lui. Il joignit (joindre, 4. tr.) à son nouveau talent d'étourdir tout le monde je ne sais (savoir, 3. tr.) quoi de son ancienne profession. Il renait sa tête ridiculement, il faisait craquer son bec, il agissait ses ailes de cent façons, et faisait de ses pattes plusieurs tours qui tenaient encore les grimaces de l'agoutin. La vieille renait à toute heure ses lunettes pour l'admirer; elle était bien fâchée d'être un peu sotte, et de perdre quelquefois des paroles de son perroquet, auquel elle trouvait plus d'esprit qu'à personne. Ce perroquet gâté, devint bavard, importun, et fou. Il se trottait si fort dans sa cage, et bût (boire, 4. tr.) tant de vin avec la vieille, qu'il en mourut.

La vieille revenue devant Pluton, qui voulait (vouloir, 3. tr.) cette fois le faire passer dans le corps d'un poisson. Mais il fit (faire, 4. tr.) encore une farce devant le roi des ombres; et les princes ne résistèrent guère [S. 16. 6.] aux demandes des mauvais plaisants qui les flattent. Pluton accorda donc à celui-ci, qu'il irait (aller, 1. tr.) dans le corps d'un homme; mais comme le diu eut honte [S. 29. (4.)] de l'envoyer dans le corps d'un homme sage et vertueux, il le destina au corps d'un homme ennuyé et importun, qui tenait, qui se vantait sans cesse, qui faisait des gestes ridicules, qui se moquait de tout le monde, qui interrompait toutes les conversations les plus sérieuses, pour dire rien, ou les sottises les plus grossières. Méreux qui le reconnut [S. 59.] dans ce nouvel état, lui dit en riant.—Hol! hol! je te reconnais; tu n'es qu'un composé du singe et du perroquet que j'ai vu [S. 41. 3.] autrefois. Qui [S. 39. (5.)] voterait tes gestes et tes paroles apprises par cœur sans jugement, ne laisserait rien de toi. D'un joli singe et d'un bon perroquet on n'a fait qu'un sot homme.—Fénelon.

CORRESPONDENCE.

CERTIFICATES OF MERIT.

SIR,—Your correspondent R. J. G. is altogether wrong in his assertion that twelve months' training in a Training-college is an "indispensable requisite" on the part of candidates for Certificates of Merit. It is certainly desirable that they should have had such training, and it will probably become "an indispensable requisite" when the Training-colleges shall have fully developed themselves, and the present rare of Masters shall have had an opportunity of proving their efficiency; but, as yet, the majority of certificate holders are persons who have never been within the walls of a Training-college except as visitors. One thing, however, is indispensable, viz., that a candidate not belonging to a Training-college be in actual charge of a school at the time of the examination.

I enclose a list of the Training-schools under inspection, distinguishing these for Masters only, for Mistresses only, and for both Masters and Mistresses. Your correspondent's list containing two only where female students are admitted.

The safest course for "Ellen Ada," and others requiring such information would be to address a letter to "The Secretary of the Committee on Education, Downing-street, London."

I enclose my card, as a voucher that the information heregiven is correct.—Your obedient servant and constant reader,

C. W. H.

LIST OF TRAINING-SCHOOLS.

under inspection, at which Pupil Teachers who have successfully completed the Fourth Year of their Apprenticeship may at end to be examined for Queen's Scholarships.

Name of Training-School. Name and Address of Correspondent.

(Training-Schools for Masters only.)

Battersea (National Society's) ..	Rev. S. CLARKE, Battersea.
Carmarthen (National Society's) ..	Rev. W. REED, Carmarthen.
Chelsea, St. Mark's (National Society's) ..	Rev. DERWENT COLLIERIE, St. Mark's, Chelsea.
Chester (Diocesan) ..	Rev. ARTHUR RING, Chester.
Chichester (Diocesan) ..	Rev. M. PARRINGTON, Chichester.
Durham (Diocesan) ..	Rev. J. G. CHAMWELL, Durham.
Exeter (Diocesan) ..	Rev. CHANCELLOR HARRINGTON, Exeter.
Hammersmith, St. Mary's (Roman Catholic) ..	S. N. STOKES, Esq., Brook Green-house, Hammersmith.
Kneller-hall (for Workhouse Schools and for Schools connected with Government Establishments) ..	Rev. F. TEMPLE, Kneller-hall, Isleworth, Middlesex.

Metropolitan (Church of England) ..	Rev. V. W. RYAN, Highbury-park, London.
Oxford (Diocesan) ..	Rev. A. R. ASHWELL, Culham, Abingdon.
Satley, near Birmingham (Worcester Diocesan) ..	Rev. W. GOVER, Satley, Birmingham.
Winchester ..	Rev. P. JACOB, Winchester.

(Training-Schools for Mistresses only.)

Bishop's Stortford (Roche-ster Diocesan) ..	Rev. J. MENET, Hockcrill, Bishop's Stortford.
Brighton (Chichester Diocesan) ..	Rev. H. FOSTER, 76, West-street, Brighton.
Derby (Lichfield Diocesan) ..	Rev. J. LATHAM, Little Eaton, Derby.
Gray's-Inn-road (Home and Colonial Society's) ..	J. S. REYNOLDS, Esq., Gray's-Inn-road.
Norwich (Diocesan) ..	Rev. A. D. POWER, Norwich.
Salisbury (Diocesan) ..	Rev. W. K. HAMILTON, Salisbury.
Whitlands (National Society's) ..	Rev. HARRY BAKER, White Sands-house, Chelsea.
Warrington (Chester Diocesan) ..	Rev. R. GREENALL, Stretton, near Warrington.

(Training-Schools for both Masters and Mistresses.)

Borough-road (British and Foreign School Society's) ..	HENRY DUNN, Esq., Borough-road, London.
Cheltenham (Church of England) ..	Rev. C. H. BROMLEY, Cheltenham.
Edinburgh, Castle-hill-terrace (Established Church) ..	JOHN GORDON, Esq., Edinburgh.
Edinburgh, Moray-house (Free Church) ..	JAMES FULTON, Esq., Moray-house, Edinburgh.
Glasgow, Dundas Vale (Established Church) ..	J. DOUGLAS, Esq., Dundas Vale, Glasgow.
Glasgow (Free Church) ..	DAVID SROW, Esq., Normal School, Glasgow.
Westminster (Wesleyan) ..	Rev. J. SCOTT, Wesleyan Training-School, Horseferry-road, Westminster.
York and Ripon (Diocesan) ..	Rev. E. J. RANDOLPH, Dunnington, York.

To this list we add, for the information of many of our subscribers, the following extract from the same paper:

In order to limit as little as possible the opportunities by which peculiar talents may be exhibited, it is not perhaps desirable to prescribe which of the Subjects of Examination these Candidates shall be at liberty to select, further than to state strongly their Lordships' opinion that they should not attempt answers upon all the Subjects.

The following subjects must not be wholly omitted by any Candidate, viz.:

1. The Holy Scriptures, the Catechism, and the Liturgy of the Church of England (in Schools connected with the Church of England).
2. English History.
3. Geography.
4. Arithmetic (including Vulgar Fractions and Decimals).
5. English Grammar, and Composition.
6. The Notes of a Lesson, or some observations on the Practical Duties of a Teacher.

A Candidate who answers in these Subjects really well, may obtain an Exhibition of £20 for one year.

A Candidate who answers in the foregoing Subjects really well, and also in one other Subject really well (to be selected by himself out of those proposed to the Candidates for Certificates of Merit, but with a preference on the part of my Lords for the three First Books of Euclid) may obtain an Exhibition of £25 for one year.

If a Candidate attempts a greater number of Subjects, he will do so on his own responsibility. My Lords could not but be happy to find that he was able to answer in a greater number of Subjects well; but the extent of the Subjects attempted will not be accepted in lieu of mastery over those which are indispensable.

Candidates for Queen's Scholarships in Female Training-Schools will not be required to answer questions in Vulgar Fractions or Decimals. For the higher Exhibitions, they will be at liberty to select one of the Subjects proposed to Female Candidates for Certificates of Merit, such as Book-keeping, Biographical Memoirs, or Domestic Economy. Their Lordships would prefer a knowledge of some good Manual upon the last-named Subject, in connection with which they will be prepared to give due weight to Certificates from the Managers of the Candidate's School, attesting her practical knowledge of household duties.

The Exhibitions awarded to females will be at the rate of two thirds of those awarded to males, viz. £13 6s. 8d. and £16 13s. 4d., instead of £20 and £25, to correspond with the different expenses of boarding in Training-Schools, for Males and Females respectively.

Every Candidate will further be required to instruct a Class in the presence of the Inspector; to read intelligently, with good articulation and pronunciation; to write a fair hand; and to spell correctly.

17th June, 1853.

ANSWERS TO CORRESPONDENTS.

W. B. (Southampton): Both author and authorities are applicable to a female writer. See some late *Lessons in English*, by the P. E.—A. MORETON: we cannot yet tell. JOHN SIMPLE, SENIOR: His suggestions are being followed out already. W. T. (Devon): See No. 65.—R. L. (Lynn): Yes; see our Literary Notices.—YOUR SCHOLAR: He who assumes this signature recommends the life of W. Cobbett as one of our biographies; there may be points in his character worthy of admiration, such as his temperance, industry and perseverance; but there are other points so prominent in a political point of view, and so unworthy of imitation, that we fear his example, although only treated in a general way, would do more harm than good. A strong political character is at best but a questionable model to set up for public imitation; and when it has a wrong bias in several directions, it becomes more than doubtful; it becomes positively injurious. Our Scholar should stick to the studies he has chosen.

M. de B. (Belcast): The French Lessons reprinted from the "Working Man's Friend," may be had at this office, by enclosing seven penny stamps.—J. W. FARMER (Glasgow): The name *Farmer* is evidently borrowed from the occupation of a farmer; it comes from the French *Fermier*, which means the same thing.—B. X. (Whitby): We advise him to buy the latest edition of Mc Culloch's Commercial Dictionary.—T. W. (Leicester): See the mode of solution fully explained in Cassell's Arithmetic, price 1s.—A. C. CLARK (Winton) wishes to know the precise estimate of the quantity of nicotine in tobacco, and whether that poison acts materially on those that are smokers.

W. WILLESEE (Widbeach): will find the answers to the Algebraic questions in the next Lessons in Algebra.—T. F. WILSON (Syke): We must have mislaid his letters; we do not recollect the question he proposed. We do not, however, consider ourselves bound to answer all questions; if so, we should have nothing else to do. We are obliged by his kind offices and hope he will continue them. He should send his question again; it may be important.—J. J. F. (Halsted): We choose not to give our opinion on the subjects he mentions, for reasons best known to ourselves, and out of no disrespect to him.—A. SUBSCRIBER (Lancaster): We have answered all his questions about short hand in previous numbers of the P. E.—S. H. J. R. (Paisley): We believe that his answer is the most correct; but we are limited for space.—W. HONIGSON (Brompton): His definitions of a point are both excellent and correct.—M. N. E.: Lessons on Poetry and Etiquette will be given; but many things come before these.—MATHEMATICAL SCHOLAR: The Pole Query has already been solved.—PROFESSOR OF MUSIC: should send us his address.—H. G. D. (Pumstead): See No. 19 of the Magazine of Art, p. 295, vol. I.—G. R. B. to M. (Wilbury): No stamps were found in his letter.

AMO DOCTRINAM: Something will speedily be done to meet his views.—G. F. A. SPILLER (Hastings): We cannot tell the cause of the peculiar conformation of head to which he refers. *Zygomatice* means *yoking together*. *Facial*, belonging to the face. *Laterally*, means *sideways*.—J. C. P. (Ilfracombe): Derby is right. Thanks for his paper, we shall verify it, and use it.—A. LOVER OF IMPROVEMENT (Cornwall): We are much pleased with his letter; we hope that he will now make greater progress than ever. Patience and perseverance will, wonders. GABRIEL EXAMINER wishes a solution of the following question: "Bacchus caused Silenus to drink a flask of wine, and began to drink it. Having drunk during 3 of the time in which Silenus would alone have finished it, Silenus awoke and drank the remainder. Had they both drunk together, the flask would have been finished 2 hours sooner, and then Bacchus would have drunk only 3 of what he left to Silenus. How long would each have taken to drink the flask by himself?"

WEST QUAY (Greenock): Thanks for his information. We know of no book on the difference of the laws in the three kingdoms, England, Scotland and Ireland.—THE ASPIRER FOR LEARNING (Wolverhampton): His letter is equally creditable to his head and his heart; he scarcely needs our advice; let him go on and prosper in his own way.—W. G. WILLIAMS (Llandaff): Many thanks.—THALES (Swansea): Moses was a *Lawgiver*, not a *Priest*. Aaron was the Priest of God: We prefer the literal translation of *altus* *montis* *Romae*. *Qua* *semita* may be rendered by *any path*, or *out of the way course*.—J. N. SPERR, BARRISTER (Aberchirhoe): *Initium* means to begin, to undertake, to appoint, to decree, &c. *Point*, in French, as an adverb, means *no* or *not*; the letter *i* in it is not pronounced except before a vowel; and the *n* has a slightly nasal twang. The instructions in Latin, for which he is anxious, have been just given in the recent Nos. of the P. E.—EXTENSION: We really are at a loss how to advise a plan of studies for each individual; circumstances vary so much; but we recommend him to *plod* on, and not to take too much in hand, at once. Finish Latin and Greek first, if you want a degree; then learn so much mathematics as is necessary, but consult the Regulations of the University of London, vol. II, p. E., pages 137 and 213; these were given as the best course of study for a would-be graduate.

JOHN P. (Norfolk) must excuse us; but the Ladies are our nightingales. We do not belong to that class of human beings who having through their natural morosity of disposition, or their unhappy feelings of disappointment, lost all kindly feelings towards their own species, turn to the lower animals for sympathy and affection; no, we rejoice, yea, we glory in doing good to the human race; therefore, we do not care for poems about nightingales, unless there was something wonderfully splendid in them, like that of Tom Campbell's upon the rainbow. Emerson shall find a place in our biography as being truly worthy of a niche in the temple of fame.

LITERARY NOTICES.

That our numerous readers may be fully aware of the works that we have published, and are preparing to publish, to assist them in their study of the various languages, lessons in which have appeared in the POPULAR EDUCATOR, we insert the following classified list:—

IMPORTANT ANNOUNCEMENT TO OUR LATIN STUDENTS.—With a view fully to carry out the object of the POPULAR EDUCATOR as a means of educating the people, it is our intention shortly to commence the publication of a series of works on Classical Literature, to be entitled CASSELL'S CLASSICAL LIBRARY. This series will contain the productions of the most eminent Classical Authors, with other works calculated to assist in the acquisition of a general knowledge of the languages and literature of ancient Greece and Rome—the whole published at such a moderate price as to place them within the reach of all. A number consisting of twenty-eight pages, crown, octavo, printed on the same paper as the fine edition of the POPULAR EDUCATOR, will appear every week, price twopence. The first number will be published on the first of August, and will contain the commencement of a Latin Reader, prepared for the use of beginners. Among the reading lessons, of which this work will consist, will be found easy and amusing Fables, Mythological Legends, Anecdotes of Eminent Men, an Epitome of the History of Rome from the earliest time to the Emperors, and a useful chapter on the Geography of the Nations of Antiquity. These will be accompanied by a Dictionary of all the Latin Words, explanatory Notes, and Grammatical References; the whole forming, when complete, a cheap and convenient Introduction to Latin Literature. It will consist of ten numbers, and cases for binding will be issued at sixpence each. This work will be followed by Latin Exercises, intended to ground the student in the Syntax of the language, and thus prepare him for entering with advantage upon the study of more difficult authors.

CASSELL'S LATIN DICTIONARY is preparing for the press, and will be published uniformly with Cassell's French Dictionary, in Weekly Numbers at 2d. each, and in Monthly Parts, price 1s.

CASSELL'S LESSONS IN LATIN (from the "Popular Educator"), in a neat volume, price 2s. 6d. in stiff covers, or 3s. 6d. bound in cloth.

CASSELL'S SHILLING EDITION OF THE FIRST LESSONS IN LATIN; comprising a Grammar, with Exercises, in Latin and English, on the "Life of Joseph," and a complete Vocabulary, arranged by Mrs. STODART and ANDERSON, revised and corrected.

GERMAN.

CASSELL'S GERMAN DICTIONARY is now issuing in Weekly Numbers, at 2d. each; Monthly Parts, 1s. each.

TO STUDENTS OF THE GERMAN LANGUAGE.—Now ready, price 2s., or 2s. 6d. neatly bound in cloth, CASSELL'S ECCLESIOLOGICAL GERMAN READER, by W. H. WOODBURY, Esq., containing Choice Extracts from the best German Authors in Prose and Verse, with a complete Dictionary of all the words employed, thus affording the utmost facility for translation.

CASSELL'S LESSONS IN GERMAN (from the "Popular Educator"), uniform with the above, price 2s. in stiff covers, or 2s. 6d. cloth.

FRENCH.

CASSELL'S FRENCH DICTIONARY: in 2 parts—1 French and English; 2 English and French, is now publishing, in Weekly Numbers, 3d. each; containing Twenty-two pages, Demy Octavo, and in Monthly Parts, 1s. each; the French Department carefully edited by Professor De Laine, and the English Department by Professor Wallace and H. Bridgman, Esq. This Dictionary will contain all the Words in general use at the present time, including those which are technical and scientific; Vocabulary of Mythological, Historical and Geographical names, with accurate definitions, and examples of acceptations and modifications; Rules for Correct Pronunciation; The Inflections most in use; Table of Regular and Irregular Verbs, &c. &c.; rendering this altogether the most compendious and useful French and English Dictionary that has ever been published, whether for the use of Schools, or for the purposes of private study and reference. The whole to be completed in Twenty-six Numbers, or Six Monthly Parts, forming one handsome Volume of eight hundred and thirty-two pages. Price 8s. 6d. bound in cloth. Cases for binding the Volume will be issued at 9d. each.

CASSELL'S LESSONS IN FRENCH (from the "Popular Educator"), in a neat volume, price 2s. in stiff covers, or 2s. 6d. bound in cloth.

A KEY TO CASSELL'S LESSONS IN FRENCH. In the press, and about to be published, containing Translations of all the Exercises, with numerous references to the Grammatical Rules, price 1s. paper covers, or 1s. 6d. cloth.

A COMPANION MANUAL OF THE FRENCH LANGUAGE, by Professor De Laine, just published, price 3s. neatly bound. This forms one of the most simple, practical, and complete Guides to a thorough knowledge of the French Language which has hitherto been published. The plan upon which it is conducted is admirably calculated to accomplish the proposed object. In the first place, the Grammatical principles of the Language are clearly laid down, and, secondly, these principles are copiously illustrated by suitable Exercises—of French to be turned into English, and English to be turned into French.

MISCELLANEOUS EDUCATIONAL WORKS.

CASSELL'S EUCLID.—THE ELEMENTS OF GEOMETRY. Containing the First six, and the Eleventh and Twelfth Books of Euclid. Edited by Professor Wallace, A. M., price 1s. in stiff covers, or 1s. 6d. neat cloth.

THE SELF AND CLASS EXAMINER IN EUCLID, containing the enunciations of all the Propositions and Corollaries in Cassell's Edition, for the use of Colleges, Schools, and Private Students, is now ready, price 3d.

CASSELL'S ELEMENTS OF ARITHMETIC (uniform with Cassell's EUCLID) is now ready, price 1s. in stiff covers, or 1s. 6d. neat cloth.

THE ANSWERS TO ALL THE QUESTIONS IN CASSELL'S ARITHMETIC, for the use of Private Students, and of Teachers and Professors who use this work in their classes, is just issued, price 3d.

CASSELL'S ELEMENTS OF ALGEBRA, uniform with EUCLID and the ARITHMETIC, is in the course of preparation, and will shortly appear.

Printed and published by JOHN CASSELL, La Belle Sauvage-yard, Ludgate-hill, London.—July 9, 1853.

LESSONS IN NATURAL HISTORY.—No. XXXIII.

THE GIBBON—THE SIAMANG, &c.

To some of the quadrumana, the name of Gibbo, or Gibbon, an Indian appellation, has been applied. This species is distinguished by the enormous length of the arms, which when the animal stands erect, very nearly touch the ground. The eyes are large and deeply seated in the head. The nose is flat; the ears are not unlike the human. There is a circle of gray hairs passing over the eyes, the cheeks, and under the lower jaw, which completely surrounds the visage, and gives a very singular appearance to the animal. The hair also on the back of the hands and feet is gray; in all other parts of the animal it is black, and so is the colour of the skin. The gibbon has not been found exceeding four feet in height.

This species is said to be gentler in disposition than those already described. Its motions are neither rude nor precipitate. Its food, which consists chiefly of fruits, is received without greediness or impatience. It is most commonly found on the coasts of Coromandel, in the peninsula of Malacca, and in the Molucca isles. It suffers much from cold and a low temperature, and seldom survives a long removal from its native country.

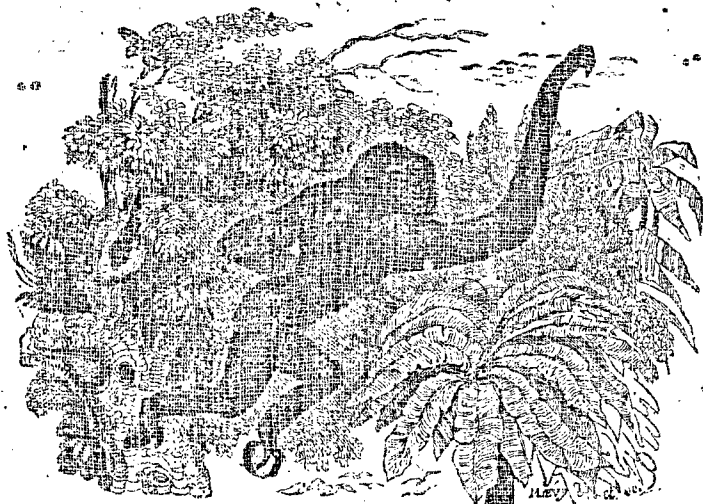
One species, the siamang, is very common in Sumatra. These animals are generally found assembled in large troops, conducted, it is said, by a chief, which the natives consider to be invulnerable. Assembled at sunrise and again at sunset, they vie with each other in uttering the most dreadful cries, stunning even to those accustomed to them; and in the highest degree alarming to strangers. The noise they make is owing to a guttural cavity, for which some of the monkey tribes are remarkable, and this one in particular.

At other times, so long, at least, as they continue undisturbed they are perfectly quiet. They seem to want courage for climbing and activity for leaping, and they might therefore be easily captured. They are, however, peculiarly vigilant, and thus escape dangers into which they would otherwise fall.

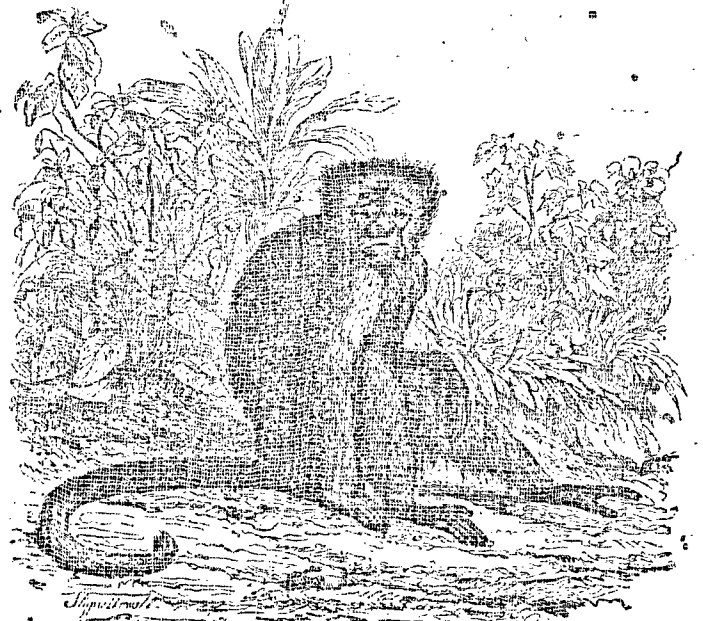
Contrary to the practice of some other monkeys, a wounded companion, however numerous the troop, is immediately abandoned. If it be young, the contrary is the case on the part of the mother, which, in the strength of her affection, will throw away her own life in a desperate yet ineffectual attack on the enemy.

The siamang is easily reconciled to bondage, and becomes, in a very few days, as indifferent as it was wild. It never displays the familiarity of other monkeys. Generally squatting down enveloped in its long arms, and with its head brought down between its legs,—the position in which it sleeps—it passes the greater part of its time in sullen retirement. It only breaks silence by a noise like that of the turkey, which appears to be uttered without a cause. It even partakes of its food with apathy, and submits to its being taken away with scarcely an effort to retain it. It drinks by plunging its fingers into water, and then sucking them.

The active and agile gibbon is a native of Sumatra, where it was discovered by the late Sir T. S. Raffles. Such is said to be its activity that it escapes pursuit with the rapidity of a bird upon the wing, repeatedly launching itself from bough to bough, at the distance of twenty feet asunder, apparently without either effort or fatigue. If, however, this statement be considered as exaggerated, we may still infer from it, that the swinging leaps of these animals are truly surprising. They usually live in troops, or families, guided by a leader, and their cries, particularly at the dawn of day, may be heard resounding through the



The Gibbon.



The Siamang.

LESSONS IN ENGLISH.—No. LVI.

By JOHN R. BEARD, D.D.

PREPOSITIONS.

In the universe, and in human life, things stand not apart and alone, but are connected together, and act one upon another. This system of mutual dependence is conceived of by the mind, and finds utterance in our words. If the utterance is a suitable and sufficient utterance, language must represent the reciprocal relations that exist everywhere. Language does express those relations. Dependence exists in language as much as in the universe. The object depends on its verb; the possessive case depends on its noun; nouns generally depend also on prepositions. The dependence of nouns on prepositions is an essential element in language. If I say "I go," I make a scarcely intelligible statement, but if I say "I go to school," I make a full statement, and am understood. Remove the "to," the sentence is incomplete. I have uttered no idea. To is a preposition, hence you see that in certain forms of words prepositions are necessary to the sense. Here the relation marked by the preposition is the relation of a verb to a noun. How does go stand related to school? In the preposition to the answer is found. Instead of to the preposition might be from, or out of, still the relation of the verb go to the noun school depends for its character on the preposition. Not wholly or exclusively does the relation depend on the preposition. In part the relation depends on the verb. In full, then, the relation depends on the verb and on the preposition. The preposition supplements the verb. The preposition supplies that of which the verb fails. The preposition defines the exact relation of the verb to the noun. Hence the preposition might be considered as a part of the verb; and the verb, instead of being a simple word, might be regarded as a compound word, thus: "I go-to school," "I come-from school." Were the verbs so regarded, school would then be simply the object to the compound verbs I go-to, I come-from. Such is the case in Greek and Latin. In the latter language, for instance, the preposition enters as a prefix into combination with the verb, and the two in combination govern their case, that is, simply, and in virtue of their own power, take an object. I may make this clear by an instance: in Latin deprimō means I sink, thus, deprīmere navem is to sink a vessel; here deprimō governs its case navem, as if it were a simple word; it is in reality a compound word, made up of the preposition de, down, used as a prefix, and premo, I press, so that the compound means I press down. But take the English press down separately, and neither of the parts expresses the idea of sinking; it is only the combination of the two that is equivalent to the simple verb to sink.

These observations may suffice to explain the general character and office of prepositions. A preposition, then, expresses, or aids to express, the relation which exists between a verb and a noun. Under the guidance of this definition we should expect to find a verb wherever a preposition is used. The expectation is just. Wherever you have a preposition, you must have a verb either expressed or understood. The term verb is here used in its widest acceptation. The term verb includes what may be called verbal phrases, such as adjectives and parts of the verb to be; e. g., "he is fit for nothing," "they are ready to die," "is fit for," and "are ready to" are verbal phrases or forms, and include each a preposition. Verbal nouns, or nouns in which action is implied, may also have prepositions after them; e. g.,

The going down to the town was more difficult than the going up to the citadel.

Going down (better written going-down) and going up denote motion, and are verbal nouns; consequently they have after them the preposition to. In some instances the verbal action is concealed; e. g.,

The way to London is long and difficult.

But here the action of a verb is implied; in full the phrase would be, the way which conducts to London, &c. At the least some part of the verb to be exists or is implied in the preposition; e. g.,

"Where is the book?" "On the floor," "in the cupboard;" that is, "the book is or lies on the floor," "the book is in the cupboard."

It ensues from the preceding remarks that some prepositions are united with verbs of motion, and that others are united with verbs of rest. Accordingly, prepositions in general may be divided into

the two great classes of *Prepositions of Motion*, and *Prepositions of Rest*; a third class ensues from combination, and these are called *Prepositions of Motion and Rest*, being applicable to both. There thus arises this classification:—

PREPOSITIONS

OF REST.	OF MOTION.	OF REST AND MOTION.
amid	about	about
at	above	above
beside	across	across
by	against	against
concerning	along	along
during	among	among
except	athwart	athwart
for	before	before
from	below	below
in	beneath	beneath
near	between	between
of		
on	beyond	beyond
regarding	down	
respecting	into	
save	out of	
since	over	over
touching	round	round
	through	through
	till	
upon	to, unto	
with	toward	toward
within	under	under
without	up	

The prepositions thus arranged may be put into other classes. There are the monosyllabic, namely, *at, by, for, from, in, near, of, on, save, since, through, till, to, up, with*. Of these, all except *near, save, since, and till*, are original and proper prepositions; that is, prepositions properly so called, and nothing but prepositions. Of the excepted words, *near* is an adjective, *save* is a verb, *since* and *till* adverbs of time or conjunctions. From the monosyllabic or primitive prepositions, *compound* or derivative prepositions are formed; as, *from in* and *to, in*; *from on* and *up, upon*. Other prepositions are compounds; as, *about, above, across, against, along, &c.* Several of the compound prepositions are used as adverbs, that is, they are taken with the verb rather than with the noun; e. g., "he ran-about," "he went-above," "the ship sailed-along swiftly." Five words given in the lists as prepositions, are strictly present participles, namely, *concerning, during, regarding, respecting, touching*. Two are verbs in the imperative mood, that is, *save* and *except* (sometimes the participial form *excepting* is preferred). Of the compounds, the derivation of some is very clear, e. g., *within* is *with* and *in*; *without*, *with* and *out*; *beyond*, *be* (by), and *yon* (yonder); *across* is *a, on* and *crass*; *along* is *on*, and *long*.

The origin of those prepositions, the origin of which we can trace, suggests hints as to the origin of others. In the lists there are, we have seen, prepositions which were at first parts of verbs, such as *touching* and *save*. Probably, therefore, all prepositions may at one time have been parts of verbs; at, for instance, seems connected with a Hebrew word similar in form, which signifies *to go*; and *through*, with a Gaelic word similar in form, which signifies *to pierce*. If prepositions have a verbal origin, their verbal connexion and force receive illustration.

At first, prepositions had reference to *place*, their application being exclusively to *physical objects*; only by degrees did they come to be turned away from the physical to intellectual or moral objects. In the following sentence I have comprised the primitive prepositions so as to show their application to physical objects:—

The new settler at the river, in the fear of an enemy's coming in arms from their camp through the forest, with fugitive slaves, to carry fire and sword up and down the land, has at length prudently rebuilt for a fort the house lately destroyed by fire.

The prepositions that are undeclined apply to physical objects. Among physical objects, place was that of which prepositions were originally employed. Thus we say, "the man is at home;" "fish are in the sea;" "the possessor of the castle;" "the barn goes with the farm;" "the cows went to the milk-pail;" "the nurse took the sick child up stairs at night, and brought it down in the

* *Through* is, in our opinion, from the Greek *Thura*, (German *Thür*, Sanscrit *Dvár*, English *Door*), a door of a room or a house, a gate, an entrance, i.e. anything we go through.—En.

morning;" "he intended the shed for a granary;" "he came by the railway to Brighton."

From denoting place, however, prepositions easily passed to denote time. In the instances just given, at (in "at night") and in ("in the morning") relate to time.

Such is the original service rendered by prepositions. At present, prepositions express the nicest distinctions of thought, the most delicate shades of feeling, and the highest flights of imagination; to so great an extent has language, considered as the handmaid to the human mind, made progress in adaptation and refinement.

Besides prepositions, properly so called, there are what I may term *prepositional phrases*—forms of words, that is, which in their combined effect have the force of prepositions. Take, for instance, the set of words "with respect to;" you may either parse these words separately, or you may consider them as a whole. If you take them as a whole, you may call them a prepositional phrase. So with the phrase "in consequence of." The prepositional force of these forms of words depends mainly on the preposition to or of, which stands at the end. I give a number of

PREPOSITIONAL PHRASES.

According to, With a view to, In spite of, On account of, Contrary to, In behalf of, By the side of, Owing to, In opposition to, In virtue of, In order to, In consequence of, With respect to, By dint of, Because of, [of] With regard to, Instead of, By reason of, For the sake of.

Let it, then, be observed, that a noun may be dependent on a preposition; for example:—

He died by his own hands.

Here the word hands depends on the preposition by. In parsing such a sentence, you may simply say that the noun hands is dependent on the preposition by; or you may declare the same fact by saying that the noun hands is governed by the preposition by; or, again, you may state that the noun hands is the object to the preposition by. Hence ensues the general rule or statement that

Nouns are dependent on, or governed by, prepositions;

or,

Prepositions take after them nouns as their object.

In this disquisition on prepositions, I have touched on the province of syntax. To syntax the disquisition properly belongs, for as prepositions undergo no inflections, they scarcely have their place here. Yet for the sake of uniformity of treatment, I have given these general remarks in this part, and that with the less hesitation, because, in teaching, repetition, if it only is accompanied with variations, has great advantages.

EXERCISES FOR PARSING.

"I know of no principle which it is of more importance to fix in the minds of young people than that of the most determined resistance to the encroachments of ridicule. Give up to the world, and to the ridicule with which the world enforces its dominion, every trifling question of manner and appearance; it is to toss courage and firmness to the winds, to combat with the mass upon such subjects as these. But learn from the earliest days to insure your principles against the perils of ridicule: you can no more exercise your reason, if you live in the constant dread of laughter, than you can enjoy your life if you are in the constant terror of death. If you think it right to differ from the times, and to make a stand for any valuable point of morals, do it, however rustic, however antiquated, however pedantic it may appear; do it, not for insolence, but seriously and grandly—as a man who wore a soul of his own in his bosom and did not wait till it was breathed into him by the breath of fashion. Let men call you mean, if you know you are just; hypocritical, if you are honestly religious; pusillanimous, if you feel that you are firm. Resistance soon converts unprincipled wit into sincere respect; and no aftertime can tear from you those feelings which every man carries with him who has made a noble and successful exertion in a virtuous cause.—*Sydney Smith*.

In Saint Germain's, in the Isle of Man, the following singular epitaph is yet to be seen, in Latin, over the tomb of Dr. Samuel Butler, formerly prebendary of Litchfield, and afterwards Bishop of Sodor and Man:—

In this house
Which I have borrowed from
My brethren, the worms,
Lie I
Samuel, by divine permission,
Bishop of this island.
Stop, reader;
Behold and smile at
The Palace of a Bishop!
Who died May 30,
In the year
1553.

SPECIMEN OF PARSING.

Errors, to be dangerous, must have a great deal of truth mingled with them; it is only from this alliance that they can obtain circulation.

Errors, a common noun, of the neuter gender, the plural number, the subject to the verb must.

To, a preposition, standing before and marking the infinitive mood, as to be; the preposition to is here dependent on the noun errors, the phrase being idiomatic. The phrase may be regarded as elliptical also; in full it might stand thus: "Errors, if they are to be," &c.; where to depends on the verb are, as in these expressions, "if I am to go;" "if the house is to be cleared."

Be, a verb, in the abstract or indefinite form, commonly called the infinitive mood; be depends on to.

Dangerous, an adjective, agreeing with errors.

Must, a verb, agreeing with its subject errors.

Have, a verb, in the infinitive mood, dependent on must.

A, the indefinite article.

Great, an adjective, formed by er and est; as, great, greater, greatest.

Deal, a noun, of Saxon origin, the object to the verb have.

Of, a preposition, governing truths.

Truth, an abstract noun, governed by or dependent on the preposition of.

Mingled, a passive participle, from the verb to mingle; mingled stands in agreement with truths, or, rather, a deal of truths.

It, a personal pronoun, of the neuter gender, singular number, the subject to the verb is.

Is, a verb, from to be, present time, agreeing with its subject it.

Only, an adverb.

From, a preposition, governing alliance.

This, a demonstrative pronoun, singular number (plural, these), in the neuter gender, to agree with alliance.

Alliance, a noun neuter, in the singular number, depending on the preposition from.

That, a conjunction.

They, a personal pronoun, neuter gender, because errors, to which it refers, is in the neuter gender, third person plural, the subject to the verb can.

Can, a verb, of the present tense, agreeing with its subject they.

Obtain, a verb, in the infinitive mood, depending on can.

Circulation, a noun neuter, the object to the verb obtain.

Un savant connaît un ignorant, parce qu'il a été ignorant; mais un ignorant ne peut pas juger d'un savant, parce qu'il n'a jamais été savant.—*Murines des Orientaux*.

Celui qui souhaiterait sérieusement des illusions aurait au-delà de ses vœux.—*Fauvenguyes*.

C'est le rôle d'un sot d'être importun; un homme habile sent s'il convient ou s'il ennuie: il sait disparaître le moment qui précède celui où il serait de trop quelque part.—*La Bruyère*.

La véritable indépendance repose dans ces trois mots français que j'ai toujours admirés: *Vivre de peu*. Vivre de peu voilà le meilleur préservatif contre l'esclavage, et ce précepte ne se rapporte pas seulement aux vêtements, à la nourriture, mais à bien d'autres choses.—*W. Cobbett*.

Chacun a son fardeau, chacun a ses défauts: nul ne se suffit à soi-même, et n'est assez sage pour soi-même; mais nous devons nous supporter, nous consoler, nous aider, nous instruire, et nous avertir mutuellement.—*Thomas à Kempis*.

Le cœur de l'ingrat est semblable à un désert qui boit avidement la pluie tombée du ciel, l'engloutit et ne produit rien.—*Murines des Orientaux*.

er, he	berathlagen, to consult
tiefer, tief, tiefes, this	ernstlich, seriously
metra, to perceive, to notice	suchen, to look for, to seek
Heiß, f. distress, need	Samen, n. lamb
grauen war, had been	Stellen, to place, to put
heimlich, secretly	erfreut, rejoiced
wir, we	berjen, to caress
Seufzer, m. sigh	ansich, to look, - out
Unmuth, m. gloom	cliff, eleven
oft, often	begehren, to demand
wünschen, to wish, - n. wishing	Gemüthsruhe, f. contentment
verlangen, to demand, - n. long-	genug, enough
ing, demand	bescheiden, modest
gleichen, to resemble	Freude, f. joy
gleich, alike	wenig, little
immer, always	ähnlich, like, resembling.

LESSONS IN GEOLOGY.—No. XXXVI.

By THOMAS W. JENKYN, D.D., F.R.G.S., F.G.S., &c.

CHAPTER III.

ON THE INFLUENCE OF ATMOSPHERIC AGENTS ON THE EARTH'S CRUST.

SECTION V.

ON THE ACTION OF FROST IN THE DISINTEGRATION OF ROCKS.

You have already been made acquainted with the chemical and mechanical action of water upon rocks. It acts chemically by dissolving the cementing substances of rocks, and in this manner rendering their mass loose and porous. It acts mechanically in two ways: first, it insinuates itself between the particles of the rock, and forces them asunder; secondly, when it is frozen in the mass, its expansion in freezing, not only separates small grains on the surface, but it shivers the rock into large fragments, which often, by their own gravity, fall into a lower level.

During wet weather, whether from rain or melted snow, water, in a liquid state, enters between the particles of surface rocks, and penetrates also into the deeper and larger fissures of craggy precipices. When the heat of the atmosphere is below 32° of Fahrenheit's thermometer, the infiltrated water, in the rock begins to freeze, and, in freezing, expands, assumes a larger volume, and becomes solid. This expansion of the water by frost separates the superficial particles of the rock from each other, and shatters larger masses into falling fragments, which either settle at the foot of the cliff, or are strewn on the sides of the mountain.

While the water within these crevices was frozen, the ice formed a kind of cement for the intercalated fragments; but when the increased temperature of the atmosphere melts that cementing ice, the rugged masses crumble and fall in ruinous heaps.

This disintegrating action of frost seems well understood by farmers and the proprietors of quarries. Farmers welcome frost as the agent that is to pulverize the heavy clods of their ploughed furrows. Men who labour in quarries of flagstones and slates expose their massive slabs to the action of frost, for the purpose of having them split into thinner laminations.

The results of the operations of frost upon mountain masses are chiefly seen in those extensive accumulations of angular fragments, which are found fallen and scattered, or heaped, at the foot of precipitous rocks. This accumulation of stones and blocks rises, sometimes, to a considerable height on the face of the cliff. In other cases, though not frequently, the mass of ruined fragments reaches up to the very top of the ledge of rock or mountain, and forms a regular slope from the summit to the base at an angle of nearly forty degrees. In this case, no further addition is made to the heap.

The name which geologists give to such shattered materials is *Débris* [pron. *Debré*]; but the accumulation of such fragments on the side of a cliff is called *Talus*.

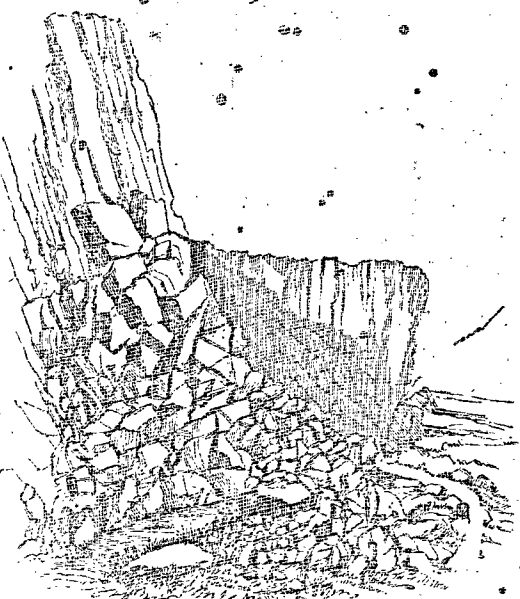
Débris is a French word that signifies the wreck, the shattering, or the waste of any thing. The word is very appropriately employed by geologists to designate the wrecks and wastes of

mountain cliffs under the slow powers of the chemistry of nature.

This *débris*, or the accumulation of fallen fragments, generally collects at the base of precipices and grows up in the form of a triangular heap, with one side of it resting on the face of the rock from which it has crumbled.

The term *Talus* is borrowed from the language of fortification. In fortresses, some of the walls are built flat within, but with a gradual slope outwards, for the sake of giving them greater strength. It is this piece of sloping masonry that is called by military engineers a *Talus*. It is because the heap of ruined fragments, that have fallen from a rock, slopes away from the face of a steep cliff that it is called a *Talus*. Examples of such a *Talus of Débris* are usually most striking along the mural faces of trap-cliffs, as represented in fig. 78.

Fig. 78.



A Talus at the Base of a Cliff.

These accumulations of *débris* at the base of rocks have been sometimes regarded as a geological chronometer. The formation of these taluses by frost and weathering prove that the earth has not existed, in its present state, for any great period of time; at least not from eternity, according to the old Aristotelian doctrine. In the majority of instances the slope of the talus reaches only to a very low part of the face of the cliff. Here the argument is that, if the cliff had existed for an immense period, the slope would have reached to the top; that is, the disintegrating power of the frost and the weather would long ago have been completed and stopped. Such a chronometer, however, teaches geology modesty; for the talus gives no clue to the time when the disintegration commenced.

The disintegration produced by frost and other atmospheric agents may be, in any single year, comparatively trifling. But, as the operations are repeated from year to year, and extended over a wide area of the earth's surface, frost becomes, in fact, one of the most effective agents in nature for levelling islands and continents. The action is slow, but it is regular and permanent.

Sometimes, in rocky districts, especially in the stupendous mountains of south America, enormous blocks and huge masses of rocks, shattered by frost, slide down into the valleys like thundering avalanches. At the base of these stupendous cliffs the talus of shivered fragments rises to the extraordinary height of two thousand feet. Here they rest against the side of the

everlasting hills, a monument of the action of water and heat and frost for hundreds of centuries.

These huge accumulations, vast as they are, are only a visible index to the power and the extent of this and of kindred de-

running water, to be deposited where the stream itself may rest, either in a lake or in the ocean.

In some rocky districts there are, amid stupendous mountains, extensive valleys, the bottom of which is covered in an

Fig. 79.



The Freezing of a Cascade in the Alps.

structive agents. As such they only represent a small amount of the *débris* actually produced by the temperature of the atmosphere. A large quantity of the mass of materials crumbled down has been swept off by rain, and carried away by

extraordinary manner, by myriads of great loose blocks and angular fragments. Mr. Charles Darwin, in his "Naturalist's Journal," describes such a valley in the Falkland Islands. The fragments consist of quartz rock, and the vast mass forms what

the inhabitants call "streams of stones." These blocks were not waterworn or rounded, but only have their angles a little blunted. Some of these fragments are, in size, from one or two feet to ten in diameter, do not lie in scattered, and

The fragments in this valley do not lie in scattered, and irregular heaps, but are spread out horizontally along the valley like sheets or streams of debris. How thick this bed of wrecked rocks may be, it is impossible to ascertain; but the trickling of small streamlets can be heard through the stones, at the depth of many feet below the surface. The actual depth must be great, for the running water must have filled the crevices between the nethermost fragments, long ago, with sand derived from the abrasion of the stones at a higher level.

The breadth of this debris varies from a few hundred feet to a mile. This breadth is constantly being diminished by the growth and the spread of a peaty soil, which is regularly encroaching on each border, and even forms small islets of turf, or oases of vegetation, where a few fragments of block lie sufficiently near to each other. In a valley to the south of Berkeley Sound, Mr. Deewin and his companions found it necessary to cross an uninterrupted band of these shivered stones, by jumping from one pointed stone to another, to the extent of half a mile.

The smallness of the slope or inclination in these streams of stones, is one of the most remarkable circumstances connected with them. On the hill sides they may be seen sloping at an angle of ten degrees with the horizon. But in some of the level broad-bottomed valleys, the slant is only just enough to be perceptible.

In some places, a continuous "stream" of these shivered fragments may be followed up the course of a valley, and may be traced up even to the crest of the mountain. On the top of these crests there are vast blocks, larger than many a cottage, that have all the appearance of having been arrested in their course. The whole aspect of this "stream of stones," suggests the idea that all these fragments must have travelled from the head of the valley, as a river of water would have done. Instead of this, it seems more probable, that they have all been hurled from the nearest slopes, and that since those periods, they have been, by some vibratory movement of an earthquake, but a movement of stupendous force, levelled into their present form of a continuous sheet.

The disintegration produced in the elevated peaks of Alpine mountains, by changes of temperature, and by the expansive power of freezing water, must be immense. In Chili, South America, there is a mountain, six thousand four hundred feet high, called the Bell of Quillota. Its summit is covered by a rough mass of green-stone. The whole mass is riven and shattered into massive blocks and rugged fragments. Many of the sides of these blocks exhibited surfaces of every degree of freshness, some as if they had been cracked the day before. On the surfaces of others, lichens appeared, some as if just forming, and others as if they had been long attached.

It is not to be assumed that these appearances are due to earthquakes; for on the summit of Mount Wellington, in Van Diemen's Land, where earthquakes are unknown, the top of the mountain is similarly crowned, and shattered in the same manner. But at Mount Wellington all the fragments appear as if they had been hurled or crumbled in their present position thousands of ages ago. The height of this mountain is four thousand feet. Near the top basalts shows itself, in some places, in columnar cliffs. The shattered basaltic blocks are near the top, among which patches of snow continue for a long time each year.

In the high valleys and glens of the Alps are found many rivulets and streams, which either trickle down the face of a cliff, or, according to their volume and velocity, fall over the ledge or ledges of a precipice, in the form of small cascades and waterfalls. When, at these high elevations, the frost is very intense, the whole volume of such cascades is almost completely frozen up into a solid mass. Such a phenomenon is beautifully represented in fig. 79.

The weight of these masses of ice, combined with the chemical action of intercalated moisture now frozen, must exert a powerful action for the disintegration of the ledges of rock on which they rest. When the warmer weather breaks up these beds of ice, it causes them to move with an abrading force over the surface of the ledge, hurls them down with violence against

the soil on the bed below, or speeds them to lower levels on the swollen waters of the stream. The angular masses, as they glide over stones, or dash against projecting rocks, will greatly multiply and extend their destructive operations.

From the description which this lesson has given of a talus, you are not to infer that the debris of rocky mountains are always found in the form of rugged and naked stones, and heaps of rude blocks. Wherever either primitive rocks, or broken strata, present their edges in abrupt surfaces, this generally results from the circumstance that fragments of such mountains have fallen down by rolling upon each other. Such falls take place every spring, and perhaps after every rain-storm, but especially after every thaw. The fragments in their fall, form, as we have described, taluses of greater or less elevation, according as the broken and crumbled masses which have fallen are more or less abundant. It is, in fact, by these taluses that the sloping sides of the valleys are formed in all elevated and mountainous regions. In the course of ages they become covered with vegetation, and may form good soil and fertile meadows; other portions of them may be studded with cheerful villages and populous towns; but both soil and towns rest upon a talus of ruined rocks.

LESSONS IN LATIN.—No. LXL.

By JOHN R. BEARD, D.D.

COLLOCATION OF WORDS.

IDIOM.

By the collocation (cum and locus) of words is meant the way or order in which words are placed or stand in relation to each other. That order may be determined, or, if not determined, may be affected by three causes; first, the sequence of ideas; secondly, the grammatical construction; thirdly, the laws of euphony (Greek, eu, well; and phōnē, voice, or pleasing sound). To a greater or less degree, and in varying proportions, these three causes operate on collocation in all languages; since a regard to the order of ideas, a regard to the requirements of grammar, and a regard to the laws of sound, are universal principles of cultivated speech. In one language, however, construction may predominate over the sequence of thought; in another the sequence of thought may prevail over the laws of construction. This position is exemplified in the English and the Latin, for in the English, construction has the more force; in the Latin, the order of the thoughts. Take such a sentence as *James gave John a book*; here the construction shows that James is the subject, and John the remote object to the verb gave. Change the place of the two proper names, *John gave James a book*, and you have reversed the sense. Hence, you learn, that, in English the sense of words depends very much on their position.

A great and strict regard to usages relative to position is necessitated in English, because our nouns are only partially inflected. But you are not to suppose that a similar regard is requisite in other tongues; nor are you to think that the order of words which ensues is the natural order. Misconceiving it to be the natural order, grammarians have spoken of a different order, an order regulated by the sense rather than the sound; for example, that observed by the Romans, as an inversion, and young students are apt to regard the inverted order of words as unnatural. In truth, the order required by the thoughts and the order required by the construction, are equally natural; the former was natural to the Romans, the latter is natural to the English; nor when the student of Latin shall have come to think in Latin and to read and understand Latin without putting it into English, will he find anything either unnatural or difficult in the Latin arrangement of words; on the contrary, he will by practice be led to the feeling that the Latin order, following as it does the sequence of thought, is at any rate more philosophical, if not more natural, than the English.

Let us now put the sentence given above into Latin.

Johannes Jacobo librum dedit;
1 2 3 4 5
John to James a book gave.

Here there is no doubt that John is the subject and James one of the objects to the verb dedit, for such they appear to be by

their form. Equally clear is it, that book is the direct object to the verb dedit, for it is in the accusative case. The inflections then of these three nouns clearly indicate their relations. Consequently, so far as the sense is concerned, their position is of small moment. Equally obvious is it that Johannes and dedit, the subject and the verb, go together. Consequently you gain a latitude as to their position. Now the Romans were fond of throwing the verb to the end; to the end, then, the verb may be thrown without any detriment to the sense. By this arrangement, a sentence is seen to be, as it was originally called, a period, or circle, the thought is enclosed within itself; of the two principal words in a sentence, namely the subject and the verb, the one opens the other closes the period, and the beginning and the end unite to make a complete whole. As now the sense is to a great extent independent of the collocation, so you may vary the relative position of the words; thus

1. Jacobo Johannes librum dedit;
2. Jacobo Johannes dedit librum;
3. Johannes librum Jacobo dedit, &c.

These variations, however, are not capriciously produced. That regard to the order of the thoughts, which is the prevailing law in Latin collocation, determines the changes for the most part, though euphony also has its rights. Thus if you wanted to make it clear that it was to James and not to Thomas that John gave the book, you would employ the arrangement, number 1. But if you wished to declare that it was a book and not a coat that John gave to James, then you would give preference to the form, number 2, or you might set forth the fact with still more emphasis by this arrangement.

Librum Johannes Jacobo dedit.

A great deal of what we in English do by accent and intonation, the ancient Romans did by position. According to their general usage, there were two places of chief emphasis, the beginning and the end of the sentence. The first word is the most emphatic, the last word is second in emphasis. Hence you must put your most important word first, and the word next in importance last. The middle of a sentence is the place of least emphasis.

These are general principles. These general principles were more or less modified by a regard to euphony. And usages, the origin of which cannot be always traced, exert a controlling power of a general kind. Usage in a measure varies with individuals, being greater in this author and less in that. It also varies in the same person with states of mind; and an arrangement sometimes has no other explanation than that such was the order in which the thoughts and the feelings of a speaker or a writer stood at the moment.

To these general observations may be appended one or two particular observations. I have spoken of the proneness of the Romans to throw the verb to the end of the sentence; the verb may, however, be placed at the beginning, by the sense, by the sound, or by usage; e. g.,

Quæritur an is qui prodest nobis, si pœnia nocuit, non debito solvetur;
It is inquired whether he who does us good, set us free from obligation by afterwards injuring us.

Usage formed several combinations which are never or rarely departed from; as, *Civis Romanus* (not *Romanus Civis*); *senatus populusque Romanus*; *Pontifex Maximus*; *Jupiter optimus maximus*; *Dii immortales*; *Dii, deique*; *huc atque illic*, &c.

A difference of sense may be produced by change of place; thus, *Alexander Magnus* is *Alexander the Great*, but *magnus Alexander* is *Alexander who is really great*, whether the famous king of Macedon or not.

The object generally comes before the verb, as *librum scribit*, he writes a book.

Of two nouns, or a noun and an adjective depending on each other, the governing word follows the governed; as *reipublicus est peritus*, he is a good politician; again,

Præsentia est rerum expectandarum fugiendarumque scientia;
Prudence is the knowledge of objects to be sought and to be shunned.

Related or contrasted words are put by the Romans so as to bring out their bearing on each other to the best advantage; e. g.,

Quod non dedit fortuna non eripit;
What fortune gives not, it takes not away.

Regard to emphasis may produce so complete an inversion as to make the sentence unintelligible if construed into English according to its Latin order; e. g.,

Propeantibus ad proelium responsa Romanus nemo reddebat;
To them challenging to battle reply Roman no returned; that is, no Roman returned a reply to them challenging to battle.

In sentences that contain a noun with its adjective governing another noun, the governed noun is placed between the governing noun and its adjective; e. g.,

Admirabilis benevolentiae magnitudo;
The admirable greatness of benevolence.

So with other governed words; e. g.,

Brevissimus in B. Itanium trajetus;
The shortest passage to England.

Words connected in sense and grammar are separated by euphony; e. g.,

Admirabilis exardescit benevolentiae magnitudo;
An admirable greatness of benevolence bursts forth.

When I speak of euphony I mean that which was euphonic (well-sounding) to Roman ears. Alliteration, or the succession of words beginning with the same letter, is avoided by good English writers, but instances may be found of evidently designed alliteration in the best Roman classics. Nor was it always possible for a Latin writer to avoid collocations, which to us, at least, are anything but harmonious, such as the recurrence of words ending in *um*, in *is*, in *um*, to which the language is very liable; as *nullo satis certo mandato*.

The Romans avoid ending a long sentence with a monosyllable, or placing a short word immediately after a long one, influenced in these and similar things by laws of euphony common to all languages. Let the student read the two following sentences and say which of the two sounds the better; in the second, *visit* is taken from the usual place of the verb at the end of the sentence, and placed between words intimately connected in form and in import; the sentence is improved by the change;

1. Caesar Gallos fortissimos et omni rerum copia abundantes vicit.
2. Caesar Gallos vicit fortissimos et omni rerum copia abundantes.

The verbs *inquit*, *opinor*, *quæso*, *spero*, *conseo*, &c., are interposed in the course of the sentence, and not placed at either the commencement or the termination.

Nouns in the vocative are also generally interposed.

Those prepositions, whose usual place is before their nouns, are sometimes, especially in poetry, placed after or between the noun and its adjective. I finally warn the student that in all things, and especially in idiomatic usages, he must read and meditate the classics themselves with the utmost care. The practice of double translation would afford great aid. Select an easy passage of Cicero's; translate it into English, as nearly as possible, word for word; to-morrow, put your English back into Latin, and then, comparing your Latin with Cicero's Latin, correct the former by the latter, taking it for granted that you are wrong when you differ from him. The steady and constant pursuit of this practice would in due time suffice to make you a good Latin scholar.

EXERCISES.—LATIN-ENGLISH.

Jugurtha vestris jussis obediens erit; invidia ex opulentia oritur; Numa Pompilius rex creatus est; Tyrii interrogabant num major Neptuno esset Alexander; vidimus eos uidentes tum cupiditate tum metu; homini pecuniam dono dedit; civem primum accipit; corporis dolorem animi judicamus; admi morum corpore non sentimus; vita ejus invidiarum est plena; Ptoleus ex Asia in Macedonia intravit; et tum est vivere hominem qui spirat et spirare qui vivit; poeta peccat quum probam orationem affigit improbo; Zeno naturalera legem divinam esse censet; omnium animantium formam vincit hominis figura; rerum copia verborum copiam gignit; necessitatis inventa antiquiora sunt quam voluptatis; doloris medicinam a philosophis peto; concordia parvae res crescent, discordia maximae dilabuntur; et secundas res splendiores facit amicitia, et adversas leviores; est hominum naturae, quam aequi debemus, maxime humana crudelitas; reliqua vitae instituta to cecubo.

ENGLISH-LATIN.

He said a word to me; to thee? no, to my father; to my father he said a word; one word only? no, two words; he said to my

father two words; was it not to thy sister he spoke; no, it was to his own wife he spoke; to speak useful things is better than to be silent; this is the greatest conflagration within the memory of man; Cicero declares that he always began to speak with fear; religion alone is enough for a happy life (*ad beatam vitam*); are riches enough for a happy life? proceed, pupils, said the masters and learn very many things.

LESSONS IN ALGEBRA.—No. V.

From the principles explained in our last lesson we derive the following general rule for Multiplication:—

89. RULE.—Multiply the letters and co-efficients of each term in the multiplicand by the letters and co-efficients of each term in the multiplier; and prefix to each term of the product, the sign required by the principle, that like signs produce +, and unlike signs —; lastly, unite such terms as are similar.

Otherwise.—Multiply every part of the multiplicand by every part of the multiplier, and collect the results as in Addition.

EXAMPLES FOR PRACTICE.

1. $5ax$ and $3ay$. Ans. $15axy$. 4. x^3 and x^5 . Ans. x^8 .
2. x^m+1 and x^n-1 . Ans. x^{m+n} . 5. x^m and x^n . Ans. x^{m+n} .
3. x^m+y and x^n-y . Ans. x^{m+n} . 6. x^3y and x^2y^2 . Ans. x^5y^3 .
7. $x^2-3xy+3y^2$ and axy . Ans. $ax^3y-3axy^2+3axy^3$.
8. $1-2x+3x^2-4x^3$ and $1+x$. Ans. $1-x^2-x^3-4x^4$.
9. x^2+2x+1 and x^2-2x+1 . Ans. $x^4-2x^3+x^2-2x+1$.
10. $x-2x$ and $2x-3x$. Ans. $2x-4x-3x+6x$.
11. Multiply $a+3b-2$ into $4a-5b-4$. Ans. $4a^2-5ab-12a-18b^2-8$.
12. Multiply $4ab \times x \times 2$ into $3my-1z$. Ans. $24abmy-8abz$.
13. Multiply $(7ah-y) \times 4$ into $4x \times 3 \times 5 \times d$. Ans. $1680adhx-240dy$.
14. Multiply $(6ab-7cd+1) \times 2$ into $(8+4x-1) \times d$. Ans. $96abd-14hd^2+14d+48abd-8d^2hx+8dx$.
15. Multiply $3ay+y-4+h$ into $(d+x) \times (h+y)$. Ans. $3adhy+2dhy+dh^2-4dh+3ahy+2hy+h^2x-4hx+3ady^2+dy^2+3axy^2+xy^2-4xy$.
16. Multiply $6ax-(4h-d)$ into $(3+1) \times (h+1)$. Ans. $6abx-4bh^2+bdh+6ax-4h+bd-4hx-4h+d$.
17. Required the continual product of $a+b+c$, $a-b+c$, and $a-b-c$. Ans. $2a^3b^2+2a^2b^2+2b^3c^2-a^3-b^3-c^3$.
18. Find the product of $x^2-y^2+z^2-v^2$ and $x^2+y^2-z^2-v^2$. Ans. $x^4-y^4-z^4-v^4-2x^2y^2+2y^2z^2-2x^2z^2+2y^2v^2$.
19. Find the continual product of $2x-y$, $2x+y$, and $4x^2+y^2$. Ans. $16x^4-y^4$.
20. Multiply $a+b$ into $a-b$ into $a+b$. Ans. $a^3+3a^2b+3ab^2+b^3$.
21. Multiply $x+y$ into $x-y$ into $x+y$. Ans. $x^3+x^2y-xy^2-y^3$.
22. Multiply $4(x+y)$ into $3a$ into $5b$ into 3 . Ans. $216abc$.
23. Multiply $3(a+b+c+d)$ into xyz . Ans. $3axyz+3bxyz+3cxyz+3dxyz$.
24. Multiply $xx+xy+yy$ into $x-y$. Ans. xx^2-yy^2 .
25. Multiply $aaa-bbb$ into $aaa+bbb$. Ans. $aaaaa-bbbbbb$.
26. Multiply $aa-ax+xx$ into $a+x$. Ans. $aaa-axx$.
27. Multiply $yyy-ayy+xy$ into $y+a$. Ans. $yyy-aaa$.
28. Multiply $15a+26b$ into $3a-4b$. Ans. $45aa-80bb$.
29. Multiply $3a(x+y) \times 4$ into $a+b$. Ans. $12a^2x+12a^2y+12abx+12aby$.
30. Multiply $aa+2ab+bb$ into $a-b$ into $a+b$. Ans. $aaaa+4aaab+6aabb+4abbb+bbbb$.
31. Find the product of $x-2x^2+3x^3$ and $4x^2+5x^3-5x^4$. Ans. $4x^3-3x^4-4x^7+27x^8-18x^9$.
32. Find the product of $5x^3-7x^2+8x^3+3y^2+y$ and $7y-8$. Ans. $35y^3-84y^2+85y^2-17y^2-8y$.
33. Find the product of a^3-2a^2+3a and a^2+2a-3 . Ans. $a^5-2a^4+4a^3-6a^2+9a$.
34. Find the product of $v^4-4av^3+6a^2v^2-4a^3v+a^4$ and $v^3-3av^2+3a^2v-a^3$. Ans. $v^7-7av^6+21a^2v^5-35a^3v^4+35a^4v^3-21a^5v^2+7a^6v-a^7$.
35. Find the product of $x^3-a^2x+2a^3$ and $x^2-ax+2a^2$. Ans. $x^5-a^2x^3+3a^3x^2-4a^4x+2a^5$.
36. Find the continual product of $x-1$, $x+2$, $x+4$, and $x-5$. Ans. $x^4-23x^3-18x^2+40$.
37. Multiply $1-x+x^2-x^3+x^4-x^5$ by $1+x+x^2$. Ans. $1+x^2-x^3+x^4-x^5$.

38. Multiply $1+x+x^2+x^3+x^4+x^5$ by $1-x+x^2$. Ans. $1+x^3+x^4+x^5$.
39. Multiply $1+x+x^2+x^3+x^4+x^5$ by $1-x+x^2-x^3+x^4-x^5$. Ans. $1-x^2+x^4-x^6+x^8-x^{10}$.
40. Multiply $a+2b+c$ by $a-c$. Ans. $a^2+2ab-2bc-c^2$.
41. Find the continual product of $xy-1$, $az-1$, and $yz-1$. Ans. $x^2y^2z^2-xyz-xy^2z-xyz^2+xy+yz+xz-1$.
42. Find the continual product of $x^2+y^2+z^2$, xz , and x^2+xy . Ans. $2x^3y^2z^2+x^2y^2z^2+x^2y^2z^2+xyz^2+xyz^2+yx^2z^2$.
43. Multiply $a^2+b^2+c^2-ab-ac-bc$ by $a+b+c$. Ans. $a^3+b^3+c^3-3abc$.

DIVISION.

Ans. 90.—Ex. 1. A man divided 48x apples among 6 boys. How many did each receive?

Here, if 6 boys receive 48x apples, it is manifest that 1 boy will receive $\frac{1}{6}$ of 48x apples; but $\frac{1}{6}$ of 48x is 8x apples; for 48x $\div$ 6 = 8x. Whence 8x apples is the answer.

Ex. 2. If 8 hats cost 24s shillings, what will 1 hat cost?

Here, reasoning as before, 1 hat will cost $\frac{1}{8}$ of 24s shillings, but 24s $\div$ 8 = 3s; therefore 3s shillings is the answer.

The process followed in these examples is called DIVISION. It consists in finding how many times one quantity contains another; and is the reverse of multiplication. The quantity to be divided is called the dividend; the given factor, the divisor; and that which is required, the quotient.

91. Division therefore is finding a quotient, which multiplied into the divisor will produce the dividend. As the product of the divisor and quotient is equal to the dividend, the quotient may be found, by resolving the dividend into two such factors, that one of them shall be the divisor. The other will, of course, be the quotient.

Suppose, for instance, that abd is to be divided by a . The factors a and bd will produce the dividend. The first of these, being a divisor, may be set aside as the one factor. The other factor is the quotient.

92. When the divisor therefore is found as a factor in the dividend, the division is performed by cancelling this factor.

- Ex. 1. Divide ax by a . Ans. x .
2. Divide dh by d . Ans. h .
3. Divide dxx by dx . Ans. x .
4. Divide hxy by hm . Ans. y .
5. Divide dhy by dy . Ans. h .
6. Divide abx by a . Ans. bx .
7. Divide axy by ay . Ans. x .

93. PROOF.—Multiply the divisor and the quotient together, and the product will be equal to the dividend, if the work is right.

Thus $ax \div a$ gives the quotient x . Proof. Here $a \times x$ gives the dividend ax .

94. If a letter is repeated in the dividend, care must be taken that the factor which is rejected be only equal to the divisor.

8. Divide aab by a . Ans. ab .
9. Divide bbx by b . Ans. bx .
10. Divide $aaddx$ by ad . Ans. $addx$.
11. Divide $aammyy$ by am . Ans. amy .
12. Divide $aaaxxx$ by aaa . Ans. xxx .
13. Divide yyy by yy . Ans. y .

In such instances as the preceding, it is obvious that we are not to reject every letter in the dividend which is the same with one in the divisor.

95. If the dividend consists of any factors whatever, expunging one of them is dividing by that factor.

14. Divide $a(b+d)$ by a . Ans. $b+d$.
15. Divide $a(b+d)xy$ by a . Ans. $(b+d)xy$.
16. Divide $(b+x)(c+d)$ by $b+x$. Ans. $c+d$.
17. Divide $(b+y)(d-h)x$ by $d-h$. Ans. $(b+y)x$.
96. If there are numeral co-efficients prefixed to the letters, the co-efficients of the dividend must be divided by the co-efficients of the divisor.
18. Divide $6ab$ by 25. Ans. $3a$.
19. Divide $16dxy$ by 4. Ans. $4dxy$.
20. Divide $25dhr$ by 25. Ans. dhr .
21. Divide $12xy$ by 3. Ans. $4xy$.
22. Divide $34dxx$ by 34. Ans. dxx .
23. Divide $20hm$ by m . Ans. $20h$.

97. When a simple factor is multiplied into a compound one, the former enters into every term of the latter. (Art. 76.) Thus a into $b+d$, is $ab+ad$. Such a product is easily resolved again into its original factors. Thus $ab+ad=a \times (b+d)$.

25. Resolve $ab+ac+ah$ into its factors. Here $ab+ac+ah=a \times (b+c+h)$; Ans.

26. What are the factors of $amh+amx+amy$? Ans. $am(h+x+y)$.
27. What are the factors of $4ad+8ah+12am+4ay$? Ans. $4a(d+2h+3m+y)$.

In these examples, if the whole quantity be divided by one of the factors, according to Art. 95, the quotient will be the other factor.

28. Divide $(ab+ad)$ by a . Here $ab+ad=a(b+d)$. Ans.
29. Divide $ab+ad$ by $b+d$. Here $(ab+ad) \div (b+d)=a$. Ans.
30. Divide $ab+ac$ by a . Ans. $b+c$.
31. Divide $bah+bay$ by b . Ans. $ah+ay$.
32. Divide $aah+ay$ by a . Ans. $ah+y$.
33. Divide $dxx+dhy$ by dx . Ans. $x+h+y$.
34. Divide $6ab+12ac$ by $3a$. Ans. $2b+4c$.

Hence, if the divisor is contained in every term of a compound dividend, it must be cancelled in each.

35. Divide $10dxy+16d$ by $2d$. Ans. $5xy+8$.
36. Divide $12hx+8$ by 4. Ans. $3hx+2$.
37. Divide $35dm+14dx$ by $7d$. Ans. $5m+2x$.
98. On the other hand, if a compound expression containing any factor in every term, be divided by the other quantities connected by their signs, the quotient will be that factor. See Art. 97.
38. Divide $ab+ac+ah$ by $b+c+h$. Ans. a .
39. Divide $amh+amx+amy$ by $h+x+y$. Ans. am .
40. Divide $4ah+8ay$ by $4+h$. Ans. $4a$.
41. Divide $ahm+ahy$ by $m+y$. Ans. ah .
99. In division, as well as in multiplication, the caution must be observed, not to confound terms with factors. (Art. 77.)
42. Divide $(ab+ac)$ by a . Here $(ab+ac) \div a=b+c$ by Art. 97.
43. Divide $(ab \times ac)$ by a . Here $(ab \times ac) \div a=abc$ by Art. 94.
44. What is the quotient of $(ab+ac) \div (b+c)$? Ans. a .
45. What is the quotient of $ab \times ac \div (b \times c)$? Ans. a .

LESSONS IN FRENCH.—No. LXVII.

By Professor LOUIS FASQUELLE, LL.D.

LIST OF IRREGULAR VERBS, &c. (continued from page 222).

Infinitive.	Participles.	Indicative.	Imperfect.	Past Definite.	Future.	Conditional.	Imperative.	Subjunctive.	Imperfect.
POURVOIR, 3. to provide.	se pourvoyant, pourvu, f. e.	je me pourvois, [vois]	je me pourvoyais, [voisais]	je me pourvus, [vois]	je me pourvoirai, [vois]	je me pourvois, [vois]	pourvois-toi, [vois]	je me pourvoie, [vois]	je me pourvois, [vois]
POUVOIR, 3. to be able, aux. avoir irregular.	pouvant, pu	je puis, tu peux, il peut, nous pouvons, vous pouvez, ils peuvent, [peuvent]	je pouvais, tu pouvais, il pouvait, nous pouvions, vous pouviez, ils pouvaient, [pouvaient]	je pus, tu pus, il put, nous pûmes, vous pûtes, ils purent, [purent]	je pourrai, tu pourras, il pourra, nous pourrons, vous pourrez, ils pourront, [pourront]	je pourrais, tu pourrais, il pourrait, nous pourrions, vous pourriez, ils pourraient, [pourraient]	pourris, [vois]	je puisse, tu puisses, il puisse, nous puissions, vous puissiez, ils puissent, [puissent]	je pusse, tu pusse, il pût, nous pussions, vous pussiez, ils pussent, [pussent]
PREDIRE, 3. to predict, prédire, f. e.	prédissant, prédit, f. e.	je prédise, tu prédis, il prédit, nous prédisons, vous prévoyez, ils prédisent, [prédisent]	je prédisais, tu prédisais, il prédisait, nous prédisions, vous prévoyiez, ils prédisaient, [prédisaient]	je prédis, tu prédis, il prédis, nous prédis, vous prévoyez, ils prédis, [prédis]	je prédirai, tu prédiras, il prédira, nous prédirons, vous prévoyez, ils prédiront, [prédiront]	je prédirais, tu prédirais, il prédirait, nous prédirions, vous prévoyez, ils prédiraient, [prédiraient]	prédis, [vois]	je prédise, tu prédises, il prédise, nous prédisions, vous prévoyez, ils prédisent, [prédisent]	je prédisse, tu prédises, il prédis, nous prédisions, vous prévoyez, ils prédisent, [prédisent]
PRENDRE, 4. to take, aux. avoir irregular.	prenant, pris, f. e.	je prends, tu prends, il prend, nous prenons, vous prenez, ils prennent, [prennent]	je prenais, tu prenais, il prenait, nous prenions, vous preniez, ils prenaient, [prenaient]	je pris, tu pris, il prit, nous prîmes, vous prîtes, ils prirent, [prirent]	je prendrai, tu prendras, il prendra, nous prendrons, vous prendrez, ils prendront, [prendront]	je prendrais, tu prendrais, il prendrait, nous prendrions, vous prendriez, ils prendraient, [prendraient]	prends, [vois]	je prenne, tu prennes, il prenne, nous prenions, vous preniez, ils prennent, [prennent]	je prisse, tu prisses, il prit, nous prissions, vous prissiez, ils prissent, [prissent]
PRESCRIRE, 4. to prescribe, prescrire, f. e.	prescrivant, prescrit, f. e.	je prescris, tu prescribes, il prescrit, nous prescrivons, vous prescrivez, ils prescrivent, [prescrivent]	je prescrivais, tu prescrivais, il prescrivait, nous prescrivions, vous prescriviez, ils prescrivaient, [prescrivaient]	je prescrivis, tu prescrivis, il prescrivit, nous prescrivîmes, vous prescrivîtes, ils prescrivirent, [prescrivirent]	je prescrirai, tu prescriras, il prescrira, nous prescrirons, vous prescriverez, ils prescriront, [prescriront]	je prescrirais, tu prescrirais, il prescrirait, nous prescririons, vous prescriviez, ils prescriraient, [prescriraient]	prescris, [vois]	je prescrive, tu prescribes, il prescrive, nous prescrivions, vous prescriviez, ils prescrivent, [prescrivent]	je prescrivisse, tu prescrivisses, il prescrivit, nous prescrivîmes, vous prescrivîtes, ils prescrivirent, [prescrivirent]
PRESENTIR, 2. to foresee, présentir, f. e.	présentissant, présent, f. e.	je présente, tu présentes, il présente, nous présentons, vous présentez, ils présentent, [présentent]	je présentais, tu présentais, il présentait, nous présentions, vous présentiez, ils présentaient, [présentaient]	je présentai, tu présentas, il présenta, nous présentâmes, vous présentâtes, ils présentèrent, [présentèrent]	je présenterai, tu présenteras, il présentera, nous présenterons, vous présenterez, ils présenteront, [présenteront]	je présenterais, tu présenterais, il présenterait, nous présenterions, vous présenteriez, ils présenteraient, [présenteraient]	présente, [vois]	je présente, tu présentes, il présente, nous présentions, vous présentiez, ils présentent, [présentent]	je présentasse, tu présentasses, il présenta, nous présentâmes, vous présentâtes, ils présentèrent, [présentèrent]
PREVAIR, 3. to prevail, prévaloir, f. e.	prévalant, prévalu, f. e.	je prévale, tu prévalues, il prévaut, nous prévalons, vous prévoyez, ils prévalent, [prévalent]	je prévalais, tu prévalais, il prévalait, nous prévalions, vous prévoyiez, ils prévalaient, [prévalaient]	je prévalis, tu prévalis, il prévalit, nous prévalîmes, vous prévalîtes, ils prévalirent, [prévalirent]	je prévaudrai, tu prévaudras, il prévaudra, nous prévaudrons, vous prévaudrez, ils prévaudront, [prévaudront]	je prévaudrais, tu prévaudrais, il prévaudirait, nous prévaudirions, vous prévaudriez, ils prévaudraient, [prévaudraient]	prévale, [vois]	je prévale, tu prévalues, il prévaut, nous prévalions, vous prévoyez, ils prévalent, [prévalent]	je prévalisse, tu prévalisses, il prévaut, nous prévalîmes, vous prévalîtes, ils prévalirent, [prévalirent]
PREVOIR, 3. to foresee, prévoir, f. e.	prévoyant, prévu, f. e.	je prévois, tu prévois, il prévoit, nous prévoyons, vous prévoyez, ils prévoient, [prévoient]	je prévoyais, tu prévoyais, il prévoyait, nous prévoyions, vous prévoyiez, ils prévoyaient, [prévoient]	je prévoyis, tu prévoyis, il prévoyit, nous prévoyîmes, vous prévoyîtes, ils prévoyirent, [prévoyirent]	je prévoirai, tu prévoiras, il prévoira, nous prévoirons, vous prévoirez, ils prévoiront, [prévoiront]	je prévois, tu prévois, il prévois, nous prévoyions, vous prévoyiez, ils prévoient, [prévoient]	prévois, [vois]	je prévois, tu prévois, il prévois, nous prévoyions, vous prévoyiez, ils prévoient, [prévoient]	je prévisse, tu prévises, il prévois, nous prévoyions, vous prévoyiez, ils prévoient, [prévoient]
PRODUIRE, 4. to produce, produire, f. e.	produisant, produit, f. e.	je produis, tu produis, il produit, nous produisons, vous produisez, ils produisent, [produisent]	je produisais, tu produisais, il produisait, nous produisions, vous produisiez, ils produisaient, [produisaient]	je produis, tu produis, il produisit, nous produîmes, vous produîtes, ils produirent, [produirent]	je produirai, tu produiras, il produira, nous produirons, vous produirez, ils produiront, [produiront]	je produirais, tu produirais, il produirait, nous produirions, vous produiriez, ils produiraient, [produiraient]	produis, [vois]	je produise, tu produises, il produise, nous produisions, vous produisiez, ils produisent, [produisent]	je produisise, tu produisisses, il produisit, nous produîmes, vous produîtes, ils produirent, [produirent]
PROJETTER, 1. to project, projeter, f. e.	projetant, projeté, f. e.	je projette, tu projettes, il projette, nous projetons, vous projetez, ils projettent, [projettent]	je projetais, tu projetais, il projetait, nous projetions, vous projetiez, ils projetaient, [projetaient]	je projetai, tu projetas, il projeta, nous projetâmes, vous projetâtes, ils projetèrent, [projetaient]	je projetterai, tu projetteras, il projettera, nous projetterons, vous projetterez, ils projetteront, [projetteront]	je projetterais, tu projetterais, il projetterait, nous projetterions, vous projetteriez, ils projetteraient, [projetteraient]	projette, [vois]	je projette, tu projettes, il projette, nous projetions, vous projetiez, ils projettent, [projettent]	je projetasse, tu projetasses, il projeta, nous projetâmes, vous projetâtes, ils projetèrent, [projetaient]
PROMETTRE, 4. to promise, promettre, f. e.	promettant, promis, f. e.	je promets, tu promets, il promet, nous promettons, vous promettez, ils promettent, [promettent]	je promettais, tu promettais, il promettait, nous promettons, vous promettez, ils promettaient, [promettaient]	je promis, tu promis, il promit, nous promîmes, vous promîtes, ils promirent, [promirent]	je promettirai, tu promettiras, il promettira, nous promettions, vous promettez, ils promettont, [promettont]	je promettis, tu promettis, il promettit, nous promettîmes, vous promettîtes, ils promettirent, [promettirent]	promets, [vois]	je promette, tu promettes, il promette, nous promettons, vous promettez, ils promettent, [promettent]	je promissse, tu promissses, il promit, nous promîmes, vous promîtes, ils promirent, [promirent]
PROMOUVOIR, 3. to promote, promouvoir, f. e.	promouvant, promu, f. e.	je promouv, tu promouv, il promouv, nous promouvons, vous promouvez, ils promouvent, [promouvent]	je promouvais, tu promouvais, il promouvait, nous promouvions, vous promouviez, ils promouvaient, [promouvaient]	je promouv, tu promouv, il promouv, nous promouvîmes, vous promouvîtes, ils promouvirent, [promouvirent]	je promouvrai, tu promouvras, il promouvra, nous promouvrons, vous promouvrez, ils promouvront, [promouvront]	je promouvrais, tu promouvrais, il promouvrait, nous promouvions, vous promouviez, ils promouvraient, [promouvraient]	promouv, [vois]	je promouve, tu promouv, il promouve, nous promouvions, vous promouviez, ils promouvent, [promouvent]	je promouvise, tu promouvisses, il promouv, nous promouvîmes, vous promouvîtes, ils promouvirent, [promouvirent]
PROSCRIRE, 4. to proscribe, proscrire, f. e.	proscrivant, proscribed, f. e.	je proscriis, tu proscribes, il proscriit, nous proscrivîmes, vous proscrivîtes, ils proscrivirent, [proscrivirent]	je proscrivais, tu proscrivais, il proscrivait, nous proscrivions, vous proscriviez, ils proscrivaient, [proscrivaient]	je proscriis, tu proscriis, il proscriit, nous proscrivîmes, vous proscrivîtes, ils proscrivirent, [proscrivirent]	je proscriirai, tu proscriiras, il proscriira, nous proscriirons, vous proscriirez, ils proscriiront, [proscriiront]	je proscriis, tu proscriis, il proscriit, nous proscrivîmes, vous proscrivîtes, ils proscrivirent, [proscrivirent]	proscriis, [vois]	je proscrive, tu proscribes, il proscrive, nous proscrivîmes, vous proscrivîtes, ils proscrivirent, [proscrivirent]	je proscrivisse, tu proscrivisses, il proscriit, nous proscrivîmes, vous proscrivîtes, ils proscrivirent, [proscrivirent]
PROVENIR, 2. to proceed, provenir, f. e.	provenant, f. e.	je provenis, tu provenis, il provenit, nous provenîmes, vous provenîtes, ils provenirent, [provenirent]	je provenais, tu provenais, il provenait, nous provenions, vous proveniez, ils provenaient, [provenaient]	je provenis, tu provenis, il provenit, nous provenîmes, vous provenîtes, ils provenirent, [provenirent]	je provenirai, tu proveniras, il provenira, nous provenirons, vous provenirez, ils proveniront, [proveniront]	je provenis, tu provenis, il provenit, nous provenîmes, vous provenîtes, ils provenirent, [provenirent]	provenis, [vois]	je provenis, tu provenis, il provenit, nous provenîmes, vous provenîtes, ils provenirent, [provenirent]	je provenisse, tu provenisses, il provenit, nous provenîmes, vous provenîtes, ils provenirent, [provenirent]
QUÉRIR, 4. to fetch, rabattre, f. e.	rabattant, rabattu, f. e.	je rabats, tu rabats, il rabat, nous rabattons, vous rabattez, ils rabattent, [rabattent]	je rabattais, tu rabattais, il rabattait, nous rabattions, vous rabattez, ils rabattaient, [rabattaient]	je rabattis, tu rabattis, il rabattit, nous rabattîmes, vous rabattîtes, ils rabattirent, [rabattirent]	je rabattrai, tu rabattras, il rabattra, nous rabattrons, vous rabattrez, ils rabattront, [rabattront]	je rabattrais, tu rabattrais, il rabattrait, nous rabattrions, vous rabattiez, ils rabattraient, [rabattraient]	rabats, [vois]	je rabatte, tu rabattes, il rabatte, nous rabattions, vous rabattez, ils rabattent, [rabattent]	je rabattisse, tu rabattisses, il rabattit, nous rabattîmes, vous rabattîtes, ils rabattirent, [rabattirent]
RACHETER, 1. to buy again, racheter, f. e.	rachetant, racheté, f. e.	je rachète, tu rachètes, il rachète, nous rachetons, vous rachetez, ils rachètent, [rachètent]	je rachetais, tu rachetais, il rachetait, nous rachetions, vous rachetez, ils rachettaient, [rachettaient]	je rachetai, tu rachetas, il racheta, nous rachetâmes, vous rachetâtes, ils rachetèrent, [rachetèrent]	je rachèterai, tu rachèteras, il rachètera, nous rachèterons, vous rachèterez, ils rachèteront, [rachèteront]	je rachèterais, tu rachèterais, il rachèterait, nous rachèterions, vous rachèteriez, ils rachèteraient, [rachèteraient]	rachète, [vois]	je rachète, tu rachètes, il rachète, nous rachetions, vous rachetez, ils rachètent, [rachètent]	je rachetasse, tu rachetasses, il racheta, nous rachetâmes, vous rachetâtes, ils rachetèrent, [rachetèrent]
RAPPELER, 1. to recall, rappeler, f. e.	rappelant, rappelé, f. e.	je rappelle, tu rappelles, il rappelle, nous rappelons, vous rappelez, ils rappellent, [rappellent]	je rappelais, tu rappelais, il rappelait, nous rappelions, vous rappelez, ils rappelaient, [rappelaient]	je rappela, tu rappelas, il rappela, nous rappelâmes, vous rappelâtes, ils rappelèrent, [rappelaient]	je rappellerai, tu rappelleras, il rappellera, nous rappellerons, vous rappellerez, ils rappelleront, [rappelleront]	je rappellerais, tu rappellerais, il rappellerait, nous rappellerions, vous rappelleriez, ils rappelleraient, [rappelleraient]	rappelle, [vois]	je rappelle, tu rappelles, il rappelle, nous rappelions, vous rappelez, ils rappellent, [rappellent]	je rappellasse, tu rappellasses, il rappela, nous rappelâmes, vous rappelâtes, ils rappelèrent, [rappelaient]
RAPPRENDRE, 4. to learn again, apprendre, f. e.	rapprenant, appris, f. e.	je rapprais, tu rapprais, il rapprait, nous rapprîmes, vous rapprîtes, ils rapprirent, [rapprirent]	je rapprais, tu rapprais, il rapprait, nous rapprîmes, vous rapprîtes, ils rapprirent, [rapprirent]	je rapprais, tu rapprais, il rapprait, nous rapprîmes, vous rapprîtes, ils rapprirent, [rapprirent]	je rapprirai, tu rappriras, il rapprira, nous rapprirons, vous rapprirez, ils rappriront, [rappriront]	je rapprirais, tu rapprirais, il rapprirait, nous rappririons, vous rappririez, ils rappriraient, [rappriraient]	rapprais, [vois]	je rapprais, tu rapprais, il rapprait, nous rapprîmes, vous rapprîtes, ils rapprirent, [rapprirent]	je rapprisse, tu rapprisses, il rapprait, nous rapprîmes, vous rapprîtes, ils rapprirent, [rapprirent]

List of Irregular Verbs, &c., continued.

Infinitive.	Participles.	Indicative.	Imperfect.	Past Absolute.	Future.	Conditional.	Imperative.	Subjunctive.	Imperfect.
RATTEINDRE, 4. to reach again.	ratteignant, f. e.	je ratteins	je ratteignais	je ratteignis	je ratteindrai	je ratteindrais	atteins	je ratteigne	je ratteignisse
REBATTRE, 4. to beat again.	rebattant, f. e.	je rebats	je rebatais	je rebattis	je rebattrai	je rebattrais	rebats	je rebatte	je rebattisse
RECONDUIRE, 4. to conduct again.	reconduisant, f. e.	je reconduis	je reconduisais	je reconduisis	je reconduirai	je reconduirais	reconduis	je reconduise	je reconduisse
RECONNAÎTRE, 4. to recognize.	reconnaissant, f. e.	je reconnais	je reconnaissais	je reconnus	je reconnaitrai	je reconnaitrais	reconnais	je reconnaisse	je reconnusse
RECONQUÉRIR, 2. to conquer again.	reconquérant, f. e.	je reconquiers	je reconquiersais	je reconquis	je reconquerrai	je reconquerrais	reconquiers	je reconquière	je reconquiesse
RECONSTRUIRE, 4. to reconstruct.	reconstruisant, f. e.	je reconstruis	je reconstruisais	je reconstruis	je reconstruirai	je reconstruirais	reconstruis	je reconstruise	je reconstruisse
RECOURIR, 4. to recur again.	recourant, f. e.	je recours	je recourais	je recourus	je recourrai	je recourrais	recours	je recoure	je recourusse
RECOURIR, 2. to have recourse.	recourant, f. e.	je recours	je recourais	je recourus	je recourrai	je recourrais	recours	je recoure	je recourusse
RECOURIR, 2. to cover again.	recouvrant, f. e.	je recouvre	je recouvrais	je recouvris	je recouvrirai	je recouvrirais	recouvre	je recouvre	je recouvrisse
RECUEILLIR, 2. to reap.	recueillant, f. e.	je recueille	je recueillais	je recueillis	je recueillerai	je recueillerais	recueille	je recueille	je recueillisse
REDIRE, 4. to say again.	redisant, f. e.	je redis	je redissais	je redis	je redirai	je redirais	redis	je redise	je redisse
RÉDUIRE, 4. to reduce.	réduisant, f. e.	je réduis	je réduisais	je réduisis	je réduirai	je réduirais	réduis	je réduise	je réduisse
REFAIRE, 4. to make again.	refaisant, f. e.	je refais	je refaisais	je refais	je referai	je referais	refais	je refasse	je refisse
REJOINDRE, 4. to rejoin.	rejoignant, f. e.	je rejoins	je rejoignais	je rejoignis	je rejoindrai	je rejoindrais	rejoins	je rejoigne	je rejoignisse
RELIRE, 4. to read again.	relisant, f. e.	je relis	je relisais	je relus	je relirai	je relirais	relis	je relise	je relusse
RELUIRE, 4. to shine.	reluisant, f. e.	je reluis	je reluisais	je reluis	je reluirai	je reluirais	reluis	je reluise	je reluissse
REMETTRE, 4. to remit.	remettant, f. e.	je mets	je mettais	je remis	je remettrai	je remettrais	remets	je remette	je remette
REMOUDRE, 4. to grind again.	remoulant, f. e.	je remoule	je remoulais	je remoulus	je remoudrai	je remoudrais	remoule	je remoule	je remoulusse
RENAÎTRE, 4. to revive.	renaisant, f. e.	je renais	je renaisais	je renais	je renaitrai	je renaitrais	renais	je renaisse	je renaisse
RENDORMIR, 2. to lull to sleep.	rendormant, f. e.	je rendors	je rendormais	je rendormis	je rendormirai	je rendormirais	rendors	je rendorme	je rendormisse
RENTRAIRE, 4. to draw.	rentrant, f. e.	je rentre	je rentrais	je rentrai	je rentrerai	je rentrerais	rentre	je rentre	je rentrasse
RENOYER, 1. to send back.	renvoyant, f. e.	je renvoie	je renvoyais	je renvoyai	je renverrai	je renverrais	renvoie	je renvoie	je renvoyasse
REPAÎTRE, 4. to feed.	repaisant, f. e.	je repais	je repaisais	je repais	je repaîtrai	je repaîtrais	repais	je repaie	je repaie
REPARTIR, 2. to set off again.	repartin, f. e.	je repars	je repartais	je repartis	je repartirai	je repartirais	repars	je reparte	je repartisse
REPEINDRE, 4. to paint again.	repeignant, f. e.	je repeins	je repeignais	je repeignis	je repeindrai	je repeindrais	repeins	je repeigne	je repeignisse

FABLES.

LE PALAIS DE LA RENOMMÉE.

Aux extrémités du monde, sous le pôle, dont [S. 30. 8.] l'impérieux Book mesura la circonférence à travers les vents et les tempêtes; au milieu de terres australes qu'une barrière de glace déroba à la curiosité des hommes, s'éleva [S. 49. (6.)] une montagne qui surpassa en hauteur les sommets les plus élevés des Andes dans le Nouveau-Monde, ou du Thibet dans l'antique Asie.

Sur cette montagne est bâti un palais, ouvrage des puissances infernales. Ce palais a mille portiques d'airain; les inondés bruits viennent [S. 2. 1.] frapper les dômes de cet édifice, dont le silence n'a jamais franchi le seuil.

Au centre du monument est une voûte tournée en spirale comme une conque, et faite de sorte que tous les sons qui pénètrent dans le palais, y aboutissent; mais, par un effet du génie de l'architecte des mensonges, la plupart de ces sons se trouvent [S. 35. 2.] fausement reproduits; souvent une légère rumeur s'élève et gronde en entrant par la voie préparée aux échos du tonnerre, tandis que les

roulements de la foudre expirent en passant par les routes sinueuses [S. 11. 5.] destinées aux faibles bruits.

C'est là que, l'oreille placée à l'ouverture de cet immense écho, est assis sur un trône retentissant, un démon, la renommée. Cette puissante fille de Satan et de l'orgueil, naquit [S. 4. 1.] autrefois pour annoncer le mal. Avant le jour où Lucifer leva l'étendard contre le Tout-Puissant, la renommée était inconnue. Si un monde venait à s'apaiser ou à s'éteindre; si l'Eternel avait tiré un univers du néant, ou replongé un de ses ouvrages dans le chaos; s'il avait jeté un soleil dans l'espace, créé un nouvel ordre de séraphins, essayé [S. 49. 2.] la bonté d'une lumière, toutes ces choses étaient aussitôt connues [S. 41. 6.] dans le ciel par un sentiment intime d'admiration et d'amour, par le chant mystérieux de la céleste Jérusalem. Mais, après la rébellion des mauvais anges, la renommée usurpa la place de cette intention divine. Bientôt, précipitée [S. 66. (3.)] aux enfers, ce [S. 80. 1.] fut elle qui publia dans l'abîme la naissance de notre globe, et qui porta l'ennemi de Dieu à tenter la chute de l'homme. Elle vint sur la terre avec la mort, et dès ce moment elle établit sa demeure sur la montagne, où elle entend et répète confusément ce qui se passe sur la terre, aux enfers, et dans les cieux. — Chateaubriand.

BIOGRAPHY.—No. XI.

MEMOIR OF JOHN KAY, OF ROYTON, NEAR OLDHAM.

A LANCASHIRE MATHEMATICIAN.

By T. T. WILKINSON, F.R.A.S., and Corresponding Member of the Manchester Literary and Philosophical Society.

JOHN KAY, the son of Thomas and Sarah Kay, was born at Elly Clough, near Royton, in Lancashire, on the 16th of July, 1781. When very young he was sent to a day-school in the neighbourhood, but before he had made much progress in his education, he was removed from school, in order to commence hand-loom weaving, which was then not only his father's occupation, but the principal employment in the county. During his leisure hours, however, he continued to increase his stock of information, and by the time he was eighteen years of age he was sufficiently qualified to take part in "the unusual powers of" he frequently distinguished himself by his "unusual powers of" oratory. About this time he became acquainted with the late John Butterworth, the well-known geometer, who soon perceived the inclination and ability of Mr. Kay for mathematical studies, and therefore lost no opportunity of recommending them more particularly to his attention. Under Mr. Butterworth's guidance and assistance, the elementary portions of the mathematics were soon disposed of, nor was it long ere the subtilties of the ancient geometry began to attract the attention of his promising pupil. Influenced by the example of his immediate neighbours, Wolfenden, Hilton, and Fletcher, and no doubt biased by the predilections of his talented instructor, Mr. Kay's ever favourite study was geometry and its applications. Indeed, he may be said to have devoted almost the whole of his time to these studies alone; for although the subject of mechanics had also its attractions for him, yet most of his investigations in this and other departments of mathematics, have a decidedly geometrical tendency. His first mathematical correspondence appears in the *Gentleman's Diary* for 1808, and exhibits no ordinary degree of elegance and ability. In 1810 he gained the second prize awarded annually by the learned editor and the proprietors of that valuable periodical, and up to 1816 he continued to enrich its pages with many curious and elegant geometrical and mechanical questions and solutions. Mr. Kay's editorial services in the concluding numbers of the *Enquirer*, and in the early portion of the *Lancashire Correspondent* his name is also of frequent occurrence. The *Gentleman's Mathematical Companion* was his favourite publication, and though active business prevented him from contributing so largely as some other correspondents, yet his communications extend, with the exception of a few intervals, from the year 1808 to almost the close of the work. His most profound investigations relate to the subject of Porisms—a branch of the ancient geometry to which he had paid particular attention:—hence on the appearance of the prize question in the *Companion* for 1822, he produced a solution which gained him the first prize, notwithstanding that Gompertz, Simson, Butterworth, and Epsilon were his competitors.

His contributions to the next number are remarkably elegant, and the solutions to questions 638, 604, and the prize, merit the highest commendation. He proposed the prize questions in the *Companion* for 1824 and 1825, the former of which relates to his favourite subject of Porisms, and exhibits the complete command he had obtained of the ancient modes of investigation. This class of propositions has been singularly unfortunate. Confessedly abstruse—few have been found sufficiently qualified to grapple with its difficulties, and fewer still who have been willing to "contribute their mite to the common stock." It required the persevering energy of Simson to clothe the "dry bones" in the "Collections of Pappus" the profound researches of Playfair were needed to inspire them with life—and though the labours of Wallace, Noble, Brougham, Galloway, and Davies have done much towards marshalling this "great array," much more appears to be necessary before a successful attempt can be made to carry this strong hold of the ancient geometry. Simson, in his day, regretted that the study of geometry was so little cultivated as not to justify the publication of many of his works. His most valuable researches would have remained a "dead letter," had not the munificence of Earl Stanhope, in some measure, rescued them from oblivion. Lawson attempted an English translation of the "Treatise on Porisms" but the sale would not warrant

the publication of more than sixteen propositions. Professor Playfair promised a continuation of his valuable paper on Porisms in the *Edinburgh Transactions*, and even read a portion of his further researches before the Royal Society of Edinburgh; but no traces of his manuscript are now known to exist; and though the *Repository* and the *Mathematician* have aided the efforts of later geometers, yet even at the present time the publication of a "Translation of Simson's Porisms, with notes and illustrations," by Messrs. Potter and Davies, has been postponed *sine die*, for want of proper encouragement. Mr. Kay, often lamented the neglect of this branch of geometrical research, and the publication of a work on the subject. His predilection for pure geometry sometimes overrate its powers, especially when applied to mechanics. A curious instance of this may be seen in the solutions to question 399 of the *Companion*, which not appearing satisfactory, led to the solution and remarks on pp. 843—5, *Companion* for 1819, and to a rejoinder from Mr. Gompertz in pp. 923—4 in the *Companion* for 1820. In 1824, Mr. Kay re-proposed the "Flood-gate question," at the request of his friend Mr. Wolfenden, and an able solution appeared in the following number, which confirmed the latter gentleman's result by a different process. (See *Mech. Mag.* p. 466. vol. xlviii.)

At twenty years of age, Mr. Kay was elected constable of the township of Royton; an office which he filled for many years with great satisfaction to the authorities. He subsequently became a manufacturer of cotton cloth, and at the time of his decease had been the overseer of the poor of Royton for several years. He died, sincerely regretted by all who had the pleasure of his acquaintance, on the 31st of December, 1824, in the 43rd year of his age. His remains were interred in Royton church-yard, and the place where he rests is marked by a plain stone, bearing the following inscription:—

"In mathematics soared his noble mind,
Peace robed his soul—he felt for all mankind;
He loved true virtue, but disliked vain pride;
Truth was his aim, and reason was his guide."

Burnley, May 31, 1853.

THE SABBATH MORN.

Hail! to this day, the day of days,
For now we rest from toil;
Hail! to this morning, clear and bright,
With sunshine free from foil.

Arise! ye labourers, arise,
Your households now prepare;
Now, lift your voices to the skies,
In morning songs and pray'r.

*Ye! who in crowded cities dwell,
Far from the trees and flowers;
Awake! the chorus help to swell,
This day, at least, is ours.

In nature's hall, ye may not roam;
By brooks, or valleys green;
But ye, in temples nearer home
May worshippers be seen.

Ah! do not waste this glorious day;
A sacred song at morn,
The soul brings into healthful play,
And soothes the heart forlorn.

Hope then will whisper in the breast
Of happier days in store,
When we shall keep the eternal rest,
And toils be felt no more.

For when our thoughts ascend to Him,
Who reigns above the skies;
No sad foreboding thoughts can dim
The joy of heavenly ties.

To God we all our duty owe,
Let that be nobly paid;
From Him all earthly blessings flow;
For us this day was made.

(G. W. amended.)

That our numerous readers may be fully aware of the works that we have published, and are preparing to publish, to assist them in their study of the various languages, lessons in which have appeared in the **POPULAR EDUCATOR**, we insert the following classified list:—

PENNSYLVANIAN: seems, like many others, to attach more importance to the pronunciation of the Latin language, than it is *really worth*. The Latin language is a *dead language*, that is, there is no living soul on earth who can speak it as it used to be spoken. What is the use then of worrying Dr. Beard, or the Editor of the P. E., or any one else, about that which can never be attained? In England, the pronunciation of the Latin is assimilated to the pronunciation of the English; in Scotland, to the pronunciation of the Scotch; and on the continent, to the pronunciation of the continental languages; these all differ in some degree from each other; but the Scotch pronunciation and the continental pronunciation of the Latin are most alike; still what of that? Nobody knows the real pronunciation; and therefore every nation should pronounce the Latin like its own language. See the P. E., vol. I., p. 22, col. 1, last paragraph.

list:—

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Printed and published by JOHN CASSELL, 1 a Belle Sauvage-yard, Ludgate
hill, London.—July 15. 1838.

Alfred sleeps.

Instead of *sleeps* let us use the verb *love*:

Alfred Jones.

The act of *loving* does not end though it begins with *Alfred*. He who *loves*, loves some person or some thing. Add, then, *Thomas* to the sentence, as being necessary to complete it: *Alfred loves Thomas*. Here the action of the verb passes from *Alfred* to *Thomas*. A noun so circumstanced as is *Thomas*, grammarians have agreed to call an *object*. *Thomas*, then, is the object to the verb *loves*. Accordingly here the action of the verb passes from the *subject* to the *object*. Verbs of which the action passes from the subject to the object are termed *transitive*. We have therefore ascertained two kinds of verbs.

INTRANSITIVE: Alfred *sleeps*.
TRANSITIVE: Alfred *loves* Thomas.

The form of the second sentence may be changed without any change in the sense; e. g., *Thomas is loved by Alfred*; the object has become the *subject*, the verb is altered, the sense remains essentially the same. In order to signify the change thus effected in the verb, grammarians use the term *voice*, and the verb in this last case is said to be in the *passive voice*; the form from which this passive voice was produced, is called the *active voice*. Here they are put together.

Transitive	{	ACTIVE VOICE:	Alfred loves Thomas.
Verb		PASSIVE VOICE:	Thomas is loved by Alfred.

Observe, that in the passive voice what was the object has become the subject. But there is no *object* in the intransitive example: *Alfred sleeps*. Consequently, the change cannot take place. It is only *transitive* verb that can become *passive*. In strictness of speech, *intransitive* verbs can hardly be said to be of the active voice, for the active implies the passive as its counterpart, and if verb is incapable of being passive, it should not be spoken of as *active*, but simply as *intransitive*. *Intransitive* verbs, however, sometimes appear constructed in the passive voice as if they were *transitive*. The passive voice is in English a compound form made up of parts of the verb to be and the *'past participle'*. Take, as an instance of the error I refer to, the following :

Their memorial is enriched with them.--l's, ix. c.

* To *perish* is an intransitive verb. As such it cannot appear in the passive voice. Consequently *is perished* is not good English. Instead of *is perished* it should have been *has perished*.

With these preliminary explanations, let us consider what leading changes a verb in English may undergo. Instead of saying *Alfred sleeps*, we may say *Alfred is sleeping*. Here we have a change in the person

the subject, the first person, I, has taken the place of the third person, Alfred. And observe the change in the subject has brought a change in the verb, the s of the third person being dropped. Again, instead of saying Alfred sleeps, we may say thou sleepest. Again, these words changes to meet a change in the subject. We seem, then, warranted in declaring that the verb is inflected in person; that is, that the verb undergoes changes corresponding with changes in the person.

Is the verb inflected in gender? No, for we equally say *Alfred sleeps*, and *Mary sleeps*; also the *men* sleep and the *women* sleep.
 • Is the verb inflected in number? Yes; for while we say *Alfred sleeps*, we say of more than one (for instance, Thomas and Alfred), that *they sleep*.

Our verbs, then, are inflected in *person* and in *number*. An affirmation, however, has reference not only to the *subject*, but also to that which is affirmed. Now that which is affirmed, as in *Alfred sleeps*, has reference to *time*; of *time* there are three great divisions—*time present*, *time past*, *time future*. *Alfred sleeps* is obviously *time present*. Can the verb *sleeps* change so as in itself to indicate *past time*? Yes, for we can say *Alfred slept*. The English verb then is inflected in *time*, or *tense*, which is the grammatical term for *time*.

But *Alfred sleeps* is a simple statement. Can the verb *sleep* be made to change so as to indicate a corresponding change in the manner of the declaration? *Sleep* is not susceptible of such a change. Consequently the English verb is not inflected in mood any more than in gender. In other words, strictly speaking, we have in English but one mood, the *indicative*, that is, the *mood* or *manner* which simply declares or affirms, as *Alfred sleeps*; *Alfred slept*.

There is, however, another form which the word *sleeps* passes into, namely *sleeping*. *Sleeping* is called a *present participle*.

We may now, then, proceed to draw out a tabular view of the verbs *to sleep*. In doing so, we must employ no form twice, otherwise we depart from the law of inflexion, which requires that there shall be change of form for every change of tense.

The intransitive verb to sleep:

Singular.		Plural.	
Person.		Person.	
1.	I —	1.	We —
2.	Thou sleepest.	2.	You —
3.	He sleeps	3.	They —

PAST TENSE.

1.	I slept	1.	We —
2.	Thou sleepest	2.	You —
3.	He —	3.	They —

PRESENT PARTICIPLE.—*Sleeping.*

By inflection, then, the English verb is reduced to six forms, the infinitive to *sleep*, the second and the third persons of the present tense, namely *sleepest* and *sleeps*; and the first person singular of the second person of the first tense, that is, *I sleep*, *thou sleepest*, together with the participle *sleeping*. *Sleep* is an intransitive verb. Take instead, the transitive verb *love*, the number of independent parts remains the same. Or if you take such a verb as *sing*, where there are two forms connected with *past time*, namely *sang* and *sung*, we have only one additional form, making in all seven.

Hence it appears that the English verb is not only simple but defective in inflections.ⁿ According to the law of inflection we cannot even fill up the persons of the *present tense*.

If inflection thus breaks down as our guide, let us consult usage. What does usage in regard to the blanks in our tabular view? Usage fills up those blanks; thus:—

PAST

PRESENT.		PRESENT.	
<i>Persons singular.</i>	<i>Persons plural.</i>	<i>Persons singular.</i>	<i>Persons plural.</i>
1. I sleep	1. We sleep	1. I slept	1. We slept
2. Thou sleepest	2. You sleep	2. Thou sleepest	2. You slept
3. He sleeps	3. They sleep	3. He slept	3. They slept

Now observe what it is that usage does here; look at the present and you will see that it repeats the root of the verb, that is, it repeats *sleep*. *Sleep*, then in the first person singular and in these three persons of the plural, is a mere repetition of the infinitive *sleep*. These repetitions, however, are made distinctive and they

are made distinctive by the pronouns *I, we, you, they*; there is, therefore, no fear of the *third person plural* being confounded with the *first person singular*, because *sleep* has before it in the latter case *I*, as *I sleep*; and in the former, it has before it *they*, as *they sleep*. The same principle of repetition is observed in the *past tense*, where *sleep* is repeated; and the same principle of distinction is pursued by means of the personal pronoun. Instead of inflection, then, the English verb is formed by repetition and pronominal distinction. The difference of the two plans may be made more apparent if I put by the side of the English, the corresponding Latin:—

LATIN.	ENGLISH.
Inflectional Distinction.	Pronominal Distinction.
Persons. Singular.	Persons. Singular.
1. Dorm-to	1. I sleep
2. Dorm-is	2. Thou sleepest
3. Dorm-it	3. He sleeps
Persons. Plural.	Persons. Plural.
1. Dorm-imus	1. We sleep
2. Dorm-itis	2. You sleep
3. Dorm-unt	3. They sleep.

The Latin, you see, has no personal pronouns, for the persons are denoted by the endings or inflections of the verb; thus, *to* denotes the first person singular; *unt*, the third person plural; &c. Whereas, in English, the distinction of persons is marked by the pronouns *I, thou, he, &c.* Hence the latter method of forming a verb may be called the *pronominal*, and the former may be called *inflectional*. Yet is the English not wholly without inflections, as appears from the second and third person singular, in which the root *sleep* is changed into *sleepest* and *sleeps*. These inflections are, however, but little necessary, for the second person is sufficiently marked by *thou*, and the third person by *he*. Of these two inflections indeed the former is rarely used, and the latter might be spared. There would thus seem to be a decrease of inflectional usage in the English tongue. Such a decrease has been going on from the time when the English left its Anglo-Saxon parent. Nor is the change to be regretted, for thereby the language gains in simplicity and adaptation. That the English once possessed inflection in a more decided manner is clear from:—

THE PRESENT TENSE OF THE VERB, TO BE.

persons.	Singular.	persons.	Plural.
1.	I am,	1.	We are,
2.	Thou art,	2.	You are,
3.	He is,	3.	They are.

Here, including the infinitive *to be*, we have five separate forms for three which occur in the verb *to sleep*.

Usage, then, has led us to the acknowledgment of distinctive forms for the three persons of the present and the past. But having a complete present and a complete past tense, we are without a future. Is the English language without a future tense? By tense in grammar is meant a specific form corresponding to a specific meaning in relation to time. Thus, in Latin, *amo* is *I love*, but if I want to say *I will love*, I change *amo* into *amabo*. Does any such change take place in English? Unquestionably not; the term *love* of the present, remains *love* in the future. The English language, then, has no future tense. Nevertheless, the English people can express a future act, and this they do by the employment of a second verb, namely the verb *will* and the verb *shall*, as *I shall love*, *I will love*.

By means of other verbs, commonly called *auxiliaries*, we are able to express other varieties of meaning. These varieties, however, are so numerous, and in part so indeterminate and unfixed, as to defy the systematic arrangements of tense and mood. Here the very genius of the language seems to require that freedom from forms which is a marked feature in the character of those who employ it. The simple truth is, that the forms of the English verb are reducible to three, namely *sleep, sleeping, slept*. Of these three the first is either a noun verbally used, that is converted into a verb by the pronouns *I, we, &c.*; or, in what is called the *infinitive mood*, or, in its abstract form, it is very like a noun. We have then the noun *sleep*, used abstractedly as an *infinitive*, and used also affirmatively as a verb with the aid of the personal pronouns. This form *sleep* passes into *sleeping*, which is called a *present participle*, and which too is often used as a noun. The only part which has and retains an exclusive verbal force is the past form *slept*.

Whatever be the nature of these three parts, certain is it that of only three parts does the English verb ultimately consist. Equally certain is it that, modify those parts as you may, you cannot do more than double them, and the additional parts gained by inflection serve only to mark the persons. *Sleep, sleeping, slept*—there is the English verb. Etymologically you find in it only two tenses, one mood, and one voice—no future, no subjunctive, no passive. Logically other forms are possible. By combination you may make a passive voice, but by combination you may make also sentences, paragraphs, chapters, a volume. In so simple a grammar, combinations may be sparingly employed, otherwise you depart from its spirit instead of being guided by the facts of the language. If, then, you invent a subjunctive mood, why not invent a potential mood? And if you invent a potential mood, why not invent a potential mood? The ideas involved in classical moods and tenses can be expressed in English; but in grammar, we seek for set forms, not possibilities of expression. And if you make use of *may* to form a potential mood, why not make use of *let* to form a permissive mood, and *must* to form a compulsory mood? And even if you so far gave reins to invention, you would find that instead of exhausting the subject by analysis, you had only brought on yourself difficulties which analysis could not solve nor classification arrange; for might the past form of *may* differ from *may* in signification, and *should* does not in meaning analogically follow *shall*. Indeed any attempt to compass the almost unlimited powers of the English verb within the narrow and stereotyped limits of a system of moods and tenses, is as futile as it is unwise. The Samson must not be bound; the man must not be wrapt in swaddling clothes.

EXERCISES IN PARSING.

Distinguish which are nouns, which adjectives, and which verbs in the following Exercises.

An absent man often hears not when he is addressed. Do you intend to absent yourself from school to-day? Abstract nouns are nouns from which all necessary qualities are supposed to be abstracted or taken away. If you would pronounce correctly, you must place the accent on the right syllable. Those men accent their words very badly. An affix is a particle added to a word as *ful* in doubtful. They affixed a placard on the church-doors. By accent you may cement objects together. A collect is a part of the church service. The churchwardens will collect the free will offerings of the congregation.

In a similar way construct sentences out of the following words, which vary in their meaning according to the place of the accent.

Noun or adjective.	Verb.	Noun or adjective.	Verb.
Co'mpact	compact	Co'nvict	convict
Co'mpound	compound	Co'nvey	convey
Co'ncert	concert	Co'sert	desert
Co'nduct	conduct	Co'scount	discount
Co'nline	confine	Co'scant	descant
Co'nflict	conflict	Co'st	digest
Co'nvert	convert	Co'sort	essort
		Co'st	essay
		Co'stract	export
		Co'ntrast	extract
		Co'vert	conveit
			extile

Le malheur ne sortira jamais de la maison de celui qui rend le mal pour le bien.—*Salomon*.

L'ingratitude est un crime; mais celui qui n'oblige pas, crainte de l'ingratitude, ne veut donc placer ses bienfaits qu'à intérêt: il est peu généreux. Cette crainte même, poussée à l'excès, est inhumaine. L'homme vraiment généreux oblige sans songer à la reconnaissance: ce sont les affaires de l'obligé.—*Fénelon*.

Les peuples les plus sages de l'antiquité, les Perses, les Lacédémoniens, les Athéniens, recevaient en justice l'action contre les ingrats.—*La Bruyère*.

Le trop grand empressement qu'on a de s'acquitter d'une obligation est une espèce d'ingratitude.—*La Rochefoucauld*.

L'ingratitude ne décourage pas la bienfaisance; mais elle sert de prétexte à l'égoïsme.—*Levi*.

Il est d'une grande âme de repousser les injures par des bienfaits.—*Confucius*.

Les injures sont les raisons de ceux qui ont tort.—*J. J. Rousseau*.

* A mood, in Greek grammar, expressive of...

LESSONS IN GERMAN.—No. LVIII.

§ 54. PRONOUNS.

In German, as in other languages, will be found a number of those words, which, for the sake of convenience, are employed as the direct representatives of nouns. These are the pronouns. They are divided, according to the particular offices which they perform, into six different classes: viz., Personal, Possessive, Demonstrative, Determinative, Relative and Interrogative.

§ 55. TABLE OF THE PRONOUNS.

Personal Pronouns.	Possessive Pronouns.
Singular.	Plural.
Ich, I.	Wir, We.
Du, Thou.	Ihr, Ye.
Er, He.	Sie, They.
Sie, She.	Sie, They.
Es, It.	Sie, They.
Indefinite Pronouns.	Reflective and Reciprocal Pronouns.
Man, one; a certain one.	Sich, Himself, Himself, Itself, Themselves.
Jemand, some one; somebody.	Jedemander, one another.
Niemand, no one; nobody.	
Jedermann, every one; everybody.	
Demonstrative Pronouns.	Determinative Pronouns.
Dieser, This.	Der, That, That one, He.
Jener, That.	Derjenige, That, That person.
Der, This or That.	Dieser, The same.
	Einiger, The same.
	Einzelner, Such.
Relative Pronouns.	Interrogative Pronouns.
Welcher, Who, Which.	Wer, Who? Was? What?
Der, That.	Welcher, Who? Which?
Wer, Who, He or she, who or that.	Was für, What sort of?

§ 56. PERSONAL PRONOUNS.

There are five personal pronouns; namely, *ich* (*I*) which represents the speaker and is, therefore, of the first person; *tu* (*thou*) which represents the hearer or person spoken to and is therefore, of the second person; and *er, she* representing the person or thing spoken of, and, therefore, of the third person. They are declined thus:

Singular.	Plural.
First person, all genders.	
N. ich, I.	wir, we.
G. mich, me.	uns, of us.
D. mir, to me.	uns, to us.
A. mich, me.	uns, us.
Second person, all genders.	
N. du, thou.	ih, ye or you.
G. deiner, of thee.	euch, of you.
D. dir, to thee.	euch, to you.
A. dich, thee.	euch, you.
Third person, Masculine.	
N. er, he.	sie, they.
G. seiner, of him.	ihren, of them.
D. ihm, to him.	ihnen, to them.
A. ihn, him.	sie, them.
Third person, Feminine.	
N. sie, she.	sie, they.
G. ihrer, of her.	ihren, of them.
D. ihr, to her.	ihnen, to them.
A. sie, her.	sie, them.
Third person, Neuter.	
N. es, it.	sie, they.
G. seiner, of it.	ihren, of them.
D. ihm, to it.	ihnen, to them.
A. es, it.	sie, them.

§ 57. REMARKS OF THE PERSONAL PRONOUNS.

(1) The genitive, *mein, dein, sein*, are the earlier forms. The others (*meiner, deiner, seiner*) are the ones now commonly used.

(2) When construed with the prepositions *für, wegen, aus, um*—*wilfen*, (signifying *for the sake of, on account of*) these genitives are united with the preposition by the euphonic letters, *t*, or (in case of *unser* and *euer*) simply *e*. Thus: *wegen dir*, on account of me; *um unsern willen*, on account of us, &c.

(3) The personal pronouns of the third person, when they represent things without life, are seldom, if ever, used in the dative, and never in the genitive. In such instances, the corresponding case of the demonstrative *der, die, das*, is employed: thus, *essen*, (of this) instead of *seiner*; and *trinken*, (of these) instead of *ihren*.

(4) The word *sich* or *selber* (*self, selves*) may, also, for the greater clearness or emphasis, be added not only to the pronouns, but even to nouns. Thus: *Ich selbst*, I myself; *die Leute selbst*, the people themselves.

(5) Here, too, observe, that the personal pronouns have, also in the plural, a reciprocal force. Thus: *sie lieben sich*, they love one another. But as *sie* *lieben sich*, for example, might signify, they love themselves, the Germans, also, use the word *einander*, (one another) about which there can be no mistake: as, *sie lieben einander*. (§ 60.)

(6) In polite conversation, the Germans use the third person plural, where we use the second. Thus: *Sie haben Sie gesehen*, I have seen you. To prevent misconception, the pronouns thus used are written with a capital letter; as, *ich danke Ihnen*, I thank (them) you. A similar sacrifice of Grammar to (supposed) courtesy, may be found in our own language. For we constantly use the plural for the singular; thus: "How are you?" instead of "How art thou?" The Germans proceed just one step beyond this, and besides taking the plural for the singular, take the third person for the second. With them, our familiar salutation "How do you do?" would be, "How do they do?"

(7) It must be observed, however, that the second person singular, *Du*, is always, as in English, used in addressing the Supreme Being. It is, also, the proper mode of address among warm friends and near relatives. But it is, also, used in angry disputes, where little regard is paid to points of politeness. The second person plural is employed by superiors to their inferiors. The third person singular *er, sie*, is used in the same manner, that is, by masters to servants, &c.

(8) The neuter pronoun (*es*) of the third person singular, like the words *it* and *there* in English, is often employed, as a nominative, both before and after verbs, singular and plural, as a mere *expletive*; that is, more for the purpose of aiding the sound than the sense of the sentence. In this use, moreover, it is construed with words of all genders. Thus: *Es ist ein Mann*, it is the man; *Es ist ein Frau*, it is the woman; *Es sind Männer*, they are men; *Es donnert*, it thunders; *Es folgen viele*, they followed many, &c.

When *es* is thus used with a personal pronoun, the arrangement of the words is precisely the reverse of the English. Ex: *Ich bin es*, it is I. *Du bist es*, it is thou. *Sie sind es*, it is they, &c.

LESSONS IN GERMAN PRONUNCIATION.—No. V.

Die sieben Kindlein.

Der zehnen Kind'-line.

Am frühen Morgen, als die Dämmerung anfing, an frühen morg-en, als die däm-mer-ung auf-ging, erhob sich ein frommer Hausvater mit seinen Weibe err-hope sich ein from-mer heuse-vater mit sei-nem ei-bai von dem nächtlichen Lager, und sie kanten Gott für von dem nächt-lichen lah-ger, und sie kanten Gott für für den neuen Tag und die Stärkung des Schlummers. den neu-en tag und die stärke-ung des schlum-mers. dann wol-en sich die stärke-ung des schlum-mers.

Das Morgenroth aber strahlte in das Zimmer. dass morg-en-roth aber strahl-te in dass kam-mer.

heights large masses of rock, alpine plants, and platforms of earthy soil; and continuing this process for ages upon ages, they contribute to reduce the lofty mountain to a plain, and supply valleys with suitable soil for vegetation for the use of man.

There are four different kinds of avalanches,—the drifting, the sliding, and the glacial.

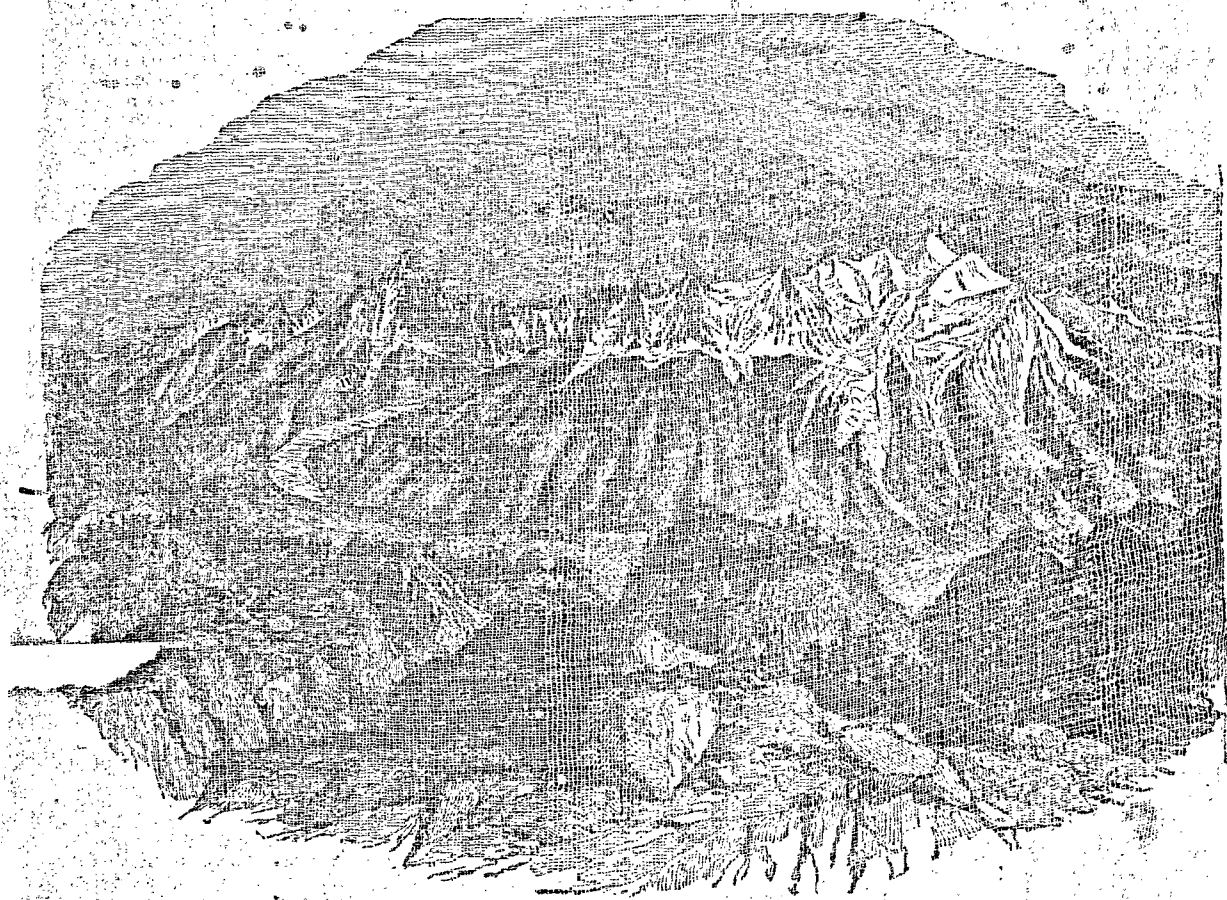
1. DRIFTING AVALANCHES.—Drifting avalanches consist of loose, fallen snow. They are formed when a heavy snow storm has fallen on the higher portions of the mountain in calm weather. This mass, before it has acquired consistency, is sometimes put in motion by a strong wind. Or when such an accumulation of snow is formed upon an inclined plane, and has acquired weight sufficient to reach it from the steep declivity on which it lay, it becomes dislodged and rushes downward.

down to the distance of ten miles from the point where they were first detached from the high snow bed, into the valley where they deposited their burden of ruin.

2. ROLLING AVALANCHES.—Rolling avalanches take place most frequently after a thaw. The snow, in this case, has become so clammy and adhesive that it unites in large hard pieces, and takes the form of a large compact ball. Such a huge ball of clammy snow, put in motion perhaps by its own weight, it begins slowly to descend the slant of the hill, and as it rolls downward, all the snow lying in its course sticks to it. As the mass increases in volume and weight, it increases in rapidity, dashes against trees, projecting rocks, and human dwellings, and mingles them all in one widespread heap of destruction.

In 1731 a village called Ruatas, in the valley of Tawelsch, among the Grisons, was visited with an avalanche which

Fig. 93.



The Snags and Glaciers of Mont Blanc.

When once the drifting avalanche has moved, the mass, accumulating as it descends, is driven from one slope to another, or from one slanting ravine to another below it, it rushes from point to point, bringing down with it an incredible volume of snow and fragments of rock to the lower valleys. They sometimes rush with the velocity of lightning. This velocity is such that by the compression of the air, which it produces, it overturns houses and splinters rocks. This blast of the avalanche resembles what is called "the wind" of a cannon ball. It rushes off on all sides with a force sufficient to shiver the largest forest trees, overturn houses, and fling down huge fragments of rocks.

Avalanches of the drift description have been known to fall

covered all its dwellings, and also removed them from their usual sites. This avalanche fell in the night, but, unlike the drifting avalanche, it descended so noiseless that the inhabitants in their beds were not aware of either its effects or its existence. Next morning, one hundred human beings were dug out in the ruins, sixty of whom were alive. In 1800, at Val Celerina, of the same cañon, an avalanche transported an entire forest from one side of the valley up the slope of the opposite hill, and planted a fir tree upon the roof of the minister's house.

These rolling avalanches are not so destructive as others, as their movements are generally more slow. Where they are common, the inhabitants know their localities and

courses, and by observing the weather, they can generally foretell their coming.

3. SLIDING AVALANCHES.—What are called sliding avalanches are formed on the lower declivities and the more gentle slopes of the mountains. Their fall generally takes place at the spring of the year, after the whole mass has been partially melted, and again frozen into a consistency somewhat compact. When a real spring thaw takes place, the layer of snow that lies next to the surface of the earth begins to dissolve and melt away. In this manner the bond of connection between the over-lying mass and the base which supported it, is removed. The whole superincumbent accumulation of snow then begins to move slowly down the inclined plane, which has now been made slippery by the thaw.

These avalanches are sometimes so nicely poised, that the muleteers and carriers of Switzerland are obliged to use the utmost caution against every movement that is calculated to disturb these imminent masses. When their roadside a small distance below these dangerous accumulations, they proceed as rapidly as they well can, but they carefully avoid every kind of noise—they even avoid speaking, and they muffle the bells on the necks of the mules, lest the slightest vibration should be given to the air in the neighbourhood of the threatening avalanche.

4. GLACIAL AVALANCHES.—The glacial avalanches are sometimes called ice avalanches, because they consist of nothing but pieces and fragments of ice which had previously constituted parts of a glacier, such as is represented in the stream of ice, a little to the left of the centre of our last engraving. The formation and the operations of these glaciers will be described in some future lessons.

The fragments of ice which constitute glacial avalanches have been detached from the parent glacier by the operations of summer heat. They are formed in deep ravines of great declivity. They move very slowly till they come to the ledge of a precipitous rock, which sometimes they overhang, as a terrific mass accumulating ice. As they are precipitated from one high valley into another, their fall sounds like thunder, and their force against projecting rocks shatters them to fragments.

The spectacle of their fall is magnificent. As they roll down a rugged declivity, their velocity breaks them frequently into an infinite number of small, white, and shining pieces. When seen from a distance, they resemble a cataract of a mountain rushing down the slope of a hill, not in water, but in foam.

Among the Alps, especially in the Grindelwald and among the glaciers of the Jungfrau (pronounced young-frau), they may be frequently seen; but the thunder which accompanies their fall in the high fastnesses is heard almost every day in summer.

The action of glacial avalanches has been illustrated in many disastrous instances.

One of the glaciers of the Alps is called the valley of the Vesp, in which stands the picturesque village of Randa. The village is situated at the base of a precipitous mountain mass, which rises almost perpendicularly near nine thousand feet high, and which forms part of the celebrated snow mountain called the Weisshorn. It is so high as to be completely encompassed by glaciers. In 1819, one of these glaciers had reached the high ledges of this mountain, and projected considerably over the brink of this tremendous precipice. In one instant, an enormous fragment of it broke off and rushed down to the Vespthal with terrific velocity. The masses of ice that fell, and the quantity of rocky fragments and debris that they brought down with them were sufficient to form a layer 100 feet deep, 4,000 feet in length, and 1000 feet in breadth; that is, about a mile long and nearly a quarter of a mile broad.

The avalanche, in its fall, did not touch the village of Randa; but the air was compressed to such a degree, that the blast rushed against the buildings of the village, blew some of the houses to fragments as if they had been of pasteboard. One gust struck against the eastern spire of the convent of Disentis, dislodged the upper part of it, and carried a portion of it to the distance of a quarter of a mile.

LESSONS IN GEOGRAPHY.—No. XXVII.

MAP OF SOUTH AMERICA.

South America has on the map the appearance of the vertical section of an irregularly shaped pear. The stalk end is broken off at the island of Terra del Fuego, where it meets the junction of the Atlantic and Pacific Oceans, on the south. It is bounded by the Caribbean sea, on the north; by the Gulf of Magellan, on the south; by the Pacific Ocean, on the west; and by the Atlantic Ocean, on the east. It is connected with the North American continent at the north-west point by the Isthmus of Panama, and includes the narrowest portion of that isthmus. The most northerly point of this continent is Point Gallinas, in New Granada, in lat. 12° 30' N. nearly and long. 71° 58' W. nearly; the most southerly point, including Terra del Fuego and the adjacent islands, is Cape Horn, in lat. 55° 59' S. and long. 67° 12' W.; the most westerly point is Parina Point, near the Lobos Islands, in lat. 4° 43' S. and long. 81° 11' W.; and the most easterly point is the entrance to the river Goyana, near Olinda, in lat. 7° 31' S. and long. 34° 47' W. The length of this continent from north to south is about 4,000 miles; and its greatest breadth about 3,300 miles. The surface of South America, including its adjacent islands south of the equator, is about 8 millions of square miles; and the population is about 16 millions; hence this continent contains about 2 inhabitants to every square mile.

The islands considered as belonging to South America are few and unimportant. The largest, viz. Terra del Fuego, is considered sterile and scarcely habitable. This island is divided by narrow straits, crowded with islets, into three parts; the eastern part, which is the largest, is called King Charles' Land; the middle, which is the smallest, Clarence island; and the western part, Desolation Land. Between the continent and this triple island lies the long, narrow, and winding strait, called by the name of Magellan (or Magalhães), the navigator who first sailed through it and discovered the passage to the Pacific Ocean. The southern coast of Terra del Fuego is broken into numerous islets. Such Land is an island of a larger size, lying off its eastern coast, and separated from it by the strait of Le Maire. On one of the smaller islands, called I'Hermite island, stands the celebrated Cape Horn, once deemed "infamous for tempests," but now reckoned more passable than the strait of Magellan. About 300 miles east of the entrance to this strait, lie the Falkland Islands, one of which is called the East Falkland, and the other the West, between which runs the Falkland channel; besides these this group consists of 200 smaller islands, the area of the whole being about 6,000 square miles. About 600 miles east of these islands, lies the South Georgian group, the largest of which is 30 miles long by 10 miles broad, a depot for the seal and whale fishery. The Galapagos Islands are situated on the equator, about 700 miles west of the state called Ecuador, which they belong. The Lobos Islands and the China Islands, celebrated for their guano, lie off the west coast of the state of Peru, to which they belong. The island of Juan Fernandez, on which Alexander Selkirk was shipwrecked, and whose narrative gave rise to the story of Robinson Crusoe, written by Daniel Defoe, lies off the west coast of the strait of Chile. The Patagonian Archipelago, including the islands of Chiloé, Chonos, Wellington, Madre de Dios, Hanover, Adelaide, &c. lies west of the country or region from which it receives its name. North-east of Cape St. Roque, the easternmost point of Brazil, lie the islands of Fernando Noronha and Rocas; and north of the entire continent lie the West Indies in the Caribbean sea, as described in a former lesson.

Of island seas in this continent there are none; and the Gulfs and Bays are small and unimportant. At the north-west corner, where it joins North America, are found on the Pacific side, the Bay of Panama and the Gulf of St. Miguel; on the Atlantic side and to the north of it, are the Gulf of Baylen, the Gulf of Venezuela, the Gulf of Triste, the Gulf of Paria, the mouth of the Orinoco, the mouth of the Amazon, and the mouth of the Maranhão. On the east of the continent are the bay of Todos Santos, the bay of Espirito Santo, the mouth of the River Plata, the gulf of San Mateo and the gulf of St. George. On the west, Lord Nelson strait, the gulf of Trinidad, the gulf of Pecos, the bay of Morena, the bay of Pisco, the gulf of Guayaquil, and the bay of Chono.

COUNTRIES, KINGDOMS, EMPIRES, AND STATES IN SOUTH AMERICA.

Countries.	Capitals.	Latitudes.	Longitudes.	Present Ruler.	Form of Government.
NEW GRANADA	Istmo	Panama 60° 58' N.	79° 17' W.	J. H. Lopez	Republican.
	Magdalena	Cartagena 10 36	75 37		
	Cauca	Popayan 4 26	76 40		
	Cundinamarca	San Fe, Bogota 4 36	74 14		
VENEZUELA	Boraca	Pamploa 7 26	72 53	J. G. Monagas	Republican.
	Zulia	Maracaybo 10 39	71 45		
	Venezuela	Caracas 10 39	77 1		
	Maturin	Camana 19 28	61 15		
ECUADOR	Orinoco	Angostura 7 59	68 45	General Acasabi	Republican.
	Quito	Quito 0 13 S	78 22		
	Asuay	Cuenca 2 55	78 13		
	Gayaquil	Gayaquil 2 12	78 40		
BRAZIL	Guiana	Villa Nevada 1 58	65 10	Pedro II.	Limited Monarchy.
	Solimoes	Pera 1 23	48 50		
	Para	Para 3 59	44 20		
	Maratham	Itapicuri 2 49	59 0		
	Pianhy	Oeyras 3 43	38 21		
	Seara	Natal 3 56	37 20		
	North Rio Grande	Natal 3 56	37 20		
	Parahyba	Parahyba 7 0	34 50		
	Pernambuco	Pernambuco 8 1	34 50		
	Goyas	Villa Boa 16 20	46 0		
	Matto Grosso	Villa Boa 14 55	59 58		
	Sergippe	Sergippe 11 0	38 30		
INDEPENDENT STATES	Bahia	St. Salvador 13 5	38 28	Joaquin Suarez	Republican.
	Ilheus	Ilheus 14 47	38 50		
	Espirito Santo	Espirito Santo 20 19	49 23		
	Seguro	S. Jose T. Alegre 19 20	39 40		
	Rio Janeiro	Rio Janeiro 22 54	43 16		
	Minas Geraes	Vila Rica 20 20	43 30		
	Sao Paulo	S. Paulo 23 50	46 20		
	South Rio Grande	Portalegre 30 0	47 0		
	St. Catherine	St. Catherine 27 13	47 0		
	Paraguay	Assuncion 25 25	57 50		
	Uruguay	Montevideo 34 54	56 16		
	Libertad	Truxillo 8 6	78 56		
PERU	Junin	Carabamba 10 1	76 58	Ramón Castilla	Republican.
	Lima	Lima 12 2	76 59		
	Ayacucho	Guamanga 13 0	74 10		
	Cuzco	Cuzco 13 31	72 13		
	Puno	C. de Puno 16 50	70 15		
	Arequipa	Arequipa 16 20	71 50		
	Morcos	S. Ignacio 11 15	65 17		
	La Paz	La Paz 16 20	68 30		
	Santa Cruz	Santa Cruz 17 55	62 25		
	Cochabamba	Cochabamba 17 10	65 35		
	Chicla	Chicla 19 4	61 33		
	Chiquitos	Mafre 16 20	68 20		
BOLIVIA	Potosi	Potosi 19 33	66 15	General Sucre	Republican.
	Copapo	S. Francisco 27 15	70 0		
	Huancabamba	Huancabamba 28 19	71 0		
	Cochabamba	Cochabamba 29 54	71 10		
	Cuzco	S. Raphael de Rosa 36 30	73 0		
	Santiago	Santiago 33 27	70 44		
	Colchagua	S. Fernando 33 27	70 44		
	Concepcion	Concepcion 36 40	73 5		
	Quillota	Quillota 33 0	77 30		
	Valdivia	Valdivia 39 59	73 35		
	Chilo	Chilo 42 41	73 35		
	Buenos Ayres	Buenos Ayres 34 33	58 25		
CHILE	Chaco	S. Yago 32 30	65 0	J. M. de Rosas	Republican.
	Sala	S. Felipe 27 0	64 10		
	Tucuman	S. Miguel 27 30	65 30		
	Corrientes	Corrientes 31 30	61 0		
	Entre Rios	Santa Fe 32 40	60 30		
	Mendoza	Mendoza 33 0	63 30		
	Cordoba	Cordoba 33 0	63 30		
	San Jose	San Jose 42 40	64 0		
	Mid. East Coast	Port St. Julian 43 8	67 44		
	South East Coast	Port Phillip 47 40	66 4		
	Terra del Fuego	Port Phillip 51 22	69 1		
	Islands	Islands 51 22	69 1		
PATAGONIA	Patagonian Archipelago	San Carlos 41 5	73 54	Victoria I.	Limited Monarchy.
	San Fernando	San Fernando 33 49	69 34		
	Lobos	Lobos 7 0	80 41		
	Galapagos	Cape Berkeley 0 4	81 22		
	Galapagos	Cape Berkeley 0 4	81 22		
	Galapagos	Cape Berkeley 0 4	81 22		
	Galapagos	Cape Berkeley 0 4	81 22		
	Galapagos	Cape Berkeley 0 4	81 22		
	Galapagos	Cape Berkeley 0 4	81 22		
	Galapagos	Cape Berkeley 0 4	81 22		
	Galapagos	Cape Berkeley 0 4	81 22		
	Galapagos	Cape Berkeley 0 4	81 22		
	Galapagos	Cape Berkeley 0 4	81 22		

LESSONS IN FRENCH—No. LXVIII.

By Professor LOUIS PASQUELLI, LL.D.

LIST OF IRREGULAR VERBS. (continued from page 235).

Infinitive.	Participles.	Indicative.	Imperfect.	Pass. Definite.	Future.	Conditional.	Imperative.	Subjunctive.	Superfect.
REPENTE, 1. to repent	repentant, f. e.	je me repens	je me repensais	je me repens	je me repenterai	je me repentirais	repens-toi	je me repente	je me repens
REPENTE, 2. to repent	repentant, f. e.	je repens	je repensais	je repens	je repenterai	je repenterais	repens-toi	je repense	je repens
REPENTE, 3. to repent	repentant, f. e.	je repens	je repensais	je repens	je repenterai	je repenterais	repens-toi	je repense	je repens
REPRODUCE, 1. to reproduce	reproduisant, f. e.	je reproduis	je reproduisais	je reproduis	je reproduirai	je reproduirais	reproduis	je reproduise	je reproduis
REPRODUCE, 2. to reproduce	reproduisant, f. e.	je reproduis	je reproduisais	je reproduis	je reproduirai	je reproduirais	reproduis	je reproduise	je reproduis
REPRODUCE, 3. to reproduce	reproduisant, f. e.	je reproduis	je reproduisais	je reproduis	je reproduirai	je reproduirais	reproduis	je reproduise	je reproduis
REQUIS, 1. to require	requérant, f. e.	je requiers	je requierais	je requiers	je requerrai	je requerrais	requiers	je requise	je requiers
REQUIS, 2. to require	requérant, f. e.	je requiers	je requierais	je requiers	je requerrai	je requerrais	requiers	je requise	je requiers
REQUIS, 3. to require	requérant, f. e.	je requiers	je requierais	je requiers	je requerrai	je requerrais	requiers	je requise	je requiers
RESOLV, 1. to resolve	résolvant, f. e.	je résous	je résolvais	je résous	je résoudrai	je résoudrais	résous	je résolve	je résous
RESOLV, 2. to resolve	résolvant, f. e.	je résous	je résolvais	je résous	je résoudrai	je résoudrais	résous	je résolve	je résous
RESOLV, 3. to resolve	résolvant, f. e.	je résous	je résolvais	je résous	je résoudrai	je résoudrais	résous	je résolve	je résous
RESSORT, 1. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 2. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 3. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 4. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 5. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 6. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 7. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 8. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 9. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 10. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 11. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 12. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 13. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 14. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 15. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 16. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 17. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 18. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 19. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 20. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 21. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 22. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 23. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 24. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 25. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 26. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 27. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 28. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 29. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 30. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 31. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 32. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 33. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 34. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 35. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 36. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 37. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 38. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 39. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 40. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 41. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 42. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 43. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 44. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 45. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 46. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 47. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 48. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 49. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 50. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 51. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 52. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 53. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 54. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 55. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 56. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 57. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 58. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 59. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 60. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 61. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 62. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 63. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 64. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 65. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 66. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 67. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 68. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 69. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 70. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 71. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 72. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 73. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 74. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 75. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 76. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 77. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 78. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 79. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 80. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 81. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 82. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 83. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 84. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 85. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 86. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 87. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 88. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 89. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 90. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 91. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 92. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 93. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 94. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 95. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 96. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 97. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 98. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 99. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 100. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 101. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 102. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 103. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 104. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 105. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 106. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 107. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 108. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 109. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 110. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 111. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 112. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 113. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 114. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 115. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 116. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 117. to resort	ressortant, f. e.	je ressorts	je ressortais	je ressorts	je ressortirai	je ressortirais	ressorts	je ressorte	je ressorts
RESSORT, 118. to resort	ress								

vigorous minds to the Greek and the Latin the grammar schools and the Universities will soon receive a very desirable impulse, and a new era of classical distinction may arise in England.

It may possibly not be accounted presumptuous in the writer of this introduction to a knowledge of Greek prose, to entertain a hope that his lessons may in some slight measure be a happy result. Of these lessons, one of the chief recommendations will be their tendency to simplify and to direct the study on which, in general, so much time and energy are mispent. If he has any skill for the purpose, he owes it to the fact that for nearly a quarter of a century he was engaged in teaching the Greek language on a method and in manuals, for which he is glad to own himself indebted to German scholarship. To the same source he is under obligations in the ensuing course of instructions.

In proceeding to the study of Greek, you are stopped at the very threshold, for the characters of the letters are not the same as those of your native tongue. The diversity, however, is in appearance more than in reality. In fact, the English alphabet was derived from the Latin alphabet, and the Latin alphabet was derived from the Greek alphabet. It may be added, that the Greek letters can be traced back to the Phœnician. Thus we learn that the English and the Phœnician alphabets are related to each other. In the descent of the letters, however, from age to age, and in their passage from one people to another, they underwent considerable changes; so that, at least in some instances, it is only a practical eye that, by supplying the intermediate forms, can discover the identity. Yet scarcely is the difference in the case much greater than exists between what we call *Old English* or *Black Letter*, and the letters now employed in ordinary printing; or those you see when you compare a written with a printed composition.

I have made these remarks in order not only to state an important fact, but to induce you to compare the forms of the Greek letters with the corresponding English forms. By so doing you will be much aided in becoming familiar with the Greek letters.

THE GREEK ALPHABET.

Characters.	Small Letters.	English Equivalents in Sound.	Name in English.	Name in Greek.
A	α	a	Alpha	Αλφα
B	β	b	Beta	Βητα
Γ	γ	g	Gamma	Γαμμα
Δ	δ	d	Delta	Δελτα
Ε	ε	e short	Epsilon	Εψιλον
Ζ	ζ	z	Zeta	Ζητα
Η	η	e long	Eta	Ητα
Θ	θ	th	Theta	Θητα
Ι	ι	i	Iota	Ιωτα
Κ	κ	k	Kappa	Καππα
Λ	λ	l	Lambda	Λαμβδα
Μ	μ	m	Mu	Μυ
Ν	ν	n	Nu	Νυ
Ξ	ξ	x	Xi	Ξι
Ο	ο	o short	Omicron	Ομικρον
Π	π	p	Pi	Πι
Ρ	ρ	r	Rho	Ρω
Σ	σ	s	Sigma	Σιγμα
Τ	τ	t	Tau	Ταυ
Υ	υ	u	Upsilon	Υψιλον
Φ	φ	ph	Phi	Φι
Χ	χ	ch	Chi (like h)	Χι
Ψ	ψ	ps	Psi	Ψι
Ω	ω	o long	Omëga	Ομëγα

Of these five columns the first gives the Greek letters in capitals; the second gives the same letters in small forms; the third gives the corresponding English letters, that is, the forms in English which have sounds similar to the several Greek letters; the fourth gives the Greek names of the letters; and the fifth gives the same names in Greek characters. The names, as they appear in the last column, are the designations which you are to give to the Greek letters; that is, you are to call a not α, but alpha; β not bee, but beta, and so on.

Before you can set another step, you must make yourself thoroughly familiar with these characters, with their names and values or sounds. In general, you may follow your English methods of pronunciation; one or two will be pointed out immediately. Your present business is to acquire a facility of transferring the Greek characters to corresponding English characters, and to read the sounds of the latter. In the requisite application you are to employ a slate and pencil. Write the alphabet several times merely in Greek. Then compare together such characters as resemble each other, and carefully mark wherein they differ. Having become familiar with the names, associate with each its own name. Then study the sounds, that is, pronounce each Greek letter in the corresponding English sound. These processes you must go over again and again, until you are perfectly master of the whole, and can from memory write down the alphabet with all its forms and parts, as here given. I advise you to take great pains in this matter, and not to think of passing on until you have thoroughly accomplished this task. Your attention to this recommendation will save you a world of trouble.

In the commencement, you will do well to confine yourself to the small characters; having acquired them, you will readily make yourself familiar with the capitals.

In the small characters, you will at once discover similarities between the Greek forms and the English forms. The Greek α and the English a are obviously the same. The two ε's (short e) are very nearly alike. The two φ's differ little. The two ι's are identical; so are the two ο's (o short), and the Greek ω long (o) is nothing but two short ο's (oo) put together.

You will notice, in the Greek, two forms of the small letter σ. These two forms are σ and ς. Of these the first occurs at the beginning and in the body of a word; the second stands at the end of a word. This form of the sigma, namely ς, may also be used in compounds, when the first word ends in σ: e. g.,

Ordinary Sigma.	Sigma at the end	Sigma in Compounds.
συνάγωγα	ἐρασμος	ἐσπερίτης

This sigma, σ, when in this form, ς, sometimes becomes Ϸ, when it is equivalent to σ and Ϸ, our st.

Gamma (γ) has the sound of a before γ, κ, χ, ξ; thus, γαγγής is changed; συγκοπή is pronounced *syncope*; Κεγχρίδα, Κεγχρίδα; and λαγυγέ, *laguz*.

Chi, χ, has a guttural sound, and so differs from kappa, κ. χ is never pronounced like our ch in church, but always in a way resembling our h in kite, kitchen, kick.

Over vowels, ε in *leta*, *epsilon*, &c., this mark - will be observed. The mark is used to denote a long vowel. The force of it, you may give by throwing the accent or stress of the voice on the vowel or syllable over which it is placed. Thus *εἰς* is to be pronounced *eis*. The opposite of - is - , as in *ὀμῆγα*: - denotes a short or unaccented syllable; accordingly, *ὀμῆγα* is pronounced thus *ōmēga*, with the accent on the o. A vowel of doubtful length is marked thus, as α̃. When two vowels come together, the former is generally short or unaccented, as ἰλιον. Diphthongs, however, are long; that is, on them you must throw the accent, as αἰῶνα. Syllables are short or long, as they contain a short or long vowel. Syllables containing a diphthong are long.

You may ascertain whether you have mastered the letters, by practising yourself in the ensuing

EXERCISE FOR PRONUNCIATION.

N.B. Every vowel in Greek, whether at the end of a word or not, is pronounced as a separate syllable.

Κα, κε, κη, κλ, κμ, κν, κς. γε, γε, γη, γο, γα, γι. χη, χω, χα, χι, χθ, χλ, χμ, χν, χς. θη, θλ, θμ, θν, θς. πη, πλ, πας, βη, βλ, φη, φλ, φς. σα, σκ, σλ, σμ, σν, σς. φη, φλ, φς. ματη, μελος, ψη, γαστηρ. ζητα, ζητα, ζητα; ζαθος νυκτες; χθον.

Αλεξανδρος, Ανδρις, Ωλην, Ωκεανος, Ωρωπος, Ψαρις, Ψαμμιτιος, Βιαις, Γη, Γλαυκος, Γοργη, Χαρις, Χιρδακος, Φωκος, Φωκος, Φωκος. Υδρα, Υδανς, Υλλος, Δολος, Δολος, Δολος, Δολος. Ζακυνθος, Ζενος, Ηλεκτρα, Ηλω, Ηως, Κιμβρον, Λυδια, Λυσις, Λοκος, Λακεδαιμον, Νιγη, Μανος, Ολυμπος, Παλαια, Παρτακος, Σαλαμς, Σακας, Σενδα, Τιρανς, Ροδος, Ρορη, Ρηγορ, Σανδος.

You will find in the ensuing lessons these three marks or accents, namely ' as in *ιτα*, ' as in *οδη*, and ~ in *ονε*. The first is called the *spiritus asper* or *rough breathing*, being equivalent to our aspirated *h*; pronounce, then, as with an *h* syllables before which this aspirate is placed, as *Αδης*, *Αδης*: the second mark is called *iota subscript* (*ι υπογραφη*), so termed because the letter *i* instead of appearing at the end, as in *λογη*, is written or placed under the *o* as in *λογη̣*. This mark is commonly disregarded in pronunciation: the third is called the *circumflex*, being made up of the acute accent ' and the grave accent ` from the union of which ' the circumflex is produced. The circumflex denotes a contraction, as in the diphthong *οη*, an *oe*.

In printed Greek books, you will see several marks over the letters. These I shall, for the most part omit, as the study of them would embarrass the beginner, and as a knowledge of them is not necessary to either the understanding or the pronunciation of Greek. When you have mastered the real and inevitable difficulties of the language, you will readily acquire an acquaintance with these now almost useless signs.

SOLUTIONS OF PROBLEMS AND QUESTIONS.

Answer to the question proposed by T. Taylor, p. 164, Vol. III.

Before solving the question, I may be allowed to make two remarks. First, The dimensions of the given triangle appear to have been chosen with a view to the most convenient method of solution, the sides being in the proportion of 3, 4, 5, and the triangle being therefore right-angled. Of this, however, I shall take no notice, but treat the triangle as though it were oblique-angled, and thus give a general instead of a particular solution. Secondly, The three sides being given, the area is a superfluous datum, not only because it might be found from the dimensions given, but because it is actually not required in the solution; hence the prolix operation of finding the area from the three sides may be altogether avoided.

Let *a b c* be the given triangle, of which *a* is the "acute angle," and *c* the perpendicular upon the longest side.

Let *x* be the first man's payment, in crowns; then *x+9* be the last; and the sum of this arithmetical series will be

$$(x+x+9) \times 5 = 10x+45=160 \text{ crowns;}$$

$$\text{Or } x = \frac{160-45}{10} = 11\frac{1}{2} \text{ crowns} = 23 \text{ half-crowns.}$$

The payments and proportional shares will therefore be as follows:—viz.

	Half-crowns.	Parts of the triangle.	
A pays	22	and has	23
B	25		25
C	27		27
D	29		29
E	31		31
F	33		33
G	35		35
H	37		37
I	39		39
J	41		41

Half-crowns 320 The whole triangle 320 parts.

$$\text{Now } A^2 = 529 = 23^2, B^2 = 625 = 25^2, \text{ and}$$

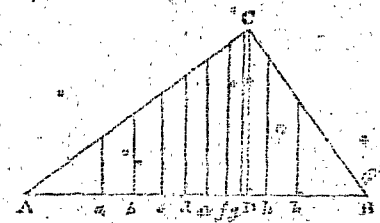
$$A^2 + B^2 = 1154 = 34^2, \text{ that is}$$

$$40^2 - 30^2 = 1600 - 900 = 700 = 14 \text{ the diff. of the segments of the base.}$$

$$\text{Hence } \frac{50+14}{2} = 32, A D,$$

$$60-32=28, D B.$$

Again since triangles of the same altitude are to each other as their bases, and the triangle *A B c* contains 320 parts, $529 : 32 :: 320 : 204\frac{8}{11}$ parts in *a b c*, $625 : 320 :: 204\frac{8}{11} : 115\frac{2}{11}$ parts in *b c c*.



And as similar triangles are to each other as the squares of their homologous sides, we have, in the triangle *A B c*

204 8/11	:	32	:	32^2	:	115 2/11, <i>a c^2</i>
204 8/11	:	48	:	32^2	:	240, <i>a b^2</i>
204 8/11	:	75	:	32^2	:	375, <i>a c^2</i>
204 8/11	:	104	:	32^2	:	520, <i>a d^2</i>
204 8/11	:	136	:	32^2	:	675, <i>a e^2</i>
204 8/11	:	168	:	32^2	:	840, <i>a f^2</i>
204 8/11	:	208	:	32^2	:	1015, <i>a g^2</i>

And in the triangle *b c c*, we have

115 2/11	:	80	:	13^2	:	225, <i>b h^2</i>
115 2/11	:	41	:	13^2	:	115 3125, <i>b a^2</i>

Therefore, extracting the square roots, we have

<i>a c</i>	=	10.7233053
<i>a b</i>	=	15.4919333
<i>a c</i>	=	10.7233053
<i>a d</i>	=	22.3606735
<i>a e</i>	=	25.9807621
<i>a f</i>	=	28.9827435
<i>a g</i>	=	31.8399646

$$b h = 10.0000000$$

$$b a = 10.7233658;$$

And taking the difference between each of these and the one next less, in the same triangle, we obtain

<i>a c</i>	=	10.7233053, <i>a</i> 's share.
<i>a b</i>	=	4.7681230, <i>b</i> 's
<i>a c</i>	=	3.5729835, <i>c</i> 's
<i>a d</i>	=	3.4585917, <i>d</i> 's
<i>a e</i>	=	3.1772536, <i>e</i> 's
<i>a f</i>	=	3.0019914, <i>f</i> 's
<i>a g</i>	=	3.8763111, <i>g</i> 's
<i>a h</i>	=	3.1400354, <i>h</i> 's
<i>a i</i>	=	4.2510314, <i>i</i> 's
<i>a j</i>	=	3.0733655, <i>j</i> 's.

If *a*'s share falls between *a g* and *a h* partaking of both triangles; that is, it consists of *A B c* in one triangle, and *a h c* in the other, or is equal to

$$A B = (A g + a h) = 50 + 47.8599646 = 97.8599646$$

K plus Y.

This question was solved, with a few inaccuracies by G. Archbold, St Peter's, a student of the P. E. only 13 years old. It was correctly solved by J. M. LEAH, Otley; T. P. COOK, Macclesfield; W. H. MACLELLAN, Manchester; A. H. RUTHERFORD, Glasgow; J. ROBERTSON, Glasgow; A. R. GIBSON, and CHARLES BISHOP, Glasgow; and others.

and thus saved the trouble of multiplication or division; and which when multiplied or divided, indicated the powers or the roots of the same, and thus saved the labour of raising powers and extracting roots. This, however, will be best understood by examples: Let us take two series, the one arithmetical and the other geometrical, corresponding to each other, as follows:

1. Arithmetical series, $\{ 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, \dots \}$ or Logarithms.
2. Geometrical series, $\{ 1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096, \dots \}$ or common numbers.

Here, if you add any two numbers or logarithms in the first series as 4 and 7, their sum 11, will indicate the product of the two numbers which they indicate in the second series; for under 11 you have the number 2,048, which is the product of the indicated numbers 16 and 128. Again, if you subtract the number or logarithm 6 from the number or logarithm 11 in the first series, their difference 5 will indicate the quotient of the two numbers which they indicate in the second series; for, under 5, you have the number 32, which is the quotient of the indicated numbers 2,048 and 64. Next, if you take any number in the first series as 3, and multiply it by 2, the index of the square, you will have 6 for the product; but 6 in this series stands above 64 in the second; therefore 64 is the square of 8, because 3 stands above 8 in the second series. Lastly, if you take 9 in the first series, and divide it by 3, the denominator of the index of the cube root, you will have 3 for the quotient; but 3 stands above 8 in the second series; therefore 8 is the cube root of 512, because 9 stands above 512 in the same series. This subject is of course capable of much greater extension; but we must pause here to explain our new Multiplication Table.

In this table the logarithms of the numbers placed along the left-hand side from bottom to top are represented by the straight lines or distances along that side from 1 to 10; that is, the distance from 1 to 2 is the logarithm of 2 in the Neperian system, measured numerically from a diagonal scale of equal parts; the distance from 1 to 3 is the logarithm of 3 in the same system, measured from the same scale; and so on. In like manner, the logarithms of the numbers placed along the bottom from left to right, are represented by the straight lines or distances along the bottom from 1 to 10. The products of any two numbers of which the one is taken from those placed along the left-hand side, and the other from those placed along the bottom, will be found thus: look for the corner of the rectangle (which is a square, when the numbers are equal) in which those lines meet which are perpendicularly drawn from the points where the numbers are placed, at the left-hand side and at the bottom of the table; having found this corner, then look along the diagonal which is drawn through it, and either at the one end or at the other, you will find the number which is the product of the two given numbers. For example, suppose that you wished to multiply 3 by 4, if you run your eye along the straight line drawn perpendicularly from the point marked 3 at the left-hand side of the table, till it meets the straight line drawn from the point marked 4 at the bottom, you will find that these straight lines meet in a diagonal, which has the number 12 at each end of it; therefore, 12 is the product of the two numbers 3 and 4. In like manner, if you wish to know the product of the number 5 multiplied by itself, you will find that the perpendiculatians drawn from the points marked 5 at the left-hand side and at the bottom, meet in a diagonal which has the number 25 at each end of it; therefore 25 is the product of 5 multiplied by 5, or the square of the number 5. In this way, the products of all numbers from 1 to 10 by each other, can be found by immediate inspection of the table.

Some persons, after reading the preceding remarks, will perhaps say, "Well, all this is very ingenious, but what is the use of it? In a common multiplication table from 1 to 10, we have the same results put down in a much simpler form, and in a way which most people can understand very much better!" True: we do not deny the fact; and it is well that such is the case; but in this Geometrical Abacus, we have here exhibited by lines the relations which exist among numbers; thus we speak both to the eye and to the mind. Besides, we have other advantages in this table which the common multiplication table does not possess. This table

contains within itself the represented products of all numbers whatever by each other, provided we were enabled to divide and subdivide the distances between the numbers marked on the sides, left and right, top and bottom, to an indefinite extent; this division and subdivision being carried on, according to a proper scale, from the logarithms of the intermediate numbers. To illustrate this remark by an example: suppose we wanted the product of 51 and 47 from the table. Taking rather more than $\frac{1}{2}$ of the distance between 5 and 6 at the bottom, to denote 51, and rather more than $\frac{1}{2}$ of the distance between 4 and 5, at the left-hand side, to denote 47, and drawing straight lines from these points to complete the rectangle in the table, we find that they meet in a point close to the diagonal marked 24; now as tens multiplied by tens produce hundreds, the product of 51 by 47 must be nearly 24 hundreds; the student will of course find the actual product to be 2,397 instead of 2,400. This approximation to the truth is valuable in a thousand practical cases in actual life, and will tend greatly to assist mechanics and others who require to know the product of any two numbers as nearly and as quickly as possible. Let us take another example: suppose we wish to multiply 49 by itself; here 49 is nearly 50, and on looking at the table, we see that 50 multiplied by 50, would plainly give 2,500, as 25 is found on the diagonal line in which the sides of the square of 5 meet; now parallel to this diagonal we have that of 24 very close to it, and mentally guessing the distance of 49 on the left-hand side and at the bottom, between the numbers 4 and 5 as before, we find that the eye would lead us to place the meeting of the sides of the square of 49 in the diagonal marked 24; hence we infer that the product of 49 multiplied by itself is nearly 24 hundreds; the actual product of 49 by 49 being 2,401 instead of 2,400.

This table will also serve the purposes of division, the raising of powers, and the extracting of roots. In performing division, look for the dividend at the extremity of one of the diagonals in the table, and for the divisor at the left-hand side; then from the point where the perpendicular drawn from the divisor meets the diagonal drawn from the dividend, you will find a perpendicular drawn to the bottom, and at its extremity will be found the quotient. For example, suppose you wish to divide 28 by 7; looking for the diagonal marked 28, you will find the perpendicular drawn from 7 at the left-hand side meets it at a point from which there is a perpendicular drawn to the bottom, and this terminates at 4; therefore, 4 is the quotient. To extract the square root of a number: look for the given number at the extremity of a diagonal; then look for the middle point of this diagonal, and the perpendicular drawn from it to the left-hand side or to the bottom will lead to the root required. Thus, to find the square root of 16, look for the number 16 at the extremity of a diagonal, and from its middle point you will see two perpendiculatians, one drawn to the left-hand side leading to 4, and another drawn to the bottom leading also to 4; therefore, 4 is the square root of 16. If there be no perpendiculatians drawn from the middle point, imagine them to be drawn, or draw them with a pencil, and they will enable you to guess the square root very nearly. Thus, to find the square root of 30; look for the middle point, and suppose perpendiculatians to be drawn from it to the left hand side or to the bottom; you will then find that they will meet these in a point exactly between 5 and 6; therefore, the square root of 30 is nearly 5½; but this square root found more exactly by calculation, is 5.477 &c. To take another example; let it be required to find the square root of 2. Here taking the middle point of the diagonal marked 2, you find that the perpendiculatians would fall exactly between 1 and 2, thus indicating that the square of 2 is nearly 1½; the calculated root, however, is 1.414 &c.

It may perhaps be inquired by the ingenious student, why in these examples, as well as in the former ones in multiplication where the factors consisted of units and tens, we have only approximate answers; whereas, in the case of factors consisting of units only, the answers are complete? The reason is this, that the table would require to be subdivided according to a certain law, namely, that the differences between the logarithms of successive numbers are constant; but the differences between the numbers themselves are variable; and therefore, these differences are not strictly proportional to each other. This law will be best understood by examining the following

table of the Neperian, or Hyperbolic Logarithms of numbers from 1 to 10 inclusive, with their differences.

Numbers.	Logarithms.	Differences.
1	0.69950000	
2	0.69314718	63314718
3	1.09861229	40546511
4	1.33629436	28768207
5	1.60943791	22314355
6	1.79175947	18232156
7	1.94591015	15415068
8	2.07944154	13353139
9	2.19722458	11778304
10	2.30285509	10530051

Here we see that although the differences of the numbers are successively unity or one, and therefore constant, the differences of the logarithms are variable, and go on continually diminishing as the numbers increase.

LESSONS ON CHEMISTRY.—No. I.

In commencing the study of any new branch of learning, it is above all things desirable that the learner should believe himself capable of mastering the subject. On this point there should be no doubting, no fear, no timidity. The student should begin by saying to himself, *What one person has done another may do.* Starting with this train of mind, an individual of average capabilities and energy may learn all that ever has been learned of any science; but whether he add to the riches of that science, and stepping out of beaten tracks he becomes a discoverer, that is quite another question, dependent altogether on the power of his own inventive faculties. No amount of scientific instruction can ever create the inventive faculty. Neither poet nor scientific discoverer can be made by instruction; yet the power to read the poetry already written and to comprehend the science already made known, this power it is within the province of instruction to confer.

Success or failure, nevertheless, will depend on whether the learner begins at the right end of a subject or the wrong one; and this remark applies with especial force to chemistry, a science which, though beautiful in all its parts, requires to be approached from certain points in order that these beauties may be seen.

Chemistry is an experimental science, consequently the only way of learning it is by experiment. It is true an individual with a good memory might learn by rote whole pages of a chemical treatise, and might, if his memory were very strong, learn to repeat verbatim whole treatises. He would be very far however from knowing chemistry. The burdensome weight of facts undigested would have weakened the faculty above all others most useful to a chemist, the faculty of observation and reflection.

Consistently with the views just expressed, it will be the object of these lessons to present the reader with a course of chemical instruction strictly practical. Every point will be demonstrated by experiment, nothing being taken for granted without proof; and, in order to avoid needless cost in chemical apparatus, the very simplest adaptations shall be made to serve our purposes. Not serve our purposes after a fashion either—not loosely, inconclusively, vaguely.—The apparatus chosen shall serve our purpose well, to the extent promised, and whenever it is necessary to treat of processes in the conducting of which simple instruments will not suffice, diagrams of them will be given, so that the reader will have the option of purchasing the instruments and performing the experiments, or he may rest content with their description.

And now one word for the consolation of those readers who look with envy at the fine array of instruments seen in shop-windows of chemical dealers—and lament their inability to get them; one half of these instruments, at the lowest calculation, is useless, and the other half can readily be made by the learner himself. Let it be accepted as a fact that all highly ornamented chemical apparatus is useless. Let the reader of these lessons hold in abhorrence those highly lacquered, red-finished brasses and bottles, which cut so conspicuous a figure in instrument makers' shops. For the most part they are worse than useless—they are injurious, they are made for display, not for work.

In short I will conclude these preliminary remarks by saying that amongst all the various instruments used by chemists in their ordinary investigations, I only know of two, the air-pump and the beam and scales, which cannot be made by any person of moderate constructive skill.

As these lessons are to be practical, it is now time to conclude preliminaries, and begin our investigations. Where then are we to begin? which is the proper end of our investigation? Let us just take a casual glance at the range of subjects included by our science. The world of which we are living members; air, water, earth, minerals, trees, flowers, animals, all and every part of the world; in short—are made up of about 63 ingredients differently combined; and of these 49 are metals. This may appear very strange to a novice in chemistry. He may wonder that so many thousand forms of existence—some dead, others living; some animals, others vegetables; some solids, others liquids; he may wonder that all these should be made up of no more than 63 different materials. How much more strange then will the statement appear that by far the greater number of those materials (elements or simple bodies as chemists term them) are comparatively scarce in nature, and that at least three-fourths of the crust of the globe and its atmosphere—its beings, dead and living—are composed of one element alone! Yet such is the fact,—as will in proper time and place be demonstrated.

Now it is the object of chemistry to teach, first, the nature of these simple elements or materials; secondly, the nature of the compounds which they form: thus we proceed from the simple to the combined, just as the learner of a new language first masters the alphabet, then combinations of the alphabet in words, afterwards combination of words in sentences, and so forth. It is like this in the study of chemistry, except in one respect. The alphabet of a language has a definite order of succession, in our own alphabet we go from A to Z, in the Greek alphabet we go from Alpha to Omega. Now in the alphabet of chemical elements we are fettered by no such restriction, different teachers of the science may have different notions concerning the proper place to begin; each teacher may adopt a commencement in accordance with the particular scheme of teaching he has decided to adopt. I have adopted mine. The commencement of our succeeding investigations shall be the metals, and of the metals I shall commence with zinc. If the reader should inquire why zinc has been chosen as the beginning of our labour; I reply, he shall be informed by and by. Future experiments shall explain why it has been chosen; meantime let us begin.

A specimen of zinc may be procured at almost any hardware shop, and it may occur in two forms, either as a thin flexible plate, or as a crystalline lump. I will suppose the specimen procured and known to be zinc; I will also assume the second case, namely that the specimen was procured without knowing it to be zinc. How would the student have determined the real nature of the metal? Why intuitively he would have exercised what is vaguely known as common sense, that is to say he would have reasoned without being conscious of the steps of the reasoning process. Now let us just systematically arrange these steps, let us make a system of them, and see what the system looks like in the end.—Now let the reader think this reasoning process trivial or unnecessary, chemistry is nothing; more or less than a structure built up of such step-like reasonings. The lower steps may be designated common-sense; they are so plain, so obvious, that all who can may read; the upper ones however require the full exercise of mental vigour to understand and master. Suppose then that the metal zinc were placed as a substance unknown before an individual totally

ignorant of chemistry, as he might fancy, for, strictly speaking, no person is totally ignorant of chemistry; how, by what process of reasoning, experiment, or induction, would the conclusion be arrived at, that the metal in question was zinc?

Why it is evident that in all investigations, whether chemical or otherwise, we determine what a thing is, by comparing it with other things, and learning what it is not. We may not possibly be conscious of such being the order of reasoning, but the order exists nevertheless. In the matter of zinc, then, the investigator would have pursued some such sort of reasoning as this: The substance is a white metal, hence it is neither copper nor gold. It is not a soft metal, hence it can neither be lead nor tin. To this extent, common sense or the unconscious reasoning faculty of most persons would readily have gone, but not much farther. Perhaps some investigating mind more acute than its fellows, might have fancied a resemblance between zinc in its brittle form, and steel, and desirous of testing the correctness of his supposition, might have bethought himself of trying upon the unknown metal the effect of an ordinary fire. He would have found that the substance will melt under this trial, whereas steel would not have melted; hence the material in question could not have been steel. The inquirer who should have had recourse to this mode of investigation, would have performed a chemical operation; he would have acted the part of a veritable chemist, fire being one of the chief agents which chemistry employs in distinguishing one material from another, in separating one from another or more, in combining materials so as to imitate the productions of nature, or even advancing, if the expression may be used without presumption, before nature, and bringing compounds into existence which had never hitherto been formed. Now it would scarcely be untrue to say that chemistry presents us with at least a thousand different characteristics, by which zinc might be individualized from every other substance, might be separated from a thousand or ten thousand others, might be recognised under any of the numerous forms which it is capable of assuming, even if it should come before us in a transparent state! The tyro in chemistry perhaps ejaculates with surprise:—How can a metal be rendered transparent? Nothing more easy, nothing more common than this. There does not exist a metal which cannot be dissolved, forming a transparent solution; surely the student will concede that, under these conditions, the metal is rendered transparent.

But we will now render zinc transparent. It will be necessary to do this as a preliminary to future investigations. Take therefore about one part of oil of vitriol by measure, pour it into an earthenware jug, and pour upon it about six measures of water distilled, by preference; if not readily obtainable, rain water. Remark the great heat developed during this mixture; this circumstance has no reference to anything we are about just now, it relates to something connected with the philosophy of heat, illustrating a point to be discussed hereafter. Remark the circumstance, however; it is a striking and important phenomenon. Pour the mixture of oil of vitriol and water into a wine glass, in order that the changes about to ensue may be readily seen. Throw in a portion of the zinc, and a little more, and a little more, until it is no longer dissolved. Possibly, however, notwithstanding all care, a little excess of oil of vitriol may be employed. This matters not, as we shall take means to dissipate the excess hereafter.

The amount of oil of vitriol used need not be more than a tea-spoonful, it must not however be measured by a tea-spoon. Remark now what a commotion ensues, observe the bubbles which arise, notice their smell. They are evidently bubbles of a gas. What is that gas? This will be subject of inquiry hereafter. The subject at present under investigation is zinc, let us therefore pay attention to it solely. The zinc rapidly dissolves, disappears, becomes transparent, and thus the general proposition that a metal can be rendered by combination transparent, may even invisible, is proved.

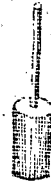
But a novice in chemistry may fancy the zinc is no longer present. Without knowing exactly where it can have gone, the young chemical beginner may suspect it is not there; that it has vanished by some supernatural agency. Banish at once the term, banish the idea, banish them at once and for ever from your mind and vocabulary. Chemistry recognises no supernatural agencies; chemistry is based upon the conviction justified by the accumulated experience of ages, that nature

acts by underlying laws; these laws it is the aim of science to interpret. If the zinc have vanished from the mixture of oil of vitriol and water it must have vanished under the form of a gas. Had the student proposed to himself for solution the general question, whether any metal could become a gas and escape, the question would have been rational; the supposition involved would moreover have been correct, inasmuch as certain metals can assume the form of gas; nay even zinc can assume the form of gas; but so far as our present investigations are concerned the zinc has not vanished, it is in the solution. Although invisible and in the solution, we will hereafter in the next lesson, find it; meantime at present we will let it rest. During the course of this lesson the student has not been required to use any chemical instrument properly so called, a wine glass and a jug having been the only instruments employed. In the course of the next lesson certain instruments however will be needed, and instructions for making these instruments will be given; meantime let the student provide himself with the following materials:—

1. A roll of brimstone.
2. A thick wire or thin bar of iron.
3. A small rat's-tail file, and three-square file.
4. A quarter of a pound of the kind of glass tube termed *quilled*.
5. A Florence oil flask.
6. A few sound corks.
7. Two four ounce phial bottles, and
8. A piece of india-rubber tube, about one fourth of an inch in diameter and eight or ten inches long.

The last article may be readily procured at the tobacco-shop, being now frequently employed as a flexible tobacco-pipe tube.

With these preliminary directions, I shall now take leave of my pupils for the present. Those who like to be very industrious may accurately fit about three inches of tobacco-pipe shank to one of the corks, as shown in the diagram; may repeat the operation on a second cork; and finally may adapt accurately, air-tightly, one cork to one of the four-ounce phials, the other to the Florence flask. I have said *may* do this, had I said *may* do it if they can, the expression would have more correctly represented my opinions. The fact is that the accurate air-tight adjustment of corks, so frequently necessary in chemical experiments, is not so self-evident an affair as many people suppose. The fitting of a cork to a Florence flask, or a tobacco-pipe shank to a cork *neatly* air-tight, is no difficult matter, but nearly air-tight will not do for our purpose, the adjustment must be accurate—perfect. If therefore the chemical novice succeeds in accomplishing this without the instruction to be conveyed in the next lesson, he is permitted to take some little credit to himself.



LESSONS IN GERMAN.—No. LIX.

§ 58. POSSESSIVE PRONOUNS.

(1) The possessive pronouns are derived, each respectively, from the genitive case of the personal pronouns; thus,

1st pers. <i>mein, my</i>	from <i>mein</i> , gen. sing. of 3d.
2d " <i>dein, thy</i>	" <i>deiner</i> , " " " 2d.
3d " <i>sein, his</i>	" <i>seiner</i> , " " " 3d.
3d " <i>ihr, her</i>	" <i>eurer</i> , " " " 3d.
3d " <i>sein, its</i>	" <i>seiner</i> , " " " 3d.
1st " <i>unser, our</i>	" <i>unsrer</i> , " plur. " 1st.
2d " <i>euer, your</i>	" <i>eurer</i> , " " " 2d.
3d " <i>ihre, their</i>	" <i>ihrer</i> , " " " 3d.

* Formerly, in ceremonious addresses, the words *Derro* (old gen. plural of *der*, that person) and *Sire* (old gen. plural of *er*, he) were used instead of *Gn* (*your*) and *Er* (*her*); as, *Sire Majestät*, her majesty, &c.

Gn was formerly written *uer*, and the syllable *Gn* as an abbreviation is used in address to persons of high rank, with the verb in the plural. *Er Gn. Majestät haben befohlen*, your majesty has ordered.

Note that in declining *unser* and *euer*, the *r* before *t* is often struck out: thus,

<i>unser</i> (for <i>unsrer</i>),	<i>unse</i> (for <i>unsere</i>),	<i>unser</i> (for <i>unsrer</i>), &c.
<i>euer</i> (for <i>euere</i>),	<i>eue</i> (for <i>eure</i>),	<i>euer</i> (for <i>eurer</i>), &c.

(2) By their forms, therefore, these pronouns indicate the person and number of the nouns which they represent; that is, the person and number of the possessors. As, moreover, they may be declined like adjectives, they, also, make known by their terminations, the gender, number and case of the nouns with which they stand connected: for, in respect to inflection, a possessive pronoun agrees in gender, number and case, not with the possessor, but with the name of the thing possessed.

(3) The possessive pronouns, when *conjunctive*, that is, when joined with a noun, are inflected after the old form of declension; except in three places (*nom. sing. masc. and nom. and acc. neuter*), in which the terminations are wholly omitted; thus,—

Masc.	Fem.	Neut.	For all Genders.
N. <i>mein</i> ,	<i>meine</i> ,	<i>mein</i> ;	<i>meine</i> , <i>my</i> .
G. <i>meines</i> ,	<i>meiner</i> ,	<i>meines</i> ;	<i>meiner</i> , of <i>my</i> .
D. <i>meinem</i> ,	<i>meiner</i> ,	<i>meinem</i> ;	<i>meinem</i> , to <i>my</i> .
A. <i>meinen</i> ,	<i>meine</i> ,	<i>mein</i> ;	<i>meinen</i> , <i>my</i> .

(4) When, however, these pronouns are *absolute*, that is, when they stand alone, agreeing with a noun understood and demanding a special emphasis, the terminations proper to the three places noted above are of course affixed: thus, *unser Hut ist unser*, and *unser Hut ist nicht*, this hat is *mine*, not *thine*; *dein Buch ist mein*, this book is *mine*.

(5) But when a possessive pronoun *absolute* is preceded by the definite article, it then follows the New form of declension: thus,—

Masc.	Fem.	Neut.	For all Genders.
N. <i>der meine</i> ,	<i>die meine</i> ,	<i>das meine</i> ;	<i>die meine</i> , <i>my</i> .
G. <i>des meinen</i> ,	<i>der meinen</i> ,	<i>des meinen</i> ;	<i>der meinen</i> , of <i>my</i> .
D. <i>dem meinen</i> ,	<i>der meinen</i> ,	<i>dem meinen</i> ;	<i>dem meinen</i> , to <i>my</i> .
A. <i>den meinen</i> ,	<i>die meine</i> ,	<i>das meine</i> ;	<i>den meinen</i> , <i>my</i> .

(6) Often, too, in this case, the syllable *ig* is inserted, but without any change of meaning: thus,—

Masc.	Fem.	Neut.	For all Genders.
N. <i>der meinige</i> ,	<i>die meinige</i> ,	<i>das meinige</i> ;	<i>die meinige</i> , <i>my</i> .
G. <i>des meinigen</i> ,	<i>der meinigen</i> ,	<i>des meinigen</i> ;	<i>der meinigen</i> , of <i>my</i> .
D. <i>dem meinigen</i> ,	<i>der meinigen</i> ,	<i>dem meinigen</i> ;	<i>dem meinigen</i> , to <i>my</i> .
A. <i>den meinigen</i> ,	<i>die meinige</i> ,	<i>das meinige</i> ;	<i>den meinigen</i> , <i>my</i> .

(7) When, finally, a possessive pronoun is employed as a predicate, and merely denotes possession, without special emphasis, it is not inflected at all; thus, *der Garten ist mein*, the garden is *mine*; *das Zimmer ist dein*, the room is *thine*; *das Haus ist sein*, the house is *his*.

(8) It should be added that the Germans, when no obscurity is likely to grow out of it, often omit the possessive pronouns, where in English it would be used: the definite article *seiner* sufficiently to supply its place; as, *Ich habe es in den Händen*, I have it in the hands; that is, I have it in my hands; *Er nahm es auf die Schultern*, he took it upon the (his) shoulders; *Er hat den Arm gebrochen*, he has broken (he) an arm or his arm.

§ 59. INDEFINITE PRONOUNS

(1) Pronouns employed to represent persons and things in a general way, without reference to particular individuals, are called *indefinite pronouns*. Such are these,

<i>Man</i> , one; a certain one.
<i>Jemand</i> , some one; somebody.
<i>Niemand</i> , no one; nobody.
<i>Jedermann</i> , every one; everybody.

The following, which also belong to this list of indefinites, have already been treated of under the head of indefinite numerals; viz.

<i>Etwas</i> , something.	<i>Jediger</i> , each; every one.
<i>Nichts</i> , nothing.	<i>Einige</i> , somewhat; some.
<i>Kein</i> , no one; none.	<i>Viele</i> , some; many.
<i>Eine</i> , one; some one.	<i>Alle</i> , every one; all.
<i>Jeder</i> , each; every one.	<i>Viele</i> , many a; many; several.
<i>Jedermann</i> , each; every one.	

Seemann is declined thus:

N. <i>Seemann</i> , everybody.
G. <i>Seemanns</i> , of everybody.
D. <i>Seemann</i> , to everybody.
A. <i>Seemann</i> , everybody.

(2) The German *man* (like the French *on*) is used to indicate persons in the most general manner: thus, *man sagt*, one says; that is, *they say*, *people say*, *it is said*, &c. It is indeclinable, and is found only in the nominative; when, therefore, any other case would be called for, the corresponding oblique case of *ein* is employed: thus, *er will nicht mit ihm*, he will never listen to one, i. e. to any one.

(3) *Jemand* and *Niemand* are declined in the following manner

Singular.	Plural.
N. <i>Jemand</i> , somebody.	<i>Jemand</i> , nobody.
G. <i>Jemandes</i> or <i>Seemands</i> , of somebody.	<i>Jemandes</i> or <i>Niemandes</i> , of nobody.
D. <i>Jemand</i> or <i>Seemantem</i> , to somebody.	<i>Niemand</i> or <i>Niemandem</i> , to nobody.
A. <i>Jemand</i> or <i>Seemanten</i> , somebody.	<i>Niemand</i> or <i>Niemanden</i> , nobody.

(4) Note that the second form of the dative (*Niemandem*, *Niemanden*) is seldom employed except when the other form would leave the meaning ambiguous. Thus, if *Niemandem* might it is useful to nobody; where, were *Niemand* used, the sense might be, nobody is useful. This remark applies, also, to the accusative: as, *sie liebt Niemandem*, she loves nobody; in which instance, were the other form (*Niemand*) substituted, it might mean, nobody loves her.

§ 60. REFLEXIVE AND RECIPROCAL PRONOUNS.

(1) When the subject and the object of a verb are identical, the latter being a personal pronoun, the pronoun is said to be *reflexive*; because the action is thereby represented as reverting upon the actor: thus, *er ruhet sich*, he praises *himself*.

(2) When, however, in such cases, the design is to represent the individuals constituting a plural subject as acting one upon another, the pronoun is said to be *reciprocal*: thus, *sie beschimpfen sich*, they disgrace *one another*.

(3) But, as (for example) *sich beschimpfen* may equally mean, they disgrace *themselves*, the reciprocal word *einander* (one another) is added to or substituted for *sich*, wherever there is danger of mistake; as, *sie verachten sich einander*, or *sie verachten einander*, they understand *one another*.

(4) In the dative and accusative (singular and plural) the German affords a special form for the reflexives; viz. *sich*, *himself*, *herself*, *itself*, *themselves*. The personal pronouns, therefore, in all the oblique cases, that is, all cases, except the nominative, are used in a reflexive sense; except in the dative and accusative (third person), where, instead of *ihn*, *ihn*, *ihn*, the word *sich* is employed. Regarded as *reflexives*, the personal pronouns are declined thus:

Singular.	First Person.	Plural.
G. <i>meiner</i> , of myself.		<i>unsrer</i> , of ourselves.
D. <i>mir</i> , to myself.		<i>uns</i> , to ourselves.
A. <i>mid</i> , myself.		<i>uns</i> , ourselves.

ignorant of chemistry, as he might fancy, for, strictly speaking, no person is totally ignorant of chemistry; how, by what process of reasoning, experiment, or induction, would the conclusion be arrived at, that the metal in question was zinc?

Why it is evident that in all investigations, whether chemical or otherwise, we determine what a thing is, by comparing it with other things, and learning what it is not. We may not possibly be conscious of such being the order of reasoning, but the order exists nevertheless. In the matter of zinc, then, the investigator would have pursued some such sort of reasoning as this: The substance is a white metal, hence it is neither copper nor gold. It is not a soft metal, hence it can neither be lead nor tin. To this extent, common sense or the unconscious reasoning faculty of most persons would readily have gone, but not much farther. Perhaps some investigating mind more acute than its fellows, might have fancied a resemblance between zinc in its brittle form, and steel, and desirous of testing the correctness of his supposition, might have bethought himself of trying upon the unknown metal the effect of an ordinary fire. He would have found that the substance will melt under this trial, whereas steel would not have melted; hence the material in question could not have been steel. The inquirer who should have had recourse to this mode of investigation, would have performed a chemical operation; he would have acted the part of a veritable chemist, fire being one of the chief agents which chemistry employs in distinguishing one material from another, in separating one from another or more, in combining materials so as to imitate the productions of nature, or even advancing, if the expression may be used without presumption, before nature, and bringing compounds into existence which had never hitherto been formed. Now it would scarcely be untrue to say that chemistry presents us with at least a thousand different characteristics, by which zinc might be individualized from every other substance,—might be recognised from a thousand or ten thousand others,—might be recognised under any of the numerous forms which it is capable of assuming,—even if it should come before us in a transparent state! The tyro in chemistry perhaps ejaculates with surprise:—How can a metal be rendered transparent? Nothing more easy, nothing more common than this. There does not exist a metal which cannot be dissolved, forming a transparent solution; surely the student will concede that, under these conditions, the metal is rendered transparent.

But we will now render zinc transparent. It will be necessary to do this as a preliminary to future investigations. Take therefore about one part of oil of vitriol by measure, pour it into an earthenware jug, and pour upon it about six measures of water distilled, by preference; if not readily obtainable, rain water. Remark the great heat developed during this mixture; this circumstance has no reference to anything we are about to do now, it relates to something connected with the philosophy of heat, which is a point to be discussed hereafter. Remark the circumstance, however; it is a striking and important phenomenon. Pour now the mixture of oil of vitriol and water into a wine glass, in order that the changes about to ensue may be readily seen. Throw in a portion of the zinc, and a little flint, and a little more, until it is no longer dissolved. Possibly, however, notwithstanding all care, a little excess of oil of vitriol may be employed. This matters not, as we shall take means to dissipate the excess hereafter.

The amount of oil of vitriol used need not be more than a tea-spoonful, it must not however be measured by a tea-spoon. Remark now what a commotion ensues, observe the bubbles which arise, notice their smell. They are evidently bubbles of a gas. What is that gas? This will be subject of inquiry hereafter. The subject at present under investigation is zinc, let us therefore pay attention to it solely. The zinc rapidly dissolves,—disappears, becomes transparent, and thus the general proposition that a metal can be rendered by combination transparent, may even invisible, is proved.

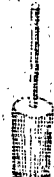
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acts by underiating laws; these laws it is the aim of science to interpret. If the zinc have vanished from the mixture of oil of vitriol and water it must have vanished under the form of a gas. Had the student proposed to himself for solution the general question, whether any metal could become a gas and escaped the question would have been rational; the supposition involved would moreover have been correct, inasmuch as certain metals can assume the form of gas; may even flint can assume this form of gas; but so far as our present investigations are concerned the zinc has not vanished, it is in the solution. Although invisible and in the solution, we will hereafter, in the next lesson, find it; meantime at present we will let it rest. During the course of this lesson the student has not been required to use any chemical instrument properly so called, a wine glass and a jug having been the only instruments employed. In the course of the next lesson certain instruments however will be needed, and instructions for making these instruments will be given; meantime let the student provide himself with the following materials:—

1. A rod of brimstone.
2. A thick wire or thin bar of iron.
3. A small rat's-tail file, and three-square file.
4. A quarter of a pound of the kind of glass tube termed *guyled*.
5. A Florence oil flask.
6. A few sound corks.
7. Two four ounce phial bottles, and
8. A piece of india-rubber tube, about one fourth of an inch in diameter and eight or ten inches long.

The last article may be readily procured at the tobacco-pipe shop, being now frequently employed as a flexible tobacco-pipe tube.

With these preliminary directions, I shall now take leave of my pupils for the present. Those who like to be very industrious may accurately fit about three inches of tobacco-pipe shank to one of the corks, as shown in the diagram; may repeat the operation on a second cork; and finally may adapt accurately, air-tightly, one cork to one of the four-ounce phials, the other to the Florence flask. I have said *may* do this, had I said *may* do it if they can, the expression would have more correctly represented my opinions. The fact is that the accurate air-tight adjustment of corks, so frequently necessary in chemical experiments, is not so self-evident an affair as many people suppose. The fitting of a cork to a Florence flask, or a tobacco-pipe shank to a cork *neatly* air-tight, is no difficult matter, but nearly air-tight will not do for our purpose, the adjustment must be accurate—perfect. If therefore the chemical novice succeeds in accomplishing this without the instruction to be conveyed in the next lesson, he is permitted to take some little credit to himself.



LESSONS IN GERMAN.—No. LIX.

§ 58. POSSESSIVE PRONOUNS.

(1) The possessive pronouns are derived, each respectively, from the genitive case of the personal pronouns; thus,

1st pers. me, my:	from meiner, gen. sing. of 3d.
2d " thee, thy:	" deiner, " " " " Tu.
3d " him, his:	" seiner, " " " " Er.
3d " her, her:	" ihrer, " " " " Sie.
3d " it, its:	" seiner, " " " " Es.
1st " us, our:	" unserer, " plur. " " Wir.
2d " you, your:	" eurer, " " " " Ihr.
3d " they, their:	" ihrer, " " " " Sie.

* Formerly, in ceremonious addresses, the word *Eure* (old gen. plural of *er*, that person) and *Syre* (old gen. plural of *er*, he) were used instead of *Euer* (your) and *Ihr* (her); as, *Syre Majestät*, her majesty, &c.

Euer was formerly written *euere*, and the syllable *Eu* as an abbreviation is used in address to persons of high rank, with the verb in the plural. Ex. *Eu Majestät haben befohlen*, your majesty has ordered.

LESSONS IN GERMAN.

Note that in declining *unser* and *euer*, the *r* before *r* is often struck out: thus,

unser (for *unserer*), *unse* (for *unserer*), *unses* (for *unserer*), &c.
euer (for *eurer*), *eu* (for *eurer*), *eues* (for *eurer*), &c.

(2) By their forms, therefore, these pronouns indicate the person and number of the nouns which they represent; that is, the person and number of the possessors. As, moreover, they may be declined like adjectives, they, also, make known by their terminations, the gender, number and case of the nouns with which they stand connected: for, in respect to inflection, a possessive pronoun agrees in gender, number and case, not with the possessor, but with the name of the thing possessed.

(3) The possessive pronouns, when conjunctive, that is, when joined with a noun, are inflected after the old form of declension; except in three places (nomin. sing. masc. and nom. and acc. neuter), in which the terminations are wholly omitted; thus,—

Masc.	Fem.	Neut.	For all Genders.
N. mein,	meine,	mein,	meine, my.
G. meines,	meiner,	meines,	meiner, of my.
D. meinem,	meiner,	meinem,	meinem, to my.
A. meinem,	meine,	mein,	mein, my.

(4) When, however, these pronouns are *absolute*, that is, when they stand alone, agreeing with a noun understood and demanding a special emphasis, the terminations proper to the three places noted above are of course affixed: thus, *Mein Hut ist mein*, that hat is mine, not *thine*; *Mein Buch ist mein*, this book is mine.

(5) But when a possessive pronoun *absolute* is preceded by the definite article, it then follows the New form of declension: thus,—

Masc.	Fem.	Neut.	For all Genders.
N. der meine,	die meine,	das meine,	die meine, my.
G. des meines,	der meinen,	des meines,	der meinen, of my.
D. dem meinen,	der meinen,	dem meinen,	dem meinen, to my.
A. dem meinen,	die meine,	das meine,	die meine, my.

(6) Often, too, in this case, the syllable *ig* is inserted, but without any change of meaning: thus,—

Masc.	Fem.	Neut.	For all Genders.
N. der meinige,	die meinige,	das meinige,	die meinige, my.
G. des meinigen,	der meinigen,	des meinigen,	der meinigen, of my.
D. dem meinigen,	der meinigen,	dem meinigen,	dem meinigen, to my.
A. dem meinigen,	die meinige,	das meinige,	die meinige, my.

(7) When, finally, a possessive pronoun is employed as a predicate, and merely denotes possession, without special emphasis, it is not inflected at all; thus, *der Garten ist mein*, the garden is mine; *die Stube ist fein*, the room is thine; *das Haus ist sein*, the house is his.

(8) It should be added that the Germans, when no obscurity is likely to grow out of it, often omit the possessive pronoun, where in English it would be used: the definite article securing sufficiently to supply its place; as, *3d. hat es in den Händen*, I have it in the hands; that is, I have it in my hands; *Er nahm es auf die Schulter*, he took it upon the (his) shoulders; *Er hat den Arm gebrochen*, he has broken (the) an arm or his arm.

§ 59. INDEFINITE PRONOUNS.

(1) Pronouns employed to represent persons and things in a general way, without reference to particular individuals, are called indefinite pronouns. Such are these,

Man, one; a certain one.
Jemand, some one; somebody.
Niemand, no one; nobody.
Jedermann, every one; everybody.

The following, which also belong to this list of indefinites, have already been treated of under the head of indefinite numerals: viz.

Etwas, something. *Jedoch*, each; every one.
Nichts, nothing. *Wenig*, somewhat; some.
Kein, no one; none. *Viel*, some; many.
Einer, one; some one. *Alle*, every one; all.
Jeder, each; every one. *Viele*, many a; many; several.

Jedermann is declined thus:

N. *Jedermann*, everybody.
G. *Jedermanns*, of everybody.
D. *Jedermann*, to everybody.
A. *Jedermann*, everybody.

(2) The German *man* (like the French *on*) is used to indicate persons in the most general manner: thus, *man* (for *one* says; that is, *they* say, *people* say, it is said, &c.). It is indeclinable, and is found only in the nominative; when, therefore, any other case would be called for, the corresponding oblique case of *es* is employed: thus, *es* will *es* will *es* will, he will never listen to one, i. e. to any one.

(3) *Jemand* and *Niemand* are declined in the following manner

Singular.	Plural.
N. <i>Jemand</i> , somebody.	<i>Niemand</i> , nobody.
G. <i>Jemandes</i> or <i>Jemanden</i> , of some-body.	<i>Niemandes</i> or <i>Niemanden</i> , of nobody.
D. <i>Jemand</i> or <i>Jemandem</i> , to some-body.	<i>Niemand</i> or <i>Niemandem</i> , to nobody.
A. <i>Jemand</i> or <i>Jemanden</i> , somebody.	<i>Niemand</i> or <i>Niemanden</i> , nobody.

(4) Note that the second form of the dative (*Jemandem*, *Niemandem*) is seldom employed except when the other form would leave the meaning ambiguous. Thus, as *es* *Niemandem* applies it is useful to nobody; where, were *Niemand* used, the sense might be, nobody is useful. This remark applies, also, to the accusative: as, *es* *Niemandem*, she loves nobody; in which instance, were the other form (*Niemand*) substituted, it might mean, nobody loves her.

§ 60. REFLEXIVE AND RECIPROCAL PRONOUNS.

(1) When the subject and the object of a verb are identical, the latter being a personal pronoun, the pronoun is said to be *reflexive*; because the action is thereby represented as reverting upon the actor: thus, *er* *schmeichelt sich*, he praises himself.

(2) When, however, in such case, the design is to represent the individuals constituting a plural subject as acting one upon another, the pronoun is said to be *reciprocal*: thus, *sie* *beleidigen sich*, they disgrace one another.

(3) But, as (for example) *sich* *beleidigen* *may* equally mean, they disgrace themselves, the reciprocal word *einander* (one another) is added to or substituted for *sich*, wherever there is danger of mistake; as, *sie* *verleihen sich* *einander*, or *sie* *verleihen* *einander*, they understand one another.

(4) In the dative and accusative (singular and plural) the German affords a special form for the reflexives; viz. *sich*, *himself*, *herself*, *itself*, *themselves*. The personal pronouns, therefore, in all the oblique cases, that is, in all cases, except the nominative, are used in a reflexive sense; except in the dative and accusative (third person), where, instead of *ihm*, *ihnen*, the word *sich* is employed. Regarded as *reflexives*, the personal pronouns are declined thus:

Singular.	First Person.	Plural.
G. <i>meiner</i> , of myself.		<i>uns</i> , of ourselves.
D. <i>mir</i> , to myself.		<i>uns</i> , to ourselves.
A. <i>mid</i> , myself.		<i>uns</i> , ourselves.

as it is received or paid. In the system of Bookkeeping which we are about to lay before our students, the *Balance of Cash in hand* at the end of each month, is entered on the *Cr. side of the Cash-Book*, and the *Cash Account* is then closed for the month; it is again opened for the next month, by entering the same *Balance of Cash in hand* on the *Dr. side of the Cash-Book*. When one side of a folio (that is, two opposite pages) in the *Cash-Book* is filled up, placed under the sums in the columns, and transferred to the next folio in the *Cash-Book*; the succeeded- and transactions in cash are then entered in the new folios if the preceding folio were completely filled up. In this way the receipts and payments in the same month are kept in the same folio; otherwise, irregularities would arise which would be extremely perplexing to the Bookkeeper.

The *Bill Book* generally consists of two distinct parts; the one contains the *Bills Receivable*, that is, the Bills which have been given to a merchant instead of cash, and of which he is to receive payment at certain periods; and the other contains the *Bills Payable*, that is, the Bills which he has given to others instead of cash, and which he must pay at certain periods. Instead of entering these in separate parts of the same Book, they may be entered in separate Books; the one being called the *Bills Receivable Book*, and the other the *Bills Payable Book*. When a Merchant receives Bills in lieu of money from persons who are indebted to him, it may be done in two ways; first he may either draw a bill on the person who owes him the amount of it; or, he may have a bill indorsed over to him, either from the person who drew it for the same amount on another, or from the person through whose hands it passed in a similar manner. When a Merchant accepts Bills, that is, agrees to pay them, they may be either drawn upon him by persons to whom he is indebted, or by persons who have consigned goods to him for sale on their account; or they may be drawn upon him by persons who consider him as the agent of a principal (another merchant) with whom he keeps an Account Current.

The *Bills Receivable Book* contains the particulars of Bills Receivable (that is, for which cash is to be received), which become a merchant's property in the manner which we have described in the preceding paragraph. These particulars are recorded in columns ruled and titled for the purpose; and, in the system which we intend laying before our students, they are entered in the following order:—1st. The date when received; 2nd. the person from whom, or on whose account received; 3rd. the number affixed by the Merchant on the bill; 4th. the person on whom the bill is drawn; 5th. the date when the bill is due; 6th. the amount or sum for which it is drawn; 7th. the manner in which it is disposed of; and 8th. the date when it is disposed of. Besides these particulars, the following are frequently added in business: 9th. the name of the drawer of the bill; 10th. the date when and the place where it is drawn; 11th. the period or time for which it is drawn; and 12th. the persons to whom, and the place where it is made payable. When Bills Receivable are drawn upon others and endorsed over to a Merchant, they are called *Remittances*; when they are drawn by the Merchant himself, they are called *Drafts*.

The *Bills Payable Book* contains the particulars of Bills Payable (that is, for cash which is to be paid), which a Merchant has accepted, and which are therefore called his *Acceptances*. These particulars are also recorded in columns ruled and titled for the purpose; these are, in this system, entered in the following order:—1st. The date when the bill is accepted; 2nd. the person by whom and on whose account it is drawn; 3rd. the number which the Merchant affixes to the bill; 4th. the person to whom it is made payable; 5th. the date when it falls due; 6th. the amount or sum for which the bill is drawn; and 7th. the date when it is paid. Other particulars besides these are entered in the Bills Payable Book, similar to those which we have enumerated under the head of Bills Receivable; but as many of them seem to be unnecessary, except in very particular cases, we have not burdened our system with these, being satisfied that the general principles of Bookkeeping are most readily acquired, when the attention of the student is not attracted by too many things at once. When these particulars only are entered in both Bill Books, which are deemed to be indispensably necessary, it is usual to have a column in each of them headed with the word *Remarks*, and

intended for the insertion of any additional particulars relating to a Bill which may seem to be very requisite to be known; such as the amount of foreign money for which foreign bills are drawn, with the rate of exchange between the moneys of the different countries where the bills were drawn, &c. Such a column prevents the necessity of entering these particulars separately as memoranda in the *Day-Book*. The following are the forms or specimens of certain bills of exchange, both inland and foreign.

Inland bills of exchange are written orders for the payment of money, drawn by a merchant residing in one place of a country, on a merchant or banker residing in the same place, or in another place of the same country, in favour of a third person, for value received in some shape or the other. These bills are either in the form of a *Draft* or a *Promissory Note*.

FORM OF A DRAFT.

No. 1. (due April 21st.)
London, 18th January, 1853.

£264 : 11 : 0

Three months after date, pay to our order,
Two hundred and sixty-four pounds, eleven shillings, for value received.

SMITH & THOMSON.
To Mr. JOHN SIMPSON, }
Cheapside, London. } JOHN SIMPSON.

FORM OF A PROMISSORY NOTE.

No. 5. (due July 17th.)
London, 14th April, 1853.

£306 : 10 : 6

Three months after date, we promise to pay to Mr. Abel Smith, or order, Three hundred and six pounds, ten shillings, and sixpence, for value received.

HOWARD, SON, & CO.
Foreign bills of exchange are written orders for the payment of money drawn by a merchant residing in a particular place of one country, on a merchant or banker residing in a particular place of another country, in favour of a third person for value received, as before mentioned. These bills are, of course, of two kinds, when the moneys of the two countries are different.

FIRST FORM OF A FOREIGN BILL OF EXCHANGE.

London, 21st. May, 1853.
£600, at 13s. 12s. 6co. per £. stg.

Three months after date, pay this our first of exchange (second and third of same tenor and date unpaid), to the order of Messrs. Brown and Co., Six hundred pounds sterling, at the exchange of thirteen marks twelve shillings banco per pound sterling, value of the same, which place to account as advised.

J. & R. MORLEY.
Messrs. Litchenstein and Co. }
Hamburg. }

SECOND FORM OF A FOREIGN BILL OF EXCHANGE.

London, 5th. Feby, 1853. Dec. 2000m. 12sh.

Three months after date, pay this first of exchange (second and third unpaid) to the order of Mr. Thomas Brown, Three thousand marks, and twelve shillings banco, value in account M. N., which place to account as advised.

SCHOFFEN & CO.
Messrs. Hausen and Co. }
Hamburg. }

This mark is intended to denote the place of the stamp. It is omitted in the foreign bills.

LESSONS IN FRENCH—No. LXIX.

By Professor LOUIS FASQUELLA, LL.D.

LIST OF IRREGULAR VERBS, &c. (continued from page 262).

Infinitive.	Participles.	Indicative.	Imperfect.	Pass. Definite.	Future.	Conditional.	Imperative.	Subjunctive.	Imperfect.
SURSEDIR, 3. to supersede aux. avoir irregular.	sursoyant sursis, f. e.	je sursois tu sursois il sursoit n. sursoyons v. sursoyez ils sursoient	je sursois tu sursois il sursoit n. sursoyons v. sursoyez ils sursoient	je sursis tu sursis il sursit n. surseriez v. surseriez ils surseraient	je surserai tu surseras il sursera n. surseriez v. surseriez ils surseront	je surserais tu surserais il surserait n. surseriez v. surseriez ils surseraient	surser	je surserie tu surseries il surserait n. surseriez v. surseriez ils surseraient	je surserais tu surserais il surserait n. surseriez v. surseriez ils surseraient
SURVENIR, 2. to happen, &c.	survenant survenu, f. e.	je survenais tu survenais il survenait n. surviennent v. surviennent ils surviennent	je survenais tu survenais il survenait n. surviennent v. surviennent ils surviennent	je surviens tu surviens il survient n. surviennent v. surviennent ils surviennent	je surviendrai tu surviendras il surviendra n. surviendrez v. surviendrez ils surviendront	je surviendrais tu surviendrais il surviendrait n. surviendrez v. surviendrez ils surviendront	surviens	je survienne tu surviennes il survienne n. surviennent v. surviennent ils surviennent	je surviendrais tu surviendrais il surviendrait n. surviendrez v. surviendrez ils surviendront
SURVIVRE, 4. to survive	survivant survécu	je survivais tu survivais il survivait n. survivent v. survivent ils survivent	je survivais tu survivais il survivait n. survivent v. survivent ils survivent	je me taisais tu me taisais il me taisait n. taisez v. taisez ils taisez	je me tairai tu me tairas il me taira n. taisez v. taisez ils taisez	je me tairais tu me tairais il me tairait n. taisez v. taisez ils taisez	survis	je me taise tu me taises il me taiserait n. taisez v. taisez ils taisez	je me tairais tu me tairais il me tairait n. taisez v. taisez ils taisez
TAIRE, (se) 4. to be silent	taisant ta, f. e.	je taisais tu taisais il taisait n. taisent v. taisent ils taisent	je taisais tu taisais il taisait n. taisent v. taisent ils taisent	je teignais tu teignais il teignait n. teignent v. teignent ils teignent	je teindrai tu teindras il teindra n. teindrez v. teindrez ils teindront	je teindrais tu teindrais il teindrait n. teindrez v. teindrez ils teindront	ta, s. toi	je teigne tu teignes il teigne n. teignent v. teignent ils teignent	je teignais tu teignais il teignait n. teignent v. teignent ils teignent
TEINDRE, 4. to dye	teignant teint, f. e.	je teignais tu teignais il teignait n. teignent v. teignent ils teignent	je teignais tu teignais il teignait n. teignent v. teignent ils teignent	je tennais tu tennais il tennait n. tennent v. tennent ils tennent	je tennendrai tu tennendras il tennendra n. tennendrez v. tennendrez ils tennendront	je tennendrais tu tennendrais il tennendrait n. tennendrez v. tennendrez ils tennendront	tenne	je tienne tu tiennes il tienne n. tennent v. tennent ils tennent	je tennais tu tennais il tennait n. tennent v. tennent ils tennent
TENIR, 2. to hold aux. avoir irregular.	tenant tenu, f. e.	je tenais tu tenais il tenait n. tiennent v. tiennent ils tiennent	je tenais tu tenais il tenait n. tiennent v. tiennent ils tiennent	je traduisais tu traduisais il traduisait n. traduisent v. traduisent ils traduisent	je traduirai tu traduiras il traduira n. traduirez v. traduirez ils traduiront	je traduirais tu traduirais il traduirait n. traduirez v. traduirez ils traduiront	traduis	je traduise tu traduises il traduise n. traduisent v. traduisent ils traduisent	je traduais tu traduais il traduisait n. traduisent v. traduisent ils traduisent
TONNER, 1. to thunder aux. avoir irregular.	tonnant tonné	je tonnais tu tonnais il tonnait n. tonnent v. tonnent ils tonnent	je tonnais tu tonnais il tonnait n. tonnent v. tonnent ils tonnent	je traduisais tu traduisais il traduisait n. traduisent v. traduisent ils traduisent	je traduirai tu traduiras il traduira n. traduirez v. traduirez ils traduiront	je traduirais tu traduirais il traduirait n. traduirez v. traduirez ils traduiront	traduis	je traduise tu traduises il traduise n. traduisent v. traduisent ils traduisent	je traduais tu traduais il traduisait n. traduisent v. traduisent ils traduisent
TRANSCRIRE, 4. to transcribe	transcrivant transcrit	je transcrivais tu transcrivais il transcrivait n. transcrivent v. transcrivent ils transcrivent	je transcrivais tu transcrivais il transcrivait n. transcrivent v. transcrivent ils transcrivent	je transmettais tu transmettais il transmettait n. transmettent v. transmettent ils transmettent	je transmettrai tu transmettras il transmettra n. transmettrez v. transmettrez ils transmettront	je transmettrais tu transmettrais il transmettrait n. transmettrez v. transmettrez ils transmettront	transcris	je transcrive tu transcrives il transcrive n. transcrivent v. transcrivent ils transcrivent	je transcrivais tu transcrivais il transcrivait n. transcrivent v. transcrivent ils transcrivent
TRANSMETTRE, 4. to transmit	transmettant transmis	je transmettais tu transmettais il transmettait n. transmettent v. transmettent ils transmettent	je transmettais tu transmettais il transmettait n. transmettent v. transmettent ils transmettent	je tressaillais tu tressaillais il tressaillait n. tressaillent v. tressaillent ils tressaillent	je tressaillirai tu tressailliras il tressaillira n. tressaillirez v. tressaillirez ils tressailliront	je tressaillirais tu tressaillirais il tressaillirait n. tressaillirez v. tressaillirez ils tressailliront	tressaillis	je tressaillisse tu tressaillisses il tressaillisse n. tressaillent v. tressaillent ils tressaillent	je tressaillais tu tressaillais il tressaillait n. tressaillent v. tressaillent ils tressaillent
TRESSAILLER, 2. to start	tressaillant tressailli	je tressaillais tu tressaillais il tressaillait n. tressaillent v. tressaillent ils tressaillent	je tressaillais tu tressaillais il tressaillait n. tressaillent v. tressaillent ils tressaillent	je vainquais tu vainquais il vainquit n. vainquent v. vainquent ils vainquent	je vaincrai tu vaincra il vaincra n. vaincra v. vaincra ils vaincra	je vaincrais tu vaincrais il vaincrait n. vaincra v. vaincra ils vaincra	vainc	je vainque tu vainques il vainque n. vainquent v. vainquent ils vainquent	je vainquais tu vainquais il vainquit n. vainquent v. vainquent ils vainquent
VAINCRA, 4. to conquer aux. avoir irregular.	vainquant vaincu, f. e.	je vainquais tu vainquais il vainquit n. vainquent v. vainquent ils vainquent	je vainquais tu vainquais il vainquit n. vainquent v. vainquent ils vainquent	je valais tu valais il valait n. valent v. valent ils valent	je vaudrai tu vaudras il vaudra n. vaudra v. vaudra ils vaudra	je vaudrais tu vaudrais il vaudrait n. vaudra v. vaudra ils vaudra	vaux	je vaille tu vailles il vaille n. valent v. valent ils valent	je valais tu valais il valait n. valent v. valent ils valent
VALOIR, 3. to be worth aux. avoir irregular.	valant valu	je valais tu valais il valait n. valent v. valent ils valent	je valais tu valais il valait n. valent v. valent ils valent	je valais tu valais il valait n. valent v. valent ils valent	je vaudrai tu vaudras il vaudra n. vaudra v. vaudra ils vaudra	je vaudrais tu vaudrais il vaudrait n. vaudra v. vaudra ils vaudra	vaux	je vaille tu vailles il vaille n. valent v. valent ils valent	je valais tu valais il valait n. valent v. valent ils valent
VENDRE, 2. to come	vendant vendu, f. e.	je vendais tu vendais il vendait n. vendent v. vendent ils vendent	je vendais tu vendais il vendait n. vendent v. vendent ils vendent	je vendais tu vendais il vendait n. vendent v. vendent ils vendent	je vendrai tu vendras il vendra n. vendra v. vendra ils vendra	je vendrais tu vendrais il vendrait n. vendra v. vendra ils vendra	vends	je vende tu vendes il vende n. vendent v. vendent ils vendent	je vendais tu vendais il vendait n. vendent v. vendent ils vendent
VÊTRE, 2. to clothe aux. avoir irregular.	vêtant vêtu, f. e.	je vêtais tu vêtais il vêtait n. vêtent v. vêtent ils vêtent	je vêtais tu vêtais il vêtait n. vêtent v. vêtent ils vêtent	je vêtis tu vêtis il vêtait n. vêtent v. vêtent ils vêtent	je vêtirai tu vêtiras il vêtira n. vêtirez v. vêtirez ils vêtiront	je vêtirais tu vêtirais il vêtirait n. vêtirez v. vêtirez ils vêtiront	vêts	je vête tu vêtes il vête n. vêtent v. vêtent ils vêtent	je vêtis tu vêtis il vêtait n. vêtent v. vêtent ils vêtent
VÊTRE, (se) 2. to clothe oneself self ref.	vêtant vêtu, f. e.	je vêtis tu vêtis il vêtait n. vêtent v. vêtent ils vêtent	je vêtis tu vêtis il vêtait n. vêtent v. vêtent ils vêtent	je vêtis tu vêtis il vêtait n. vêtent v. vêtent ils vêtent	je vêtirai tu vêtiras il vêtira n. vêtirez v. vêtirez ils vêtiront	je vêtirais tu vêtirais il vêtirait n. vêtirez v. vêtirez ils vêtiront	vêts	je vête tu vêtes il vête n. vêtent v. vêtent ils vêtent	je vêtis tu vêtis il vêtait n. vêtent v. vêtent ils vêtent
VIVRE, 4. to live aux. avoir irregular.	vivant vécu	je vivais tu vivais il vivait n. vivent v. vivent ils vivent	je vivais tu vivais il vivait n. vivent v. vivent ils vivent	je vivais tu vivais il vivait n. vivent v. vivent ils vivent	je vivrai tu vivras il vivra n. vivra v. vivra ils vivra	je vivrais tu vivrais il vivrait n. vivra v. vivra ils vivra	vive	je vive tu vives il vive n. vivent v. vivent ils vivent	je vivais tu vivais il vivait n. vivent v. vivent ils vivent
VOIR, 3. to see aux. avoir irregular.	voyant vu, f. e.	je voyais tu voyais il voyait n. voient v. voient ils voient	je voyais tu voyais il voyait n. voient v. voient ils voient	je voyais tu voyais il voyait n. voient v. voient ils voient	je verrai tu verras il verra n. verront v. verront ils verront	je verrais tu verrais il verrait n. verront v. verront ils verront	vois	je voie tu voies il voie n. voient v. voient ils voient	je voyais tu voyais il voyait n. voient v. voient ils voient
VOULOIR, 3. to be willing aux. avoir irregular.	voulant voulu	je voulais tu voulais il voulait n. veulent v. veulent ils veulent	je voulais tu voulais il voulait n. veulent v. veulent ils veulent	je voulais tu voulais il voulait n. veulent v. veulent ils veulent	je voudrai tu voudras il voudra n. voudra v. voudra ils voudra	je voudrais tu voudrais il voudrait n. voudra v. voudra ils voudra	veux	je veuille tu veuilles il veuille n. veulent v. veulent ils veulent	je voulais tu voulais il voulait n. veulent v. veulent ils veulent

FABLES.

LES PARVENUS.

Ni les troubles, Zénobie, qui agitent votre empire, ni la guerre que vous soutenez virilement contre une nation puissante, depuis la mort du roi votre époux, ne diminuent rien de votre magnificence: vous avez préféré (§ 134, (5.)) à toute autre contrée les rives de l'Euphrate pour y élever un superbe édifice; l'air y est sain et tempéré; la situation en (§ 39, (17.)) est riante, un bois sacré, l'ombrage du côté du couchant; les dieux de Syrie qui habitent quelquefois la terre, n'y auraient pu choisir une plus belle demeure: la campagne autour, est égayée (§ 134, (2.)) d'hommes qui faillent et qui coupent, et qui viennent (*venir*, 2. *tr.*) et qui courent, et qui roulent ou qui charrient le bois du Liban, l'airain et le porphyre; les grues et les machines gémissent dans l'air, et font espérer à ceux qui voyagent vers l'Arabie, de revoir à leur retour en leurs foyers ce palais achevé, et dans cette splendeur où vous désirez le porter, avant de l'habiter, vous et les princes vos enfants. N'y (§ 39, (18.)) épargnez rien, grande reine; employez y l'or et tout l'art des plus excellents ouvriers; que les Phidias et les Zeuxis de votre siècle déploient (§ 49, (2.)) toute leur science sur vos plafonds et sur vos lambris: tracez y de vastes et délicieux jardins, dont l'enchantement soit tel, qu'ils ne paraissent pas faits de la main des hommes. Epandez vos trésors et votre industrie sur cet ouvrage incomparable; et, après que vous y aurez (§ 60, 5.) mis, Zénobie, le dernier main, quelqu'un de ces pères qui habitent les fables voisins de Palmyre, devenu riche par les péages de vos rivières, achètera (§ 49, (5.)) un jour à deniers comptants cette royale maison, pour l'embellir et la rendre plus digne de lui et de sa fortune.—*La Bruyère.*

L'ACADÉMIE SILENCIEUSE OU LES EMBLEMES.

Il y avait (§ 61, 2.) à Amadan une célèbre académie, dont le premier statut était conçu (*concevoir*, 3.) en ces termes: Les académiciens penseront beaucoup, écriront peu, et ne (§ 17, 2.) parleront que le moins possible. On (§ 41, (4.)) l'appelait l'Académie silencieuse, et il n'était point en Perse de vrai savant qui n'eût l'ambition d'y être admis. Le docteur Zeb, auteur d'un petit livre excellent, intitulé le *Dictionnaire*, apprit (*apprendre*, 4. *tr.*), au fond de sa province, qu'il (*unip.*) allait une place dans l'Académie silencieuse. Il part aussitôt; il arrive à Amadan, et, se présentant à la porte de la salle où les académiciens sont assemblés, il prie l'huissier de remettre au président ce billet: Le docteur Zeb demande humblement la place vacante. L'huissier s'acquitta sur-le-champ de la commission; mais le docteur et son billet arrivaient (§ 119.) trop tard, la place était déjà remplie.

L'académie fut désolée de ce contre-temps; elle avait reçu un peu malgré elle un bel (§ 11, 6.) esprit, dont (§ 30, 8.) l'éloquence vive et légère faisait l'admiration de la cour, et elle se voyait (*voir*, 3. *tr.*) réduite à refuser le docteur Zeb, le fidèle des bavards, une tête si bien faite, si bien meublée! Le président chargé d'annoncer au docteur cette nouvelle désagréable (§ 85.) ne pouvait presque s'y résoudre, et ne savait comment s'y prendre. Après avoir un peu rêvé, il fit (§ 31, 3, 4.) remplir d'eau une grande coupe, mais si bien remplie qu'une goutte de plus eût fait déborder la liqueur; puis il fit signe qu'on introduisit le candidat. Il parut (*paraître*, 4. *tr.*) avec cet air simple et modeste qui annonce presque toujours le vrai mérite. Le président se leva, et, sans proférer une seule parole, il lui montra d'un air affligé la coupe emblématique, cette coupe si exactement pleine. Le docteur comprit (*comprendre*, 4. *tr.*) de reste, qu'il n'y avait (§ 61, 2.) plus de place à l'Académie; mais, sans perdre courage, il songeait à faire comprendre qu'un académicien sur-numéraire n'y dérangerait rien. Il voit à ses pieds une feuille de rose (§ 76, (11.)) il la ramasse, il la pose délicatement sur la surface de l'eau, et fait si bien, qu'il n'en échappe pas une seule goutte.

A cette réponse ingénieuse, tout le monde battit des mains, on laissa dormir les règles pour ce jour-là, et le docteur Zeb fut reçu par acclamation. On lui présenta sur-le-champ, le registre où les récipiendaires devaient (*devoir*, 3.) s'inscrire eux-mêmes. Il s'y inscrivit donc, et il (*unip.*) ne lui restait plus qu'à prononcer selon l'usage une phrase de remerciement. Mais, en académicien vraiment silencieux, le docteur Zeb remercia sans dire mot. Il écrivit (*écrire*, 4. *tr.*) en marge le nombre cent, c'était (§ 108, (1.)) celui de ses nouveaux confrères; puis, en mettant un zéro devant le chiffre, il écrivit au dessous: Il n'en voudront (*valoir*, 3. *tr.*) ni moins ni plus (§ 100). Le président répondit au modeste docteur avec autant de politesse que de présence d'esprit. Il mit le chiffre un devant le nombre cent, et il écrivit: Il en voudront dix fois davantage (§ 100).—*L'abbé Blanchet.*

Une injure qu'on méprise tombe d'elle-même; si on s'en fâche, on la fait valoir.—*Théop.*
La moquerie est, de toutes les injures, celle qui se pardonne le moins.—*Platon.*

LESSONS IN ENGLISH—No. LVIII.

By JOHN R. BEARD, D.D.

THE VERB.

Tense, Mood, Conjugation.

The English language has variations of form to express variations of person, number, tense, and mood. These variations of form exist within narrow limits.

The term *person* refers to the distinctions which exist among the speaker, the person or thing spoken to, and the person or thing spoken of. The speaker is the first person, the person or thing spoken to is accounted the second person, the person or thing spoken of is accounted the third person.

There are then three persons, and these three are represented by the personal pronouns I, or we the first person, thou, or you the second person, and he, she, or they the third person.

Number has a reference to the fact whether a subject indicates one person or thing or more than one. If a noun denotes one object, it is said to be in "the singular number," if a noun denotes more than one, it is said to be in "the plural" (from the Latin plus, pluris, more) number.

Tense (from the Latin *tempus*) has reference to time. "An action may now be going on, then it is said to be in 'the present tense.' Or an action may be over and gone; then the verb which describes it is in 'the past tense.' Or again, an action may be about to commence, in some time to come, then the corresponding tense is called 'the future tense.'"

Mood (from the Latin *modus, method* or *manner*) is a term which refers to the manner in which an action is set forth. Thus you may declare simply *he teaches*, when you indicate a fact without any qualification; this is called "the indicative (Latin *indico, I point out*) mood." Or you may say to a tutor, "teach the boy;" then you give a command; in this case the verb is said to be in "the imperative" (Latin *impéro, I command*) or commanding "mood." Another mood is called "the infinitive (from the Latin *in, not, and finis, limit*) mood," [that is the indefinite mood, the form of the verb which is not bounded, or qualified by person, number or tense. Besides these three moods, namely the *indicative*, the *imperative*, and the *infinitive* commonly set forth in English grammar, the Latins had a subjunctive (or dependent) mood, and the Greeks had an optative or wishing mood.

The term *voice* has reference to the fact whether or not the action of the verb comes back on the subject or actor. If the action of the verb does not come back on the subject or actor, the verb is said to be in "the active voice." If the action of the verb does come back on the subject or actor, the verb is said to be in "the passive" (Latin *patior, I suffer, I am the subject of an action*) "voice."

In English, verbs are modified in *person, number, tense, and mood*.

There are then three persons, the first, the second, and the third. There are two numbers, the singular and the plural. The persons and the numbers are indicated partly by inflexions, and partly by the personal pronouns.

There are two tenses, the present tense and the past tense.

There are three moods, the infinitive mood, the imperative mood, and the indicative mood.

All other modifications of verbal meaning are expressed, not by varieties of form, but by varieties of words.

In these statements and definitions I have said nothing of *conjugation*; the reason is that the English verb has nothing which can with propriety be termed conjugation.

As I have not recognised the complicated system of moods and tenses, the idea and model of which were borrowed from the classical tongues, so here I do not adopt the distinction of strong and weak preterites or past tenses lately introduced into English grammar from the Teutonic tongues. The native simplicity of the English grammar should be studiously preserved.

The word *conjugation* is, however, employed in another sense, namely to denote the general form of the verb when presented in full. In this sense conjugation is pretty nearly the same as formation or form, and for it the term model or example, or to take a term of similar import from the Greek (namely, paradigm) may be employed.

PARADIGM (or model) of the transitive verb *touch*; principal parts, *touch, touching, touched*.

LESSONS IN ENGLISH.

INDICATIVE MOOD.			Present Tense.	Past Tense.	Past Participle.
Person.			Present Tense.	Past Tense.	Past Participle.
Singular.	1. I touch	I touched	Cost	cost	cost
	2. Thou touchest	thou touchest	Crew	crept	crept
	3. He touches	he touches	Crow	crowed or crew	crowed
Plural.	1. We touch	we touched	Cure	cured or cured	cured
	2. You touch	you touched	Out	cut	cut
	3. They touch	they touched	Dare, to challenge	dared	dared
Imperative Mood.			Dare, to venture		
Infinitive Mood.			Deal	dealt	dealt
Participles.			Die	died	died
Present, touching			Do	done	done
Past, touched.			Dream	dreamed or dreamt	dreamed or dreamt
The inflexional form <i>touched</i> is produced by sliding <i>d</i> to touch. This is the usual manner, thus we have learn, <i>learned</i> , grant, <i>granted</i> , adorn, <i>adorned</i> . If, however, the root ends in <i>e</i> , we add not <i>d</i> but merely <i>t</i> ; e. g., improve, <i>improved</i> , love, <i>loved</i> . The word <i>love</i> used to be pronounced thus <i>lovéd</i> , that is, as a dissyllable, the <i>e</i> being accented. Now, however, <i>lovéd</i> is pronounced as a monosyllable. This shortening process has been accompanied by a change of the hard dental sound <i>d</i> into the soft dental sound <i>t</i> , since the latter is more easily pronounced at the end of a word, thus <i>leapt</i> has been softened into <i>leapt</i> . The softening of the second syllable has also in some cases had the effect of shortening the first, thus sweep, <i>swept</i> , sweep, <i>swept</i> , sweep, <i>swept</i> ; so <i>leave</i> becomes <i>left</i> . Sometimes the spelling remains the same and the sole change is in the sound; e. g., present, <i>I read</i> , past, <i>I read</i> , pronounced as if it were <i>red</i> . The tendency to shorten the past form causes the <i>ed</i> to be dropped in such examples as <i>hide</i> , <i>hid</i> , <i>hidden</i> , <i>forget</i> , <i>forgot</i> , <i>forgotten</i> . In <i>forget</i> , <i>forgot</i> , <i>forgotten</i> the past is denoted by two forms, namely <i>forgot</i> and <i>forgotten</i> . Two forms are found in other words, as in <i>sing</i> , <i>sang</i> , <i>sung</i> ; <i>see</i> , <i>saw</i> , <i>seen</i> . It is usual to call one of them "the past tense," and the other "the past participle." The following list exhibits			Draw	drew	drew
			Drink	drank	drank
			Drive	drove	driven
			Dwell	dwelt	dwelt
			Eat	eat or ate	eaten
			Fall	fell	fallen
			Feed	fed	fed
			Feel	felt	felt
			Fight	fought	fought
			Find	found	found
			Place	placed	placed
			Fling	flung	flung
			Fly	flew	flew
			Forake	forsook	forsook
			Freeze	froze	froze
			Freight	freighted	freighted or freighted
			Get	got	got or gotten
			Gift	gilded	gilded or gilt
			Gift	girded	girded or girt
			Give	gave	given
			Go	went	went
			Grave	graved	graven
			Grind	ground	ground
			Grow	grew	grown
			Have	had	had
			Hear	heard	heard
			Hang	hanged or hung	hanged or hung
			Hew	hewed	hewn
			Hide	hid	hidden
			Hit	hit	hit
			Hold	held	held
			Hurt	hurt	hurt
			Keep	kept	kept
			Knit	knitted, or knit	knitted, or knit
			Know	know	known
			Lade	laded	laden
			Lay	laid	laid
			Lead	led	led
			Leave	left	left
			Lead	lent	lent
			Lect	lect	lect
			Lie, to lie down	lay	lain
			Load	loaded	loaded or laden
			Load	lost	lost
			Loose	loose	loose
			Make	made	made
			Mere	mere	mere
			Mow	mowed	mown
			Pay	paid	paid
			Put	put	put
			Read	read	read
			Read	rent	rent
			Rid	rid	rid
			Ride	rode	ridden
			Ring	rang	rung
			Rise	rose	risen
			Rive	rived	riven
			Run	ran	run
			Saw	sawed	sawed or sawn
			Say	said	said
			See	saw	seen
			Seek	sought	sought
			Sell	sold	sold
			Send	sent	sent
			Set	set	set
			Shake	shook	shaken
			Shave	shaved	shaven
			Shear	sheared	shorn
			Shed	shed	shed
			Shine	shone	shone
			Shoe	shod	shod

* A blank is left when there is no specific form for the past participle, and the past tense is used for it.

* The two forms are used in different applications; we say "the man was hanged at Tyburn" and "the clothes were hung in the wardrobe."

Present Tense.	Past Tense.	Past Participle.
Shoot	shot	shown
Show	showed	
Shred	shred	shrank
Shrink	shrank	
Shut	shut	sung
Sing	sang	sunk
Sink	sank	
Sit	sat	alain
Slay	slew	
Sleep	sleep	
Slide	slid	
Sling	sling	slunk
Slink	slit	
Slit	snote	smitten
Snate	snoped	sown
Sow	spoke	spoken
Speak	sped	
Speed	spent	
Spand	spit	
Spill	span or spun	spun
Spin	spat	spitien
Spit	split	
Split	spread	
Spread	sprung or sprang	sprung
Spring	stood	
Stand	stole	stolen
Stal	stuck	
Stick	stung	stunk
Sling	stank	
Sink	strode	stridden
Stride	struck	struck or stricken
Strike	strung	
String	strove	striven
Strive	strowed or strown	strowed, or strown
Strew or strow	swore	sworn
Swear	sweat	swollen or swola
Sweat	swelled	swum
Swell	swam	
Swim	swung	taken
Swing	took	
Take	taught	torn
Teach	toke	
Tear	told	
Tell	thought	thriven
Think	throve	thrown
Thive	threw	
Throw	thrust	
Thrust	trod	trodden
Tread	waxed	waxed
Wax	wore	worn
Wear	wove	woven
Weave	wept	
Weep	won	
Win	wound	
Wid	worked or wrought	
Work	wrungs	written
Wring	wrote	
Write		

I have drawn up this list in agreement with the best usage at the present time. A careful study of this list will disclose several facts.

Some verbs have no separate form for the past tense, such as *knit, let, sit, &c.*

The past form is often nothing more than the present abbreviated; e. g., *breed, bred; child, child; &c.*

Sometimes the diversity is merely in the spelling, as *paid* for *payed* and *said* for *sayed*.

The past is produced by a change of vowels, thus—

A is changed into u; e. g., *care, durst.*

a	into e	fall, fell
a	into o	break (pronounced <i>brake</i>), broke
i	into ou	fight, fought
i	into u	ring, rang
i	into a	give, gave
i	into o	rise, rose
u	into a	run, ran
e	into a	see, saw
e	into o	tell, told

The part of one or two verbs comes from another verb than that from which the present is formed; in the verb *to be*, we have three

primitive forms, *be, am, was*. *Go* and *went* are from two separate verbs, of which *go* is a defective in the past, and *went* is in the present.

Some forms are archaic (old) or even obsolete (out of use); e. g., *behiden* for which we now say *indubited*; *cleave* is hardly used except in speaking of the "cleave topgall" (Acts ii. 3.); *gotten* has been superseded by its abbreviation *got*. *Wist* (Acts xiii. 6.) also *woot* (Phil. i. 22.) are past forms of "to wit" from the German *wissen*, to know, connected with our *wise* and our *witch* and *wizard*. *Quoth* (said) is an antiquated past tense of *quote*, to cite.

SKETCHES FOR YOUNG THINKERS.

INTRODUCTION.

Young thinkers form a most important section of the human family. The aged cannot remain on the earth for ever, and the prospect would be indescribably hopeless were there no rising intelligences preparing to take their places and discharge their duties. Special attention should be devoted to the young; they constitute the embryo of the succeeding generation. They are the *young* in an incipient state, and therefore should be carefully sheltered from the rude blast, and nurtured into an intelligent and vigorous manhood.

Young men are being cared for,—nay, more, they have begun to care for themselves, and this is ever a sign of prosperity. "Heaven helps those that help themselves," is an aphorism as true as it is beautiful. Everywhere "Young Men's Christian Associations," "Mental Improvement Societies," and similar institutions are rising into existence. These are blessings to our land. They tend, and will tend more and more, to preserve peace and good-will, better than standing armaments and all the destructive artillery of war. They are moral bulwarks; intellectual arsenals. They fight not with "carnal weapons." Their battering-ram is love and light, and their cannon, deeds of beneficence and mercy. The poet has sung,

"Britannia needs no bulwarks,
No towers along the steep."

Of whatever other application these words are capable, their loftiest meaning can only be realised in the universal spread of knowledge and purity throughout the world. In this long-looked-for period, the world will need neither "bulwarks nor towers," every man will beat his sword into a ploughshare, and the whole globe will constitute the pavilion of God. To look onward to such a time is not to be the dupes of a visionary enthusiasm, but to trust in the declaration of Him who is faithful and true.

These sentiments apart, we look to the young men of Britain for examples in everything that is noble, learned, and good. The facilities which are placed at their service are all but innumerable. One desideratum, long wanted, is now supplied, a periodical, devoted largely, if not exclusively, to the enlightenment, cultivation, and refinement of young men. The "Popular Educator" is this periodical. It has met with success; young men do patronise their own literature. What is especially devoted to them they have especially supported.

One word about the succeeding sketches. They constitute a small token of deep interest on behalf of young thinkers. The writer makes no pretension to originality. These opinions, arguments, and exhortations are submitted not in a spirit of infallible and imperious dogmatism,—but in fraternal regard and a desire to increase the happiness and well-being of his own class. Criticism may see much to elicit remark; yet amidst imperfection, there may be some hint suggestive of a profitable course of procedure. There is not a single point elaborated to its full extent, the reason of which will be found in the process of reading. It is perhaps superfluous to add, that the writer is indebted to many sources for the numerous illustrations which are given.

This series of papers is a voice to a class. Many voices have sounded in the same direction, an loftier and more thrilling tones; this will fall in with the general chorus, and perhaps deepen a little, the powerful appeals constantly made to British young men. This is its main purpose and highest ambition. In blessing a young man, a host may be benefited. He is the first of an increasing and multiplying series. He will transmit to the generation yet unborn the knowledge which he has industriously acquired.

To impart wisdom is better than to confer wealth, though he who can bestow both is greater than he who can only bestow one. God gives both, in this world and in the next. All external possession is unenduring,—all moral and intellectual is self-propagating, and deposited where "neither rust nor rust doth corrupt, and where thieves cannot break through and steal." He whose treasure belongs to this class will receive his own with usury.

CHAPTER I.

INTELLECTUAL EXCELLENCE.

Mental independence is the birth-right of man—a birth-right, indeed, often bartered for temporary elevation or pecuniary subsistence,—nevertheless, in its original bestowment it is marked with the impress of the divinity, and is intended to be preserved in all its integrity and incomparable worth. Mental vassalage is the most degraded and ignoble serfdom in which it is possible for man to be enthralled. The shackles of physical slavery are as the regalia of royalty, when contrasted with the fetters of entrained thought. The groans and lamentations of the suffering bondsmen are as music, compared with the stifled accusations and agonizing expressions of the man who has "sold his birthright," and who dares not give utterance to the wrongs he is compelled to endure. All men, however, cannot be bound. Having correctly appreciated the value of mental independence, they cling to it with unyielding tenacity, determined to exercise their prerogative while life shall endure. Poverty, obscurity, and labour, may be their portion, but the noble mind looks above and beyond all external hindrances; this mind conquers difficulties, at assails every obstacle with victorious strength, and feels re-energized, and re-inspired, after every conquest. Triumph imparts confidence. The arm which has once obtained victory is ready for encounter, and the mind which has scaled one mount of difficulty, is thereby increasingly prepared for attempting more wonderful and magnificent exploits. The records of biography are filled with illustrious confirmations of these sentiments. To those records we will have occasion to appeal in the course of these sketches, and to adduce therefrom numerous examples, verifying and illustrating the proposition we have undertaken to examine. Mind is frequently aroused and enkindled by the efforts of kindred mind. "As iron sharpeneth iron," so does the energy of one intellect impress and invigorate all within its circle. Biography has done much to elicit the latent abilities of many a youth. As the intellectual Elijah ascended to his throne, his mantle has often been caught by an aspiring and emulating Elisha.

It was a remark of Sir William Jones, that "what has been done by one man can be done by another," and in remembrance of this, he assiduously pursued his studies, until he raised for himself a monument which will not decay, so long as literature continues to occupy the proud position which is its due. Left an orphan at three years of age, he knew not the value of paternal counsel, but he was under the superintendence of a mother who lived in her boy, and was desirous for his intellectual advancement. Her uniform reply to the boundless inquisitiveness of her son is not a little remarkable; instead of satisfying his curiosity, by any endeavour on her part to solve his problems, she contented herself by answering, "Read and you will know." He did read, and the world remembers him as an intellectual prodigy!

The independence of the mind is a necessary element of its excellence. Where man has allowed his mind to be bound by external influence, he can lay no rightful claim to mental purity, uprightness and fearlessness. He is remarkable only for cowardice. He can never be a leader; he must ever follow in the wake of one mightier and more influential. He may entertain opinions, but has not the magnanimity to avow and defend them. He trembles gantly and speaks with bated breath, lest in a luckless hour he may incur disapprobation, which would crush his timid and dependent spirit. Such men are not rare; they are to be found in every town and city, if not in every social company in the land. Such individuals can boast a species of heroism. They are always ready to meet battle in the distance, can deal mortal blows to phantoms of their own creation, and are marvellously fond of seeing the "ocean into tempest wrought, to wait a feather or to drown a dy." But in the hour of execution their courage fails, and

they "hide their diminished heads." In this case, there is wanting true mental independence, and hence, in the full acceptance of the term, there is no essential excellence. It is possible, however, to confound independence with a self-confident, noisy, and inflated egotism. Between the two, there is the widest difference. The man who is mentally erect and independent, does not exhaust himself in "beating the air," or in exhibiting his own strength. He "does his spiring gently," he is calm majestic and deliberate; but having once taken his position, no sophistry, however dexterous, no bribe, however munificent, no patronage, however distinguished, will render him traitorous to truth. True greatness in this, as in every other instance, is quiet—unobtrusive—retiring. Deep rivers glide silently onward, shallow streams announce their own presence. In inquiring, therefore, whether we possess this mental independence, it is necessary that we should carefully distinguish between things that differ. This element or manifestation of intellectual excellence is entirely independent of social position. It is readily acknowledged that the man who has ample resources at command, who can clothe "in purple and fine linen" and "fare sumptuously every day," may exercise independence of thought and action; the man who, in an accomplished sense, can proclaim himself "monarch of all he surveys," may declare with freedom the sentiments he loves; but the man who is doomed to eat bread by the "sweat of his brow" is held by many to be less free in this respect. Happily, the land in which we live is becoming more and more distinguished for liberal and enlightened views on this matter. The poor man is rising to his level, and exercising the common prerogatives of manhood; men are not now measured so much by what they possess, as by what they really are; "the mind's the standard of the man," is a sentiment now more universally acknowledged in England than perhaps it ever was in any period of her history. We by no means declare that such is universally the case. Much misconception still prevails, but we believe that the morning of a day is now dawning, in which man shall be regarded in a proper light, and treated with becoming respect by men. We may venture to affirm, without exaggerating the truth, that mental independence has seen more pleasing developments in England than in any or all other countries together. There are many noble exceptions, but the affirmation is substantially correct. There have been men who have defied poverty and submitted to even social indignity, rather than waive their right of private judgment. Such men do honour to humanity, and are in reality the brightest ornaments of the nation. Man is not to be estimated by his wealth, his political or social status; he is to be measured by what is in him, rather than what is out of him and about him.

(To be continued.)

A KEY TO THE EXERCISES IN THE LATIN LESSONS.

(Continued from page 87, Vol. III.)

By JOHN R. BRAND, D.D.

Page 167, col. 2, vol. II.—LATIN-ENGLISH.

What person that has been well trained and instructed in a virtuous family, is not displeased with sheer baseness, even though it may not be about to injure him? Carthage was destroyed when it had stood 607 years; I dread war cloaked with the name of peace; philosophers have unravelled the intricate nature of many things; will that, which the minds of all have despised and rejected, ever please you? the soldiers abandoned the unarmed citizens in the very crisis of danger; when the mind, recognising and comprehending virtues, shall have departed from the service and gratification of the body, and shall have overcome pleasure, and shall have escaped all fear of death and war, and shall have taken upon itself the worship of God and pure religion, and shall have sharpened its perception so as to love good things and reject the contrary, then our life will be most happy; do you believe that the prosperity of the wicked has disproved the goodness of God? Djanira clothed Hercules in a tunic dyed with the blood of the Centaur; Hippasus, the sophist, boasted, that he was not only acquainted with all arts, in which liberal and noble doctrines were contained, but that he had made with his own hand the ring which he had, the cloak with which he was clad, and the shoes with which he was shod.

two sides CA and AF are equal to the two sides DA and AF , each to each; but the angle CAF is equal to the angle DAF , as has been proved; therefore, the triangle CAF is equal to the triangle DAF , and the remaining angles are equal to each other (I. 4); viz., the angle CFA to the angle DFA ; but these angles are adjacent to each other; therefore, each of them is a right angle (Def. 10); wherefore, the angle CFA is a right angle. In the same manner, it may be shewn that the angle CFA is a right angle. But the angles CFA and CFA are adjacent angles; therefore, the straight line CF is perpendicular to AB (Def. 10), and is drawn from the given point C . Q.E.D.

Scholium 1. In the construction and demonstration, the same principle must be assumed twice, which was only assumed once in Euclid's Prop. 12. If, however, a principle be correct, and if it be lawful to assume it once, it is equally lawful to assume it any given number of times.

In the Gower Street edition of Euclid, it is very properly remarked on this subject, that "the centre of the circle being on one side of the straight line, and a part of the circumference on the other, it is not difficult to perceive that a part of the circumference must also be on the same side of the straight line with the centre; and since the circle is a continued line (Def. 15) it must cross the straight line twice." The student may also refer to the first axiom which we have added to the third book, in Cassell's edition.

Scholium 2. In the construction of this problem, it may be more convenient in practice to take any two points in AB , near the middle of the straight line, instead of the points A and B themselves. In this case, both points will be on the same side of the intended perpendicular, and the demonstration of the proposition will differ from the preceding in some respects; particularly it will be proved that the perpendicular CF makes a right angle with AB , instead of right angles with it. Nevertheless, it is still perpendicular to AB ; for if AB be at right angles to CF , it follows that CF is at right angles to AB .

ANSWERS TO CORRESPONDENTS.

T. H. Jun. (Edinburgh): Thanks for his trouble; but unless we had the printed copy of the *Perpetual Almanack*, and knew something of the author, we do not feel justified in inserting it.—ZINAY (Glasgow): Many thanks for his interest in the P. E. He should address any correspondence he may wish on the subject of the P. E. simply to the Editor of that work.—WALLS: Should take the advice we gave to *Hacknicola*, p. 180, col. 1, line 64.—J. P. ROBINSON, &c.: Received.—ONE WHO WISHES TO GET ON, will be answered soon. *SCRATCH* (Pembroke): We think his specimens of drawing vastly better than *Scratchy*; we only hope that hundreds of our students may be able to do as well; they do him great credit.—W. MANTON (Manchester): Kühner's Greek Grammar.—A. S. LEECHMAN: Arnold's Greek Book.—W. M. (Upper Norwood): Answered before.—R. L. EGNOR (Salford): His question will be answered when treating of Mechanics.—Z. A. (Barnard): Apply to the Editor of the *Mechanics Magazine*.—THOMAS (Aston): We know not.—C. HUGHES (Wolverley): Your engraving or drawing should have two coats of liquid isinglass; that is, tingless dissolved by boiling it in water till it has attained the consistency of ordinary jelly. When thoroughly dry, a coat of white spirit varnish may be passed quickly over it.—H. B. P. has an opportunity of consulting any German, or any one who has mixed much with Germans and observed their pronunciation, he will find that great variety prevails—even among educated persons—in the mode of pronouncing, not merely the letter g , but others also. The pronunciation we have given is that most generally adopted and most readily understood. No reason can be assigned for sounding the letter g differently in different positions, any more than why $ough$ in English should have so many different sounds.

SCOTBY (Preston): What he wishes us to do, in answer to his queries, would take a volume of several hundred pages.—ON JESSE INGRAMM: In the quotation from Byron, the first *Ye* should be *Le*. *PIMMIGALA*: No.—G. S.: We intend to insert the lessons on Practical Geometry, Hand-Railing, &c.—T. HORTON (Liverpool): We are right. He must read more lessons on Bookkeeping, and his difficulties will disappear.—KAPPA (Sydney): We admire his frankness, notwithstanding his singular style. Let him continue Geometry and Algebra as in the P. E., with the help of Cassell's Euclid and Cassell's Algebra (yet in the press). The Latin, if liked, should be pursued with all Cassell's helps, as per Literary Notices. Geometry should be a pastime or relief to the other studies. We are glad he likes our Phonography. We would not advise more.—T. RAYNER (Adwalton) can get any numbers he wants of the Illustrated Exhibitor. The Celestial Hemispheres will be given under Astrology.—J. W. (Dean Mills): We have solutions of the questions he proposes; but they are long and laborious, and must be delayed till we come to treat of the subject.

ERRATUM.

In Cassell's Arithmetic, p. 180, line 3, from bottom, for 73 read 730; and last line, for £18 9s. 3d. read £10 15s. 7d.

* This problem was solved by C. L. Macfield, Bolton; and the 2nd and 3rd of the preceding lesson by J. H. Eastwood, Middleton.

LITERARY NOTICES.

THAT our numerous readers may be fully aware of the works that we have published, and are preparing to publish, to assist them in their study of the various languages, lessons in which have appeared in the *POPULAR EDUCATOR*, we insert the following classified list:—

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With a view fully to carry out the object of the *POPULAR EDUCATOR* as a means of educating the people, it is our intention shortly to commence the publication of a series of works on Classical Literature, to be entitled *CASSELL'S CLASSICAL LIBRARY*. This series will contain the productions of the most eminent Classical Authors, with other works calculated to assist in the acquisition of a general knowledge of the languages and literature of ancient Greece and Rome—the whole published at such a moderate price as to place them within the reach of all. A number consisting of twenty-eight pages, crown octavo, printed on the same paper as the fine edition of the *POPULAR EDUCATOR*, will appear every week, price twopence. The first number will be published on the first of August, and will contain the commencement of a Latin Reader, prepared for the use of beginners. Among the reading lessons, of which this work will consist, will be found easy and amusing Fables, Mythological Legends, Anecdotes of Eminent Men, an Epitome of the History of Rome from the earliest time to the Emperors; and a useful chapter on the Geography of the Nations of Antiquity. These will be accompanied by a Dictionary of all the Latin Words, explanatory Notes, and Grammatical References; the whole forming, when complete, a cheap and convenient introduction to Latin literature. It will consist of ten numbers, and cases for binding will be issued at sixpence each. This work will be followed by Latin Exercises, intended to ground the student in the Syntax of the language, and thus prepare him for entering with advantage upon the study of more difficult authors.

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SCOTLAND.

BOUNDARIES.

NORTH: N. Atlantic Ocean.
SOUTH: England & Irish Sea.
EAST: German Ocean.
WEST: N. Atlantic Ocean.

DIVISIONS.

SOUTH LOWLANDS.

Agricultural Counties.

Counties.	Towns.
Berwick or Merse	DUNSE, GREENLAW.
Haddington, or East Lothian	HADDINGTON.
Edinburgh, or Mid Lothian	EDINBURGH.
Linlithgow, or West Lothian	LINLITHGOW.
Stirling	FALKIRK, STIRLING.

Pastoral Counties.

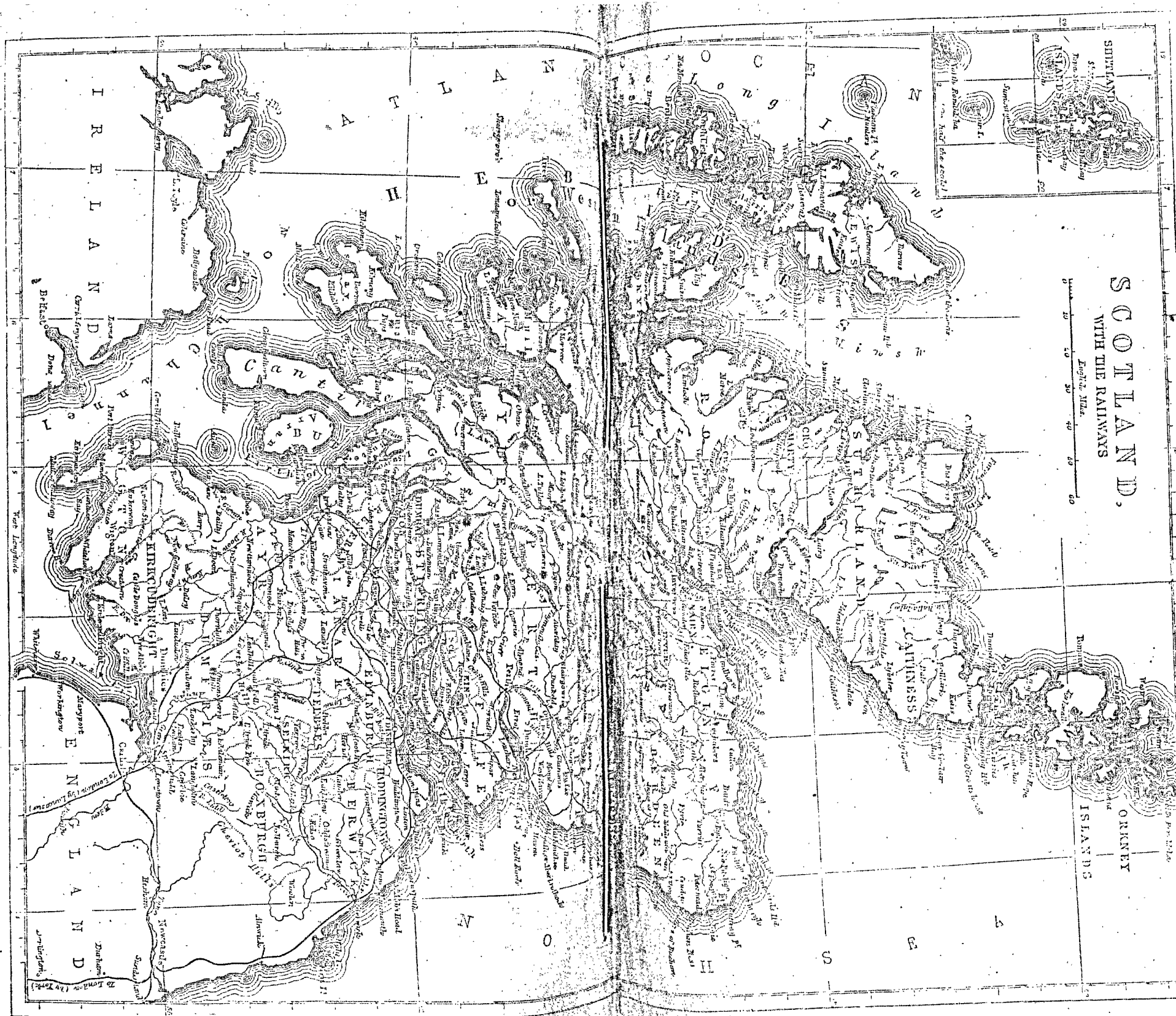
Roxburgh, or Eskdale, and Liddesdale	HAWICK, JEDBURGH.
Selkirk, or Ettrick Forest	SELKIRK.
Peebles, or Tweeddale	PEEBLES.
Dumfries, or Nithsdale and Annandale	DUMFRIES.

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Ayr, or Carrick, Kyle, and Cunningham	KILMARNOCK, Ayr.
Wigton, or East Galloway	STRANRAER, WIGTON.
Kirkcubright, or West Galloway	KIRKCUDBRIGHT.
Renfrew	PAISLEY, RENFREW.
Lanark, or Clydesdale	LANARK.

NORTH LOWLANDS.

Perth, or Gowrie, Strathearn, Monteith, Athol, and Breadalbane	PERTH.
Fife	DUNFERMLINE, CUPAR.
Clackmannan	CLACKMANNAN.
Kinross	KINROSS.
Forfar, or Angus	DUNDEE, FORFAR.
Kincairdine, or Mearns	STONEHAVEN.
Ardeer, or Strathbogie, Mar, & Buchan	ABERDEEN.
Banff	BANFF.
Moray, or Strathspey	ELGIN.
Nairn	NAIRN.



SCOTLAND.

WEST HIGHLANDS.

Dumbarton, or Lennox	Kirkintilloch, DUMBAR- TON.
Argyle, or Can- tair, Lorn, and Cowal	Campbell- ton, INVERARY.
Bute and Arran	ROTHSAY.

NORTH HIGHLANDS.

Inverness, or Lochaber	INVERNESS.
Ross	TAIN.
Cromarty	CHROMARTY.
Sutherland	DORNOCH.
Caithness	WICK.
Orkney and Shetland	Lerwick, KIRKWALL.

ISLANDS.

Bute, Arran, the {Cumbraes,
and Ailsa Craig, in the
Frith of Clyde.
The Inner Hebrides, includ-
ing Gigha, Islay, Jura,
Mull, Colonsay, Oronsay,
Staffa, Iona, Coll, Tiree,
Muck, Eigg, Rum, Canna,
Skye, &c., lying on the
Western Coast.
The Outer Hebrides, includ-
ing Lewis and Harris,
North Uist, South Uist,
Benbecula, the Barra Group,
&c., lying to the North-
west of the Inner Hebrides.
St. Kilda, West of the Outer
Hebrides.
The Orkney Islands, includ-
ing Pomona, Hay, North
Roraldshay, South Ro-
naldshay, Westray, Row-
say, Stronsa, &c., lying to
the North of Caithness.
The Shetland Islands, includ-
ing Mainland, Yell, Unst,
Fetlar, Whalsay, Bressay,
Foula, &c., lying to the
North of the Orkney Is-
lands.
The Bell Rock, near the
mouth of the Tay.
May, Inchkeith, the Bass
Rock, &c., in the Frith of
Forth.

PENINSULAS.

Cantire, in Argyleshire.

CAVES.

Burrow Head and Mull of
Galloway, in Wigtonshire.
Mull of Cantire, and Point of
Ardnamurelan, in Argyle-
shire.
Storr Head, and Cape Wrath,
in Sutherlandshire.
Dunnott Head, and Duncan's
bay Head, in Caithness.
Tarbet-head, in Ross-shire.
Kinnaird's Head and Buchan-
ness, in Aberdeenshire.
Fife-head, in Fife-shire.
St. Abb's Head, in Berwick-
shire.

LESSONS ON PHYSICAL EDUCATION—No. IV.

WRESTLING.

In the exercises of wrestling, the pupils are arranged in a line, and apart from each other at the full distance. The following are the words of command which are first given:—

1. *From the right, call your numbers!*

At these words, each pupil, commencing from the right

at the second, starting from the left foot, he takes three forward, and turns to the right in taking the third, so as to be in position, that when he stops, he is exactly far with his opponent; that is, number 2 faces number 3, number 3 faces number 4; and so on. The raised arm is replaced in their original position.

Fig. 13.

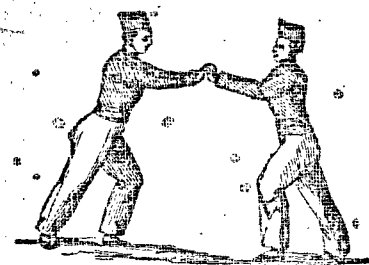
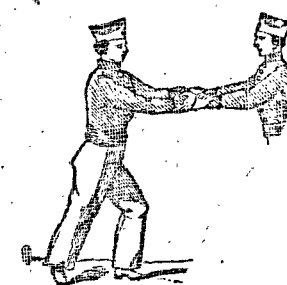


Fig. 14.



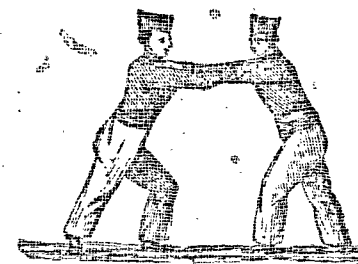
hand, calls his number aloud; that is, the number of the order or place in which he stands; as One, Two, Three, &c. The first words of command are:—

2. *Even numbers, left arms up!*

Exercise 1. The words

1. *Wrestling with the*
2. *Even numbers, left*
3. *in position!*

Fig. 15.



3. *To the right, meet your opponents!*

4. *Move!*

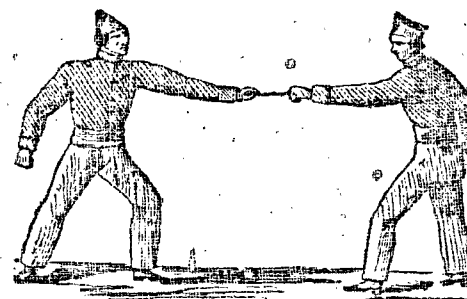
At the first of these commands, each pupil whose number is

4.

5.

A.

Fig. 17.



now, raises his left arm in the air, having his hand turned towards his body so as to take the nearest course in raising it; or

The consonants are divided, first according to the organs chiefly employed in pronouncing them. Thus, in uttering some, we use the palate or upper part of the throat; these are termed gutturals (Latin, guttur, a throat). Others are designated labials, being such as come mostly from the lips (Latin, labium, a lip). For the same reason, others again bear the name of linguals (Latin, lingua, a tongue).

CONSONANTS.

Gutturals.

κ, γ, χ.

Labials.

π, β, φ, μ.

Linguals.

τ, δ, θ, λ, ν, ρ, σ, ζ.

Another division arises according to the different manner in which the organs of speech act in their formation. Thus we obtain.

The semi-vowels or liquids, λ, μ, ν, ρ.

The sibilant or hissing sound, σ.

The mutes, π, κ, τ, β, γ, δ, φ, χ, θ.

These nine mutes are also divided into three gutturals, three labials, and three linguals. In this division regard is had to the organs of speech. If, however, we give attention to the predominant sound, then we classify these nine mutes thus:—1, those of the *k* sound; 2, those of the *t* sound; and, 3, those of the *p* sound. Once more, they may be considered according to the force or hardness of the utterance, and be separated into three soft, three hard (or middle), and three aspirated. The whole is presented in this tabular view of

THE CONSONANTS CLASSIFIED.

Soft. Hard. Aspirated.

Gutturals	κ	γ	χ	K sound.
Linguals	τ	δ	θ	T sound.
Labials	π	β	φ	P sound.

From a union of the mutes with the sibilant σ there are produced these

DOUBLE CONSONANTS.

ψ (ps Psi)	formed of	πσ, βσ, φσ.
ξ (x Ksi)	"	κσ, γσ, χσ.
ζ (z Zeta)	"	δσ.

Sometimes a vowel at the end of a word or syllable, standing before another vowel which begins a word or syllable, is elided or struck out, when we produce what is termed elision (Latin *e*, out of, and *laedo* I dash). Instead of the elided vowel, an apostrophe is put. Elision takes place in all the prepositions except *πρὸς* and *πρὶν*. When prepositions are compounded with verbs that begin with a vowel, the apostrophe is not used; thus, *ἀν' οὐρανὸν* is the elided form of *ἀπὸ οὐρανὸν*, and *ἀντιφρονέας* is the elided form of *ἀπὸ ἀντιφρονέας*.

When, however, the two vowels thus coming, the one before the other, are melted or blended together, so as to form one long syllable or diphthong; what is grammatically called crasis (Greek, a mixing) takes place. Thus *το ἐπὶ* by crasis or kinesis becomes *τοῦπερ*. By resolving the double vowel into its component parts, that is, by the inversion of crasis or by dissolution, you obtain the two words entire; so *τοῦπερ* becomes *το ἐπὶ* and *ἐπερ* becomes *ἐπὶ ἐπερ*; also *ταγαθα* becomes *τα αγαθα*.

The Greeks paid great attention to euphony, or pleasing sound. Consequently they studied to prevent two vowels from coming in immediate succession, so as to cause a hiatus, or stoppage of the flow of the sound, such a stoppage as would take place, if instead of saying an hiatus (Latin, a gap), we were to say a hiatus. To avoid this unpleasant suspension of the breath, we in English convert *a* into *an*. In the same way, and for the same purpose, the Greeks employed *an* at the end.

1. of the dative plural in *αι*, and adverbs of place ending in *αι*; as *πανιν λεξαι*; *ημεραισιν ημεραισιν*.
2. of the third person singular and plural ending in *ει*; *τιθησιν ει*; *τιθησιν ει* *την τραπειαν*; also with *ει* *ει* *ει*.
3. of the third person singular in *ει*, as *εἰπεν ει*.
4. of the numerals, as *εἰκοσι ανδρες*; but not always; for we find also *εἰκοσι ανδρες*.

Regard to euphony also led the Greeks to drop the *σ* in the adverb *οὕτως* before a word beginning with a consonant; thus, *οὕτως ἐπιδεικναι*; but *οὕτω ποιῶ*.

Thus the preposition *ἐκ*, as in *ἐκ τῆς εἰρηνης*, becomes *ἐξ* before a vowel, as *ἐξ εἰρηνης*.

The same practice obtains in the negative *οὐκ* (not, no), as *οὐκ αἰσχος*, *οὐ καλος*; also, *οὐκ ἦν* in the last example the aspirate in *ἦν* requires the aspirated form of *ε*, that is *η* immediately before it, for in Greek only letters of the same kind go together, that is, a soft sound with a soft sound, a hard with a hard, and an aspirated sound with an aspirated sound. But of this matter I shall have to say more by-and-by.

The points employed in punctuating Greek are few; by the original writers points were not at all used. The comma, the period, and the note of exclamation are employed as in English. What with us is called the semicolon is used in Greek as a note of interrogation; and the colon is one dot placed at the top of the word, thus

Colon · *Εἰ λέγει*

Period · *παντες γαρ συνελθουσιν.*

Interrogation ; *τις ταυτα εἰπαισιν;*

Before I proceed to treat of nouns I must say a few words respecting the verb, inasmuch as without some knowledge of the verb you will be unable to form sentences, as I intend you should from your earliest acquaintance with the Greek Grammar. Parts of the verb *ειπα*, to say, are indispensable. I here put down such as you will want, together with the corresponding English, or what is commonly called "the meaning."

Parts of the verb *ειπα*, to be;

<i>ειμι</i> , I am.	<i>εις</i> or <i>ει</i> , thou art.	<i>εσθι</i> , be thou.
<i>εστι</i> , he, she, or it is.	<i>ην</i> , he, she, it, was.	<i>εστω</i> , let him be.
<i>εισι</i> , they are.	<i>ησαν</i> , they were.	<i>εστω</i> , be ye.

Observe that *εστι* and *εισι* become *εστιν* and *εισιν* before a word beginning with a vowel.

Observe also that the Greek *εστι*, is the Latin *est*, and the English *is*.

In the Greek language verbs have three voices, whereas in Latin and in English verbs have only two. If in English I say *I strike*, I express myself in what is called "the active voice;" but if I say *I am struck*, I express myself in what is called "the passive voice." These two voices exist in Greek thus—

Active.	Passive.
<i>τυπτω</i> , I strike.	<i>τυπτομαι</i> , I am struck.

Here you observe that the passive is made by adding to the root *τυπτ* the letters *ομαι*, instead of the letter *ω*, by which the first person singular of the active is formed.

The Greeks have a third voice. In the present tense this voice is not distinguished in form from the passive; being the same word *τυπτομαι*. In signification, however, the third voice differs from the active and the passive. This third voice, under the name of the *middle voice*, denotes a reflex action, that is, an action which turns back on the agent or actor, as *τυπτομαι*, *I beat myself*.

Commit thoroughly to memory this table of *βουλεω*, I advise which contains such parts of the verb as you are likely to want in learning to form the nouns, the adjectives, &c.

INDICATIVE MOOD.

Present Active.	Present Passive.
Sing. 1. <i>βουλεω</i> , I advise.	<i>βουλευμαι</i> , I am advised.
2. <i>βουλεεις</i> , thou advisest.	<i>βουλεις</i> , thou art advised.
3. <i>βουλει</i> , he advises.	<i>βουλειται</i> , he is advised.
Plur. 1. <i>βουλευμεν</i> , we advise.	<i>βουλευμεθα</i> , we are advised.
2. <i>βουλευετε</i> , you advise.	<i>βουλευεσθε</i> , you are advised.
3. <i>βουλευουσι</i> (v) they advise.	<i>βουθενται</i> , they are advised.

IMPERATIVE MOOD.

2. <i>βουλε</i> , advise thou.	<i>βουλευ</i> , be thou advised.
2. <i>βουλευε</i> , advise ye.	<i>βουλευεσθε</i> , be ye advised.

INFINITIVE MOOD.

<i>βουλεω</i> , to advise.	<i>βουλευεσθαι</i> , to be advised.
----------------------------	-------------------------------------

The middle signification is sometimes best rendered by another word; thus, instead of saying, *I advise myself*, we may say, *I consult*, or *I take advice*.

Observe how these several changes in the termination are produced. The stem, or apertant form of the word, is *βουλεω*. To *βουλεω*, the endings, *ω, ις, ει, ομεν, ετε, ουσι*, are added, according to the person and number you may wish to form. Thus, to form the infinitive active, corresponding with our English *to advise*, you add, *ει* to *βουλεω*, and so produce *βουλευειν*. If you wish to put into Greek, our *advise thou*, you add *εις* to *βουλεω*, and so produce *βουλεεις*, the second person singular of the imperative mood. You proceed in the same way with any other verb. In order to make the matter clear, I put the endings here apart from any verb:

PERSON ENDINGS.

INDICATIVE MOOD.		Present Passive.	
Present Active.	English Sign.		
Sing. 1. <i>ω</i>	I	<i>ομαι</i>	
2. <i>εις</i>	thou	<i>ει</i>	
3. <i>ει</i>	he	<i>εται</i>	
Plur. 1. <i>ομεν</i>	we	<i>ομεθα</i>	
2. <i>ετε</i>	you	<i>εσθε</i>	
3. <i>ουσι</i>	they	<i>ουσι</i>	
IMPERATIVE MOOD.			
Sing. <i>ε</i>	thou	<i>ου</i>	
Plur. <i>ετι</i>	ye	<i>εσθε</i>	
INFINITIVE MOOD.			
<i>ει</i>	to	<i>εσθαι</i>	

VOCABULARY FOR THE EXERCISES.

<i>Αληθινω</i> , I am true, I speak the truth.	<i>Φυγω</i> , I flee, (Latin <i>fugio</i>).
<i>Αριστω</i> , I am the best, excel.	<i>Επαινω</i> , I follow (middle voice).
<i>Βιοω</i> , I live.	<i>Μαχομαι</i> (with dative), I fight (middle voice).
<i>Βλαβω</i> , I am idle, luxurious.	<i>Οδυρομαι</i> , I complain, bewail.
<i>Γριψω</i> , I write.	<i>Αδρω</i> , I struggle, bravely.
<i>Διω</i> , I pursue, strive.	<i>Ηδω</i> , I eat, consume.
<i>Εσθω</i> , I eat, consume.	<i>Καλως</i> , well, beautifully.
<i>Εχω</i> , I have; <i>εχω</i> , with an adverb, it is; as <i>εχα</i> , it is well.	<i>Κακως</i> , badly, ill.
<i>Ομιλω</i> , I admire.	<i>Μετρω</i> , moderately.
<i>Εολω</i> , I follow.	<i>Αν</i> , too much.
<i>Παινω</i> , I educate.	<i>Αν</i> , always (English <i>aye</i>).
<i>Υγω</i> , I blame.	<i>Ου</i> (before consonants), not, no.
<i>Παινω</i> , I play.	<i>Ουκ</i> (before vowels), not, no.
<i>Πιστω</i> , I believe.	<i>Μη</i> (with imperative, Latin <i>ne</i>), not, do not.
<i>Στανω</i> , I hasten, strive after.	<i>Και</i> , and.
	<i>Ει</i> , if.

EXERCISES:—GREEK-ENGLISH.

<i>Αν αληθινω</i> , I am true.	<i>Μη εδωρεσθαι</i> , I do not give.
<i>Καλως παινεσθαι</i> , I am well followed.	<i>Ει κακως γραφει</i> , I write badly.
<i>Στανω</i> , I hasten.	<i>Ει καλακωτε</i> , I am more followed.
<i>Καλως παινεσθαι</i> , I am well followed.	<i>Ουκ αληθενει</i> , I am not true.
<i>Κακως παινεσθαι</i> , I am badly followed.	<i>Ει αληθενει</i> , I am true.
<i>Ουκ αληθενει</i> , I am not true.	<i>Ει αληθενει</i> , I am true.
<i>Ει αληθενει</i> , I am true.	<i>Ει αληθενει</i> , I am true.
<i>Ει αληθενει</i> , I am true.	<i>Ει αληθενει</i> , I am true.
<i>Ει αληθενει</i> , I am true.	<i>Ει αληθενει</i> , I am true.
<i>Ει αληθενει</i> , I am true.	<i>Ει αληθενει</i> , I am true.

ENGLISH-GREEK.

I am true; thou art true; he is true; we are true; you are true; they are true; if I speak the truth, I am believed; do not fight; they fight; follow ye; thou followest; ye follow; he plays; they play; if they flee, they are pursued; I am admired; they are admired; if they are idle, they are not admired; it is well to fight bravely; eat and drink moderately; they do not hasten; thou hastenest; thou art not admired; he writes well; they write badly; it is well to be always the best; you live moderately; they eat too much.

I will now give you some directions as to these exercises. First, then, you must repeat each word in the vocabulary until you have impressed it indelibly on your memory. Then proceed, with the aid thus gained, to translate the Greek sentences into English, and put the English words into their corresponding Greek words, paying due regard to the model or pattern given you here and in other cases. In translating from the one language into the other, you may derive aid from consulting the Greek and the English as given in the exercises; that is, if you are translating from Greek into English, consult the exercise given in English, finding the example most like the one you have to translate; and if you are translating from English into Greek, then in the same way consult the exercise given in Greek. Be not in haste to advance; but be very careful to do everything thoroughly; make every first step sure before you attempt to take a second step. Bear in mind the Latin proverb "*festina lente*," *hasten slowly*; in English, "*slow and steady wins the race*." Do not be content with writing an exercise once, write it again and again; and when you think you have made it quite correct, then commit it to memory.

The Greek is a language in which compounds are readily and copiously found. The Greek may, in consequence, be acquired with comparative ease, provided the student is trained in the formation of its compounds. The necessary instructions I shall endeavour to impart. With this view I shall supply lists of words etymologically connected with those which are given in the vocabulary. A knowledge of one word will thus become to the learner a knowledge of several. Let us take, as an instance, the verb *βουλεω*, the present tense of which stands above. *βουλεω*, I advise, comes from *βουλη*, advice or counsel; *βουλη* leads to *βουλευα*, the dignity or office of a councillor; thence we derive *βουλευον*, a council-house; *βουλευον*, a determination; *βουλευτης*, a councillor; *βουλευται*, to speak in a council; besides other terms. These words are again modified in meaning, as well as multiplied by means of prepositions; e.g., in combination with *οὐκ*, *βουλη* forms another set of terms, as *οὐκ βουλεω*, a resolution; *οὐκ βουλεω*, the communication of a resolution; *οὐκ βουλεω*, a joint council; *οὐκ βουλεω*, I give counsel; *οὐκ βουλεω*, a senator. It would be easy to extend this list. But without going further, here are eleven words connected in origin, form and meaning with one word. When, then, you know that one, you have a key to all the rest. With a few roots, you thus see, you would soon become master of a copious vocabulary; and, as the roots of the language are not numerous, the acquisition of it, when rightly studied, is by no means a very difficult task.

N.B.—The roots will be printed in capitals. Let the "Etymological Vocabulary," no less than the "Vocabulary for the Exercises," be thoroughly committed to memory.

ETYMOLOGICAL VOCABULARY.

<i>ΑΑΦΩΝΕ</i> , true.	<i>Αρεστος</i> , of the best nature.
<i>Αληθινω</i> , I am true.	<i>ΒΙΟΣ</i> , life.
<i>Αληθεια</i> , truth.	<i>Βιοω</i> , I live.
<i>Αληθεως</i> , truthfulness.	<i>Βιοσος</i> , life-saving.
<i>Αληθερογια</i> , truth-speaking.	<i>Βιωτα</i> , the art of life.
<i>Αληθινος</i> , true, genuine.	<i>Βιοφθορα</i> , a destruction of life.
<i>Αληθειαντες</i> , a true soothsayer.	<i>Βιω</i> , I am alive.
	<i>Βιωτικος</i> , serviceable to life.
<i>ΑΡΙΣΤΟΣ</i> , best.	
<i>Αριστω</i> , I am best or first.	<i>ΓΡΑΦΩ</i> , I engrave, write.
<i>Αριστοκρατια</i> , government of the best, aristocracy.	<i>Γραφη</i> , a writing.
<i>Αριστομαρτις</i> , the best soothsayer.	<i>Γραφειν</i> , a writing tool.
<i>Αριστονος</i> , an excellent labourer.	<i>Γραφικος</i> , pertaining to writing.
<i>Αριστοτελης</i> , an excellent artist.	<i>Γραμμα</i> , a written letter.
	<i>Γραμματια</i> , the art of writing.

In the word *Αληθινολογια*, *truth-speaking*, there are two compounds, namely, *Αληθινος* from *Αληθης*, and *λογος*; *λογος* means speech, a word. *Αληθινολογια* is then a compound word, resembling in form as well as import this term which we can fit the purpose of illustration, namely, *truth-speaking*. Take another instance from our own language. Aristocracy is made up of *αριστος*, best, and *κρατια*, power or government.

and so signifies, not best government, but the government of the best.

You cannot obtain all the information contained in the "Etymological Vocabulary," until you know the second word which enters into combination with each separate root. I shall, therefore, supply these second terms, together with their significations.

SECONDARY COMPONENTS.

Mavric, a diviner, a foreteller; *λογος*, speech; *καρτος*, strength; *πονος*, labour; *τεχνη*, art; *φωω*, I come into existence; *φθορα*, destruction.

N.B. Observe that the pronoun is implied in the verb, and consequently you do not need a separate pronoun in translating. Thus *γραφω* is I write; involving the pronoun *I*, as well as the verb *write*. So *γραφει* is he writes, and *γραφουμεν* is we write.

LESSONS IN ARITHMETIC—No. XXVIII.

(Continued from page 220.)

AVOIRDUPOIS WEIGHT.

In this weight, the ounce weighs 437½ troy grains, and the dram 27½ troy grains. The following is an old division of this weight, called

Wool Weight.

7 pounds	make 1 Clove
2 Cloves, or 14 pounds	" 1 Stone, as before
2 Stones, or 28 pounds	" 1 Tod, or quarter cwt.
6½ Tods, or 182 pounds	" 1 Wey, or 1 cwt. 2 qrs. 14 lbs.
2 Weys, or 364 pounds	" 1 Sack, or 3 cwt. 1 qr.
12 Sacks, or 4368 pounds	" 1 Last, or 39 cwt.

A pack of wool weighs 240 pounds. A truss of straw weighs 35 pounds; a truss of old hay 56 pounds, and of new, 60 pounds; a load, 36 trusses.

LONG MEASURE.

Long Measure is used in measuring distances where length only is considered, without regard to breadth or depth. It is frequently called *linear* or *lineal* measure. The standard Unit of Length is the yard of 3 feet or 36 inches, called the British Imperial Yard. The multiples and submultiples of this standard are used both for itinerary and mercantile purposes.

Itinerary Measure.

12 Inches (in.)	make 1 Foot	marked ft.
3 Feet	" 1 Yard	" yd.
5½ Yards, or 16½ feet	" 1 Rod, perch, or pole r. or p.	"
4 Rods, or 220 yards	" 1 Furlong	" fur.
8 Furlongs, or 320 rods	" 1 Mile	" m.
3 Miles	" 1 League	" l.
60 Geographical miles, or 69½ Common miles	" 1 Degree of a great circle	" deg. or °
360 degrees	" 1 Great circle of the globe	" 0

Other measures in common are the following:—4 inches make 1 hand; 9 inches, 1 span; 18 inches, 1 cubit; 6 feet, 1 fathom. In measuring roads and land, surveyors use a chain which is four rods long, and which is divided into 100 links. Hence, 25 links make 1 rod, and 7¼ inches make 1 link. This chain is commonly called *Gunter's Chain*, from the name of its inventor.

The inch is commonly divided either into *eighths* or *tenths*; sometimes, however, it is divided into *twelfths*, which are called *lines*.

The terms *rod*, *pole*, and *perch*, from the French *perche* signifying a rod, are names of the instrument which was originally used as a measure of this length.

Cloth Measure.

The imperial yard is used in measuring cloth, lace, and all kinds of cotton, woollen, flaxen, and silken goods.

2½ inches (in.)	make 1 Nail	marked n.
4 Nails, or 9 in.	" 1 Quarter of a yard	" qr.
4 Quarters, or 36 in.	" 1 Yard	" yd.

The following are a few old measures sometimes used:—37 inches make 1 Scotch ell; 3 quarters, or ¾ yard, 1 Flemish ell; 5 quarters, or 1½ yard, 1 English ell; 6 quarters, or 1½ yard, 1 French ell.

SQUARE MEASURE.

Square Measure is used in measuring surfaces, whose length and breadth are considered without regard to height or depth; as, land, flooring, plastering, &c.

144 Square inches (sq. in.)	make 1 Square foot marked sq. ft.
9 Square feet	" 1 Square yard " sq. yd.
30½ Square yards, or 272½ Square feet	" 1 Sq. perch, or pole sq. p.
40 Square perches	" 1 Rood " ro.
4 Roods	" 1 Acre " ac.
640 Acres	" 1 Square mile " sq. m.

The unit of land measure is the imperial acre, which contains by law 4840 square yards, or 10 square chains. Also 16 square perches make 1 square chain; 10 square chains, or 100,000 square links, make an acre. Flooring, roofing, plastering, &c., are frequently estimated by a "square" of 100 square feet. A *hide* of land, which is spoken of by ancient writers, is 100 acres.

CUBIC MEASURE.

Cubic Measure is used in measuring solid bodies, in which length, breadth and thickness are considered; such as timber, stone, boxes of goods, the capacity of rooms, ships, &c.

1728 Cubic inches (cu. in.)	make 1 Cubic foot marked cu. ft.
27 Cubic feet	" 1 Cubic yard " cu. yd.

The following old measures are sometimes used:—40 feet of round, or 50 feet of hewn timber, make 1 ton or load; 42 cubic feet, 1 ton of Shipping.

LIQUID MEASURE.

The standard of *Liquid Measure* is the imperial gallon, which contains 10 pounds avoirdupois of distilled water, at 62° Fahrenheit's thermometer; it is used in measuring wine, spirits, molasses, oil, beer, ale, milk, and all other liquids in general.

4 Quarters	make 1 Pint, marked pt.
2 Pints	" 1 Quart " qt.
4 Quarts	" 1 Gallon " gal.

The following are some old measures still in use:—31½ gallons make one barrel; 42 gallons, 1 tierce; 63 gallons, or 2 barrels, 1 hogshead; 2 hogsheads, 1 pipe or butt; 2 pipes, 1 tun; also 10 gallons make 1 anker; 15 gallons, 1 runlet; 2 tierces, or 84 gallons, 1 puncheon. In old beer measure, 9 gallons make 1 firkin; 2 firkins, 1 kilderkin; 2 kilderkins, 1 barrel.

The old wine gallon, in general use about 28 years ago, contained 231 cubic inches. The old beer gallon contained 282 cubic inches.

DRY MEASURE.

The standard of *Dry Measure* is the imperial bushel, which contains 80 pounds avoirdupois, or 8 gallons of distilled water, at 62° Fahrenheit's thermometer. It is used in measuring grain, fruit, &c.

2 Pints (pt.)	make 1 Quart, marked qt.
4 Quarts, or 8 pints	" 1 Gallon " gal.
2 Gallons	" 1 Peck " pk.
4 Pecks, or 8 gallons	" 1 Bushel " bu.
8 Bushels	" 1 Quarter " qr.

The following are some old measures sometimes used, viz., 2 quarts make 1 pottle; 2 bushels, 1 strike; 2 strikes, or 4 bushels, 1 coom; 2 cooms, or 8 bushels, 1 quarter; 5 quarters, 1 wey or load; 2 loads, 1 last. The old standard dry measure was the Winchester bushel, an upright cylinder, 18½ inches in diameter, and 8 inches deep, and containing 2150.4 cubic inches. The standard or imperial bushel contains 2218.192 cubic inches.

TIME MEASURE.

Time is naturally divided into *days* and *years*; the former are caused by the revolution of the earth on its axis, the latter by its revolution round the sun.

60 Seconds (sec.)	make 1 Minute	marked min.
60 Minutes	" 1 Hour	" h.
24 Hours	" 1 Day	" d.
7 Days	" 1 Week	" wk.
4 Weeks	" 1 Common month	" mo.
12 Calendar months, or 365 Days and 6 hours (nearly)	" 1 Civil year	" yr.

The following are the names of the 12 calendar months into which the civil or legal year is divided, with the number of days in each.

January	written (Jan.)	the first month, has 31 days.
February	" (Feb.)	" second " " 28 "
March	" (Mar.)	" third " " 31 "
April	" (Apr.)	" fourth " " 30 "
May	" (May)	" fifth " " 31 "
June	" (June)	" sixth " " 30 "
July	" (July)	" seventh " " 31 "
August	" (Aug.)	" eighth " " 31 "
September	" (Sep.)	" ninth " " 30 "
October	" (Oct.)	" tenth " " 31 "
November	" (Nov.)	" eleventh " " 30 "
December	" (Dec.)	" twelfth " " 31 "

The number of days in each month may be easily remembered by committing to memory the following lines:—

"Thirty days hath September,
April, June, and November;
February twenty-eight alone,
All the rest have thirty-one;
But Leap Year, comes one year in four,
And February then has one day more."

A *Solar year* is the exact time in which the earth revolves round the sun, and contains 365 days, 5 hours, 48 minutes, and 48 seconds. Since the civil year contains 365 days, and 6 hours (nearly), it is plain that in four years a whole day will be gained, and therefore every fourth year must have 366 days. This day was originally added to the year, by repeating the sixth of the *Calends of March* in the Roman calendar, which corresponds with the 24th of February in ours. It was called the *intercalary day* from the Latin *intercalo*, to insert. The year in which this day is added is called *Bissextile*, from the Latin *bis*, twice, and *sextilis*, the sixth. It is also called "*Leap Year*," because it leaps over a day more than the common year. The civil or legal year is often called the *Julian year*, from Julius Caesar, who adapted the calendar or register of the civil year to the supposed length of the solar year, by adding 1 day to every fourth year.

CIRCULAR MEASURE.

Circular Measure is applied to the divisions of the circle, and is used in reckoning latitude and longitude, and the motion of the heavenly bodies.

60 Seconds (")	make 1 Minute, marked ' "
60 Minutes	" 1 Degree " ° "
30 Degrees	" 1 Sign " s. "
12 Signs, or 360°	" 1 Circle " c. "

This measure is often called *Angular Measure*, and is chiefly used by astronomers, navigators, and surveyors.

The circumference of every circle is divided, or supposed to be divided, into 360 equal parts, called *degrees*. Since a degree is 360 part of the circumference of a circle, it is obvious that its length must depend on the size of the circle. The division of the circumference of the circle into 360 equal parts took its origin from the length of the year, which (in round numbers) was supposed to contain 360 days, or 12 months of 30 days each. The 12 signs correspond to the 12 months. The term *minutes*, is from the Latin *minutus*, which signifies a small part. The term *seconds* is an abbreviated expression for *second minutes*, or minutes of the second order.

MISCELLANEOUS TABLE.

The following denominations, not included in the preceding tables, are frequently used.

12 Units	make 1 Dozen (doz.)
12 Dozen, or 144	" 1 Gross
12 Gross, or 1728	" 1 Great gross
20 Units	" 1 Score

6 Score	" 1 Hundred
21-Sheets of paper	" 1 Quire
20 Quires	" 1 Ream
2 Reams	" 1 Bundle
5 Bundles	" 1 Bale
A sheet folded in two leaves	forms a folio
A sheet " four leaves	" a quarto, or 4to.
A sheet " eight leaves	" an octavo, or 8vo.
A sheet " twelve leaves	" a duodecimo, or 12mo.
A sheet " eighteen leaves	" an 18mo.
A sheet " thirty-six leaves	" an 36mo.

LESSONS IN GERMAN.—No. LX.

§61. DEMONSTRATIVE PRONOUNS.

(1) The peculiar office of a demonstrative pronoun is to point out the relative position of the object to which it refers. Of these there are three, namely, *dieser*, this (pointing to something near at hand); *jener*, that (indicating something remote); *der*, this or that (referring to things in either position).

(2) *Dieser* and *jener* are declined after the Old form of adjectives: thus,

	Singular			Plural.
	Masc.	Fem.	Neut.	For all genders.
N.	dieser,	diese,	dieses (nisi), this,	diese, these.
G.	dieser,	dieser,	des, of this;	dieser, of these.
D.	diesem,	dieser,	dem, to this;	diesem, to these.
A.	diesen,	diese,	dieses (nisi), this;	diese, these.

(3) *Der*, when used in connection with a noun, is inflected (like the definite article) thus:

	Singular		Plural.	
	Masc.	Fem.	Neut.	
N.	der,	die,	das, this or that;	For all genders. die, these or those.
G.	des,	der,	des, of this or that;	der, of these or those.
D.	dem,	der,	dem, to this or that;	den, to these or those.
A.	den,	die,	das, this or that;	die, these or those.

(4) When used absolutely, that is, to represent a substantive, it is inflected thus:

	<i>Singular.</i>		<i>Plural.</i>
	<i>Masc.</i>	<i>Fem. &</i>	<i>Neut.</i>
N.	der,	die,	das ;
G.	dessen (des),	deren (der)	dessen (des) ;
D.	dem,	der,	dem ;
A.	den,	die,	das ;
			die.
			denen.
			die.

§62. OBSERVATIONS ON THE DEMONSTRATIVES.

(1) The neuters *dieses* (contract form *dies*), *jenes* and *das*, are, like *es*, (§ 134. 1.) employed with verbs, without distinction of gender or number: thus, *dieses* ist ein Mann, this is a man; *dies* sind Menschen, these are men; *jenes* ist eine Frau, that is a woman; &c.

(2) *Dieser*, when denoting immediate proximity, signifies "this," as, in *dieser Welt* ist alles vergänglich, in this world all is transitory. More generally, however, it answers in use to "that." *Jener* always denotes greater remoteness than *dieser*, and signifies "that," "you," "yonder," as *jener Stern* ist kaum sichtbar, that (or yonder) star is hardly visible.

Jener and *dieser*, when employed to express contrast or comparison, often find their equivalents in the English expressions "the former"—"the latter," "that, that one"—"this, this one."

(3) The demonstrative *der*, *dies*, *das*, is distinguishable from the article, with which it is identical in form, by being uttered with greater emphasis, as in the following example: *der* Mann hat es gesagt, nicht *jener*, this man has said it, not that one.

(4) The form *dies* is chiefly found in compounds; as, *tes*, *tes*-wegen, on this account.

(5) Sometimes *der* is, for the sake of greater clearness, employed in place of a possessive: as, *er* malte *sein* Vetter und *tes*ffen Sohn, he painted his cousin and his son; *literally*, and the son of this one, i.e. the cousin's son.

(6) The pronouns, both demonstrative and determinative,

or not; and I found that he only corrected me twice out of that number of sentences. He expressed himself as very much astonished that we had learnt to pronounce French so well without the aid of a tutor. Before I conclude, allow me gratefully to acknowledge the assistance which I have derived in my geometrical studies from the notes and comments which you have added to the various definitions, propositions, &c., in Cassell's Euclid. With every wish for the success of your great and important undertaking, I remain, Yours, &c.

JAMES H. EASTWOOD.

ANSWERS TO CORRESPONDENTS.

BUFFO: A wood merchant exchanged 315 loads of oak at £7 9s. 6d. per load, for 1 of the value in cash and loads of pine and oak in the ratio of 11 to 3; how many of these did he receive, the price being £3 15s., and the oak £13 5s. per load?—T. R. (Gateshead) is right.

W. H. TYSON (Manchester): Many thanks; his surmise regarding Architecture is so far correct.—**ADOLESCENS (Newcastle):** Must really consult a barrister.—**A LEARNER (Newton):** Has not read our Lessons on Geography attentively, or else he should have found all his wants supplied.—**J. W. (Waterbury):** Answered before.—**D. J. (Canterbury):** I. JUSTICE (Shelton): Every thing is in progress for the fulfilment of their wishes and those of many others.—**A. T. (Liverpool):** Will be answered as soon as possible, in our Literary Notices.—**J. H. EASTWOOD (Middleton):** We think we have received all the communications he sent to us.

C. T. CASSELL (Manchester): The language of flowers; the ladies understand this so well naturally, that we are quite sure they do not need our instructions.—**DAVID MILLAR (Kilmarnock):** Deserves great praise for his perseverance and ingenuity; he will see by the solution given in the P. E. that most of his answers are pretty near the truth.—**L. S. CASTLEDINE (Leamington):**

"Honour and shame from no condition rise;
 Set well your part, there all the honour lies."

BILTON (Birmingham): Try Herbert's, Bookseller, Cheapside.—**A. (Leeds):** Beside the "French Manual" he will find directions for pronunciation, as well as the pronunciation of most words, in Cassell's French Dictionary, see our Literary Notices.—**DOCTOR'S VICTIM (Birmingham):** We do not sympathise with an unlimited outcry against a class of men who have done service to their country in all ages.—**2 Kings xx. 7; Jeremiah viii. 23.—PRAGMATIC (Huddersfield):** English, Latin, and French, one hour per day; the rest of the time in the lighter reading of the P. E.

W. J. C. (Clerkenwell): We know of no cheap work containing tables comparing Foreign and English Measures, Coins, &c. Lord Brougham once asked us to write such a work for the Society for the Diffusion of Useful Knowledge, to be sold at 6d. I assented to the work; as if it were as easy to compare and equate Foreign Weights, and measures, Coins, &c., with English, as it is to write BLANK HOUSE! Why the one thing is all imagination and fancy, and the other is all plain and solid fact. But where are the facts to come from? We are surprised at the nonchalance of some people. If we possessed nothing short of Conscience we might write such a work in a few hours; but without this, it would take the labour of years!! And who is to pay us for it?—**A. CONSTANT READER (Ludgate-st.):** We are greatly pleased with his account of his progress in the French language, notwithstanding all his difficulties; we feel satisfied that he will persevere, and doubt not that he will be fully rewarded.—**G. WRIGHT (Saltford):** Solution too late; *subject matter* is expressive but inelegant; we have written a good deal in our time, but never used this phrase.—**G. ELLON (Bristol):** Continue with the P. E. as you have begun, and never mind the position of words at present, provided they be right.—**W. W. Apply to the Rev. J. Curwen, Phoenix, Essex.—DEBITO (Carlton):** Write to Mr. Abbott, we have given his address.

J. J. JACOB (Mold Green): See No. 63, page 162.—**O. P. W. (Wetherby):** Upwards of twenty, always means more than twenty.—**ONE WHOM THE P. E. HAS VISITED IN THE ACES OF OBSCURITY:** We believe the Latin Dictionary by Dr. Beard will be first-rate.—**SELF EDUCATOR:** The constitution of England will be noticed particularly in our Geographical Lessons. Self-love is the governing passion of fallen men; see the Holy Scriptures *passim*.—**J. E. SKEELS (Penrith):** His most important queries have been answered before.—**GWYST (Newport):** Under consideration.—**J. A. M. (Leeds):** Read our Literary Notices more carefully.—**DUNGO (Liverpool):** The Lessons in Arithmetic, Bookkeeping and Penmanship, in the P. E. will make any one a good clerk; your writing and spelling must be improved. No time is wasted in learning the E. R.; it makes you master of the English Language and helps the Latin much. Two years is enough for Latin, considering what is to be learnt. Spanish, &c. will follow.—**PETER (Devon):** Has not asked us questions relating to the grand object of the P. E.—**PURIN, Teacher (North Lincolnshire):** His letter has been sent to Dr. Beard.—**W. GIBBONS (Preston):** Two or three times did we correct the error of three-fourths instead of two-thirds; sometimes printers are very obstinate.—**J. R. PROCTOR, Esq. LL.D.—W. B. (Macclesfield):** The hand of a workman frequent shakings in cold water is the best cure.—**BIBLIOPHILUS (Widley):** See "Notes on the Proprieties."—**J. COLLINS:** Answered before.—**A. MINOR (St. Austell):** We find that his question is pretty correct.—**W. WILSON:** His plan of reading Cassell's Euclid is good; arithmetic is not necessary, but a great help to geometry.

ERRATA.

In the Key to Cassell's Arithmetic, p. 48, ans. to quest. 2, p. 150, for 313 read 314. read one-fifth part of it, p. 23, ans. to quest. 5, p. 63, for 313 read 263, p. 21, ans. to quest. 8, p. 64, read 2580 2/3.

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That our numerous readers may be fully aware of the works that we have published, and are preparing to publish, to assist them in the study of the various languages, lessons in which have appeared in the POPULAR EDUCATOR, we insert the following classified list:—

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With a view fully to carry out the object of the POPULAR EDUCATOR as a means of educating the people, it is our intention shortly to commence the publication of a series of works on Classical Literature, to be entitled CASSELL'S CLASSICAL LIBRARY. This series will contain the productions of the most eminent Classical Authors, with other works calculated to assist in the acquisition of a general knowledge of the languages and literature of ancient Greece and Rome—the whole published at such a moderate price as to place them within the reach of all. A number consisting of twenty-eight pages, crown octavo, printed on the same paper as the fine edition of the POPULAR EDUCATOR, will appear every week, price twopenny. The first number will be published on the first of August, and will contain the commencement of a Latin Reader, prepared for the use of beginners. Among the reading lessons, of which this work will consist, will be found easy and amusing Fables, Mythological Legends, Anecdotes of Eminent Men, and Epitomes of the History of Rome from the earliest time to the Emperors, and a useful chapter on the Geography of the Nations of Antiquity. These will be accompanied by a Dictionary of all the Latin Words, explanatory Notes, and Grammatical References; the whole forming, when complete, a cheap and convenient introduction to Latin Literature. It will consist of ten numbers, and cases for binding will be issued at sixpence each. This work will be followed by Latin Exercises, intended to ground the student in the Syntax of the language, and thus prepare him for entering with advantage upon the study of more difficult authors.

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Printed and published by JOHN CASSELL, La Belle Sauvage-yard, Ludgate-hill, London.—August 6, 1853.

LESSONS IN GEOLOGY.—No. XXXVIII

By THOMAS W. JENKYN, D.D., F.R.G.S., F.G.S., &c.

CHAPTER III.—ON THE INFLUENCE OF ATMOSPHERIC AGENTS ON THE EARTH'S CRUST. SECTION VII.—ON GLACIERS.

I. ON THE FORMATION AND ASPECT OF GLACIERS.

Among the geological agents that have produced great and extensive changes in the crust of the earth, there are none that have played a more important and mysterious part than what are called glaciers [pronounced glâss-geh]. Geologists have ascribed such remarkable and so many physical phenomena to the agency of glaciers, that it is indispensably necessary for the student to have a distinct idea of the formation, the extent, which is rendered "Sea of Ice." This French name, and the English translation of it have given to the majority of readers, some erroneous ideas of a glacier. Some have regarded a glacier as being a frozen lake, embedded in some deep hollow among Alpine ridges, or a collection of land-locked water, frozen up into a mass that never melts. Others have thought that a glacier is an immense collection of mingled snow and ice, that have settled down as a confused heap, in some deep glen or

Fig. 82.



The glacier of the Aletsch.

and the action of these mighty agents. To furnish you with sufficient information to enable you to study glacial action, as represented in geological works, I am compelled to divide this lesson into two or three minor sections; and for the present to limit myself to the formation and aspect of glaciers.

In the works of travellers among the Alps, thousands of people have read about the "Mer de Glace," a French phrase

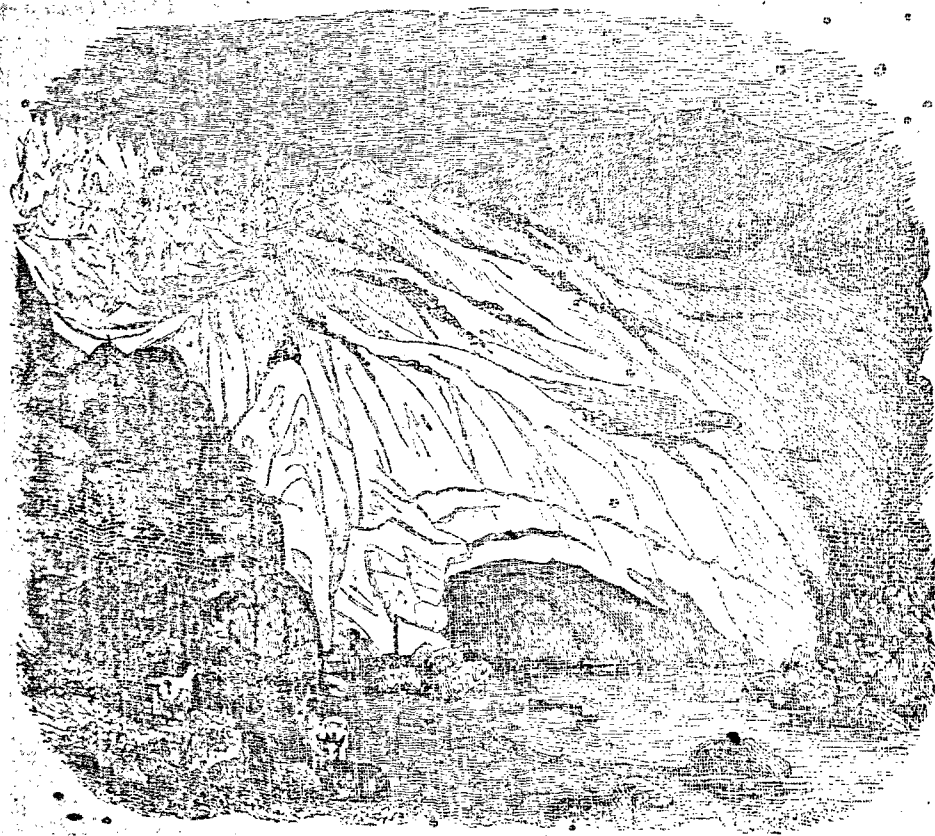
defile, the result of fallen masses that have slid down from the slopes of the mountains and rocks on each side:—in fact, that a glacier consists of the mingled masses of snow and ice, brought down from the mountains by avalanches, and then frozen afresh into one hard mass. Not one of these ideas gives a correct representation of a glacier.

The best way for you to have a clear and accurate concep-

As you are walking down from the higher ridges, you find that the snow at that high elevation, is very different from the snow that you have been accustomed to in the lowlands. In England the snow lies in flakes, and soon becomes clammy and adhesive; but in the loftier regions of the Alps, all the snow about you is granular, and partly globular like small shot. All the snow there is in grains, and not in flakes. In your walk over this snow, you sink at every step, as if you had to walk over the floor of a room, where the gardener or farmer keeps

In descending the higher slopes, you find that the firm snow begins to cease to be granular and loose. It looks and feels under your feet as if it had been penetrated by thaw moisture and then re-frozen. Its texture is now more compressed: its particles adhere closer and firmer to each other; and it is more of a compact mass. This change of texture is effected in summer. It melted in the day; it froze again at night. This mass,

Fig. 63.



The lower termination of the glacier of Zermatt, or Gorner.

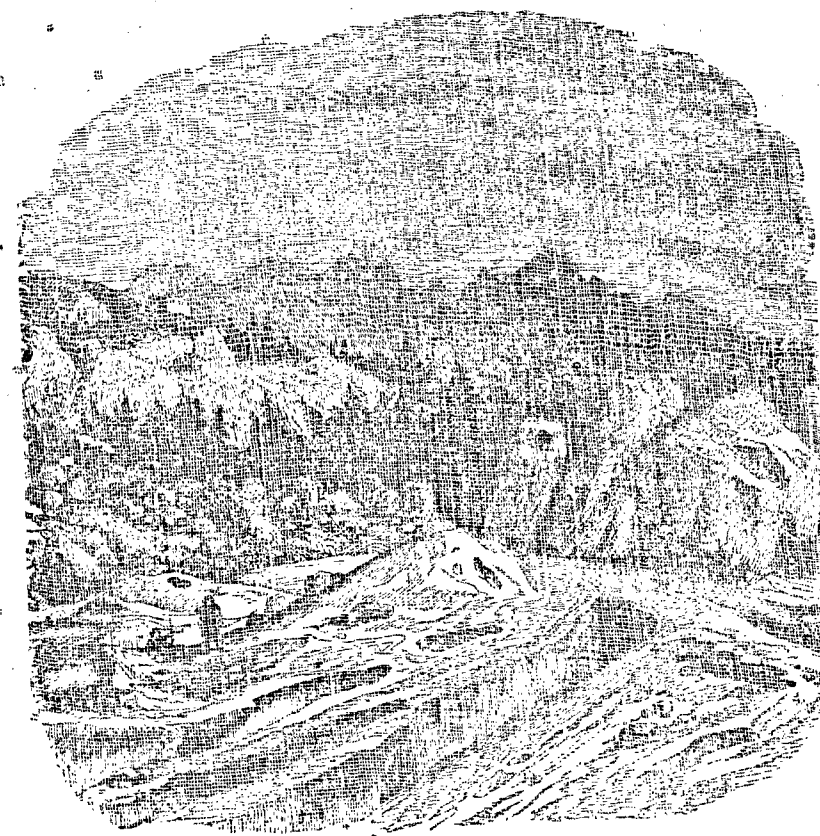
This kind of snow does not stick like fatty snow. It is so loose, like the peas or shot, that you cannot make a snow-ball of it. Though this kind of snow is sometimes seen in England on a day of very severe frost, yet we have no word to distinguish it from the snow which falls in flakes. The inhabitants of the Alps, however, have distinct names to designate this particular kind of granular snow. The Germans call it *Firn*, and the French, *Neve*. In our present lesson, I shall call this kind by the name of *dry snow*.

The line which marks this change in the firny snow, points out the origin of the glacier. This altered or transformed Firn is the source of the glacier. The glacier is only the drain of this Firn. The naturalist Hugi has shown that this line, or point of temperature at which firny snow changes into glacier ice is, in the Alps, invariable; it is at the height of 7,800 feet above the level of the sea. You will do well to keep in mind that a glacier consists of firny snow, partly melted and then recongealed, and in that state pressed into valleys or glens, where it is converted into perpetual ice. The ice, however, of the glacier is not like that which you see formed by the freezing of water. In the glacier, the ice is less dense and con-

The number, the shape, and the dimensions of the glaciers are regulated by the physical conformations of the higher regions of the Alps. The number of Alpine glaciers is supposed to be about four hundred, and they are represented as covering about 400 miles in extent of surface. Some of them

feet. Wherever there is a glen or cleuch commencing about the line of the firny snow, and opening downward, there is always a glacier in it. If the glen dips or slopes very rapidly, the glacier soon terminates. If the glen be wide and tortuous, and ends in a tract somewhat level, or sloping gently into another defile, the glacier may be correspondingly extensive. Glaciers are sometimes full twenty miles in length, stretching from the higher ridges of the Alps, down to nooks and valleys where there are fields and orchards. These large and extensive glaciers are formed in valleys which slope gently stretch continuously though tortuously towards the lower districts, and are enclosed on both sides by ridges which com-

Fig. 81.



The Grevasses in the Mer de Glac under Montanvert."

The upper surface of a glacier is far from being level, smooth, and glassy like that of a frozen lake. It is so irregular, undulating and rough, that skating upon it would be utterly impracticable. At their lower termination, they sometimes swell out and undulate in immense bosses, like that of the Aletsch, as represented in fig. 82.

The diagram in fig. 82 exhibits the lower termination of the

glacier of Aletsch, where it enters the lake of Aletsch, which it caused at one time to overflow with great devastation. From this termination, masses of ice are frequently broken off, and float about like diminutive icebergs in the lake, as shown in the figure. The Aletsch glacier is one of the largest in the Alps.

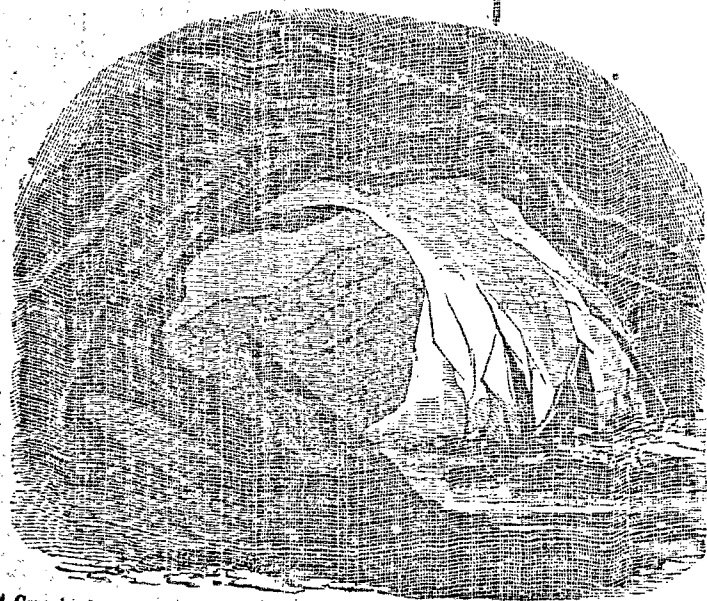
In other cases, the upper surface of the glacier is covered by pointed masses and pyramidal peaks of ice, called Aiguilles or Needles. These pyramids of ice are graphically represented in the upper part of the extreme left of fig. 83, which shows the lower extremity of the glacier of Zermatt, called also the glacier of Gorner.

It is this peaked and crusted aspect of the upper surface that has suggested the frequent metaphor employed to describe a glacier, that it is like a sea in a storm frozen suddenly into firm ice. This glacier lies in one of the high valleys of Monte Rosa, where the river Visp takes its rise, as is represented in the foreground of the figure. Professor James Forbes says that "when the upper level of the glacier is viewed, either from the Riffel, or from the path up the Col of Mont Cervin, it presents a noble scene. It is a very vast ice river." The above figure shows that at the lower termination of most glaciers, there is a vault or cave, from which there issues, especially in the summer, a stream of water. This stream of water ramifies

assisted by the action of the sun and the winds. In very many cases these crevasses are longitudinal, that is, they are frequently in the length and not in the breadth of the glacier. These dreadful crevasses, the sight of which almost chills the blood of the traveller, are well represented in fig. 84.

The crevasses of the glaciers are very rarely or never formed in winter, but in summer they are frequent. When the dislocation takes place, it is accompanied with a noise like thunder, and it produces a shock that makes the contiguous rocks tremble. Glacier chasms or crevasses are subject to constant changes every day, and almost every hour. The dislocations or rents are of two kinds, the day chasms and the night chasms. The Alpine guides give them these designations from a belief that a certain class of chasms are formed in the day only, and the other in the night. The day crevasses are broad and wide at the top, but their walls converge, or the chasm tapers wedge-like as it descends into the body of the glacier. The night crevasses are the reverse: towards the surface, the top edges approach almost to meet each other, and their walls diverge as they descend into the heart of the glacier, so as to form a kind of roof to a magnificent icy cavern below. In short, the day chasms are formed like the letter V, and the night ones like the letter A without the middle stroke. The tops of these night crevasses are frequently hidden by a slight

Fig. 83.



A Cave in the lower termination of a Glacier, with a Stream of Water issuing out of it.

upward, amid the clefts of the ice as tributary rills generally do among very narrow ravines in mountain rocks.

It has been observed in an earlier part of this lesson, that the structure of glacier ice is not only less compact than the ice of frozen water, but that it abounds in cracks. Its entire source is more or less broken up by rents or dislocations. These cracks or rents are called crevasses:—not crevices. They traverse even the upper portion of the glacier, before it becomes fractured as it appears at its lower termination. These crevasses are sources of great peril to travellers. They sometimes run across a glacier, but very rarely completely from side to side. One end of the crevasse may be but a few inches wide, but the further end may be thirty, fifty, and even a hundred feet.

These crevasses are formed mechanically by the motion of the glacier to fill up any vacancy occasioned in its lower portions and by the unequal pressure of different parts of the glacier towards that vacancy. This mechanical process is

covering of snow, which makes them exceedingly dangerous to travellers. Many persons have perished in them.

Dangerous as all these crevasses are, it is possible by means of ropes, ladders, &c. to descend them. When they have been descended, the walls of the crevasse are found full of hollows, openings, caves, grottoes, and what miners would call adits.

Some years ago, a young chamois hunter fell into one of the crevasses, and was precipitated into one of these awful but beautiful caverns. As soon as he stopped, and partly recovered himself, he saw that he was doomed to certain death, for no human aid could reach him. As he reconnoitred his icy mausoleum, he could, through a chink in the glacier, see the blue heavens above him. All around him, long tangles of ice formations assumed, like starry incrustations in limestone caves, a vast variety of fantastic shapes, which glittered in the light that came from above and coloured their walls with beautiful green. It was a grotto, so capacious and so embellished, as if it were a state room in the palace of the spirit of the mountains; but to him, it was nothing but a splendid and cold tomb.

LESSONS IN ENGLISH.—No. LX.

By JOHN R. BEARN, D.D.

THE VERBS; *Have; Do; Will; Shall.*

To have, when uncombined with another verb, is formed thus—
PARADIGM of *to have*: Uncombined function, principal parts, *have, having, had.*

INDEPENDENT FORM.

	Present tense.	Past tense.
<i>Sing.</i> 1.	I have	I had
2.	Thou hast	thou hadst
3.	He has	he had
<i>Plural.</i> 1.	We have	we had
2.	You have	you had
3.	They have	they had

Infinitive, *to have*; present participle, *having*; past participle, *had*. The dependent form is produced by simply prefixing *if* to the parts. The elliptical form is produced by prefixing *'* to the parts, and substituting *have* for *has* and *had*. The imperative form also is produced by placing the pronouns of the second person singular and plural after the form *have*.

By repeating the word *had* another form or tense is produced, which commonly bears the name of "the pluperfect tense." The pluperfect tense of *have*, I had had, thou hadst had, he had had, we had had, you had had, they had had.

Pluperfect properly means *more than perfect*. In reality this form *I had had* denotes an action past in relation to another past action. Let

Pluperfect.	Perfect.	Present.
A.	B.	C.

represent three distinct actions, of which C, now going on, is called present, B, over and gone, is in regard to C past, and A over and gone in regard to B, is past to a past. The action C, then, is in the present tense, B is in the perfect tense, and A is in the pluperfect tense.

Thus, in the verb *to have* we find

A Simple State (and)	A Compound State.
I have, I had	I had had
	I shall have
	I shall have had.

But *to have* performs also a combined office. Entering into alliance with the past participle of the verb *to be*, it adds other forms to the verb *to be*, thus:—

I have been, I had been, having been.

Let us look a little closely at the form "I have been." *Have*, we have seen, is present; *been* has been set down as the past participle. Viewed in relation to its component parts, this form might be called a past-present; that is, a past which is a present as also to be present. Now how, in the nature of things, can an action be past as also to be present? a past action may have present consequences; or an action may be so recently past as to have scarcely vanished from view, and thus is a sort of proximate present. When I say "I have seen your uncle," or "I have been to supper," I speak of something which took place just now, the results of which are still in existence; but if I mean to speak of these actions as wholly past, or as something which took place indefinitely in past time, I say, "I saw your uncle;" "I had my supper."

Instead of the participle *been*, we might employ the past participle *had*, and then we obtain this form.

I have had, &c.

Now the compound forms "I have been," "I have had," viewed etymologically, are very curious. "I have been" is I hold, I possess the fact of being in past time; in the past I was, and that *was* is still in my hands. So "I have had" is the same as I had something in past time and have or hold that something still. But "I had had" means that the thing which I possessed in past time, I possessed before that past began to be; e. g.

I had already had my supper when your father entered.

The verb *to have* combines with verbs in general, thus:—

I have touched, I had touched, having touched, having been touched.

Had, the past tense of *to have*, is sometimes used to express a desire or a condition; e. g.

The cold air of the icy cavern would soon freeze him to death; he, therefore, as a hardy mountaineer and bold hunter, resolved, before he died, to look around him and to explore his grave. As he did so, he heard the sound of rushing water. His observation among the glaciers had taught him that this stream must issue from the glacier at its lower termination. He determined to follow the course of the water, guided only by its trickling sound. He soon lost the crack or chasm through which he had seen the blue heavens—but a very faint dull light penetrated through the entire body of ponderous ice with which he was covered, and by the aid of this, after distressing toils and hair-breadth escapes, he came to the light and life of day, by the glacier cave that formed the outlet of the stream. The vault or cave at which he made his egress from the glacier, is represented in fig. 85.

The magnificence and beauty of these caves or grottoes in the walls of glacier crevasses, have not been left to be explored by accident only. Men devoted to science, and distinguished naturalists, like Professors Hugi and Agassiz (pronounced a-gas-see), have actually pitched their tents and lodged upon the glaciers for the sake of studying them, and have even made it their daily work to descend these awful chasms for the sake of exploring their extent, and investigating their structure and movements. Some of the glacier caverns or grottoes are capacious enough to receive with ease one of our largest frigates. In fantastic forms, and glittering embellishments, they surpass all former conceptions of wildness, beauty, and glitter.

Professor James Forbes, during his numerous excursions in the Alps, paid great and strict attention to the crevasses of glaciers. He says that when a glacier is not violently dislocated by moving over excessively steep or irregular surfaces, the cracks generally take place in a direction perpendicular to the structure of the glacier. Some of these crevasses of the Mer de Glace, shown in fig. 84, are probably two thousand feet long. Old crevasses are constantly being closed up, and new ones formed, and cutting the old ones across. It is this action that produces the tumultuous looking hillocks that frequently cover the upper surface of a glacier. Most crevasses are formed in spring, summer, and autumn, during which seasons the last year's surface of the glacier is in some respects entirely changed. This shows that the chasms are, in a great measure, formed afresh every season.

This lesson has been limited to the formation and general aspect of glaciers. It has been designed merely to furnish the elements of information which are necessary to prepare you for studying and comprehending some of the more remarkable effects ascribed by geologists to glacier action. This action you could not understand, without having some distinct conception of the manner in which glaciers are formed and extended. If you wish to study this formation more scientifically, you must read Professor James Forbes's large and learned work, entitled "Travels through the Alps," 1843. You will find, also, many interesting facts illustrative of the formation of glaciers in a work called "The Alps, &c.," now issuing in monthly parts from the office of Mr. Cassell; a work which brings together much valuable and entertaining information.

"Il y a deux choses auxquelles il faut se faire, sous peine de trouver la vie insupportable: ce sont les injures du temps et les injustices des hommes.—Chamfort.

Une injustice faite à un seul est une menace faite à tous.—Montesquieu.

L'intérêt parle toutes sortes de langues, et joue toutes sortes de personnages, même celui de désintéressé.—La Rochefoucauld.

Comptez rarement sur l'estime et la confiance d'un homme qui entre dans tous vos intérêts, s'il ne vous parle aussi des siens.—Falconer.

Pour qui sont le bonheur et la pauvreté, les querelles, les gémissements et les blessures qu'on se fait sans sujet? pour qui est la rougeur et l'obscurcissement des yeux? N'est-ce pas pour ceux qui passent beaucoup de temps à boire du vin et qui vont chercher où on boit le plus fort? Ne regardez point le vin lorsqu'il est vermeil et que sa couleur brille dans le verre: il entre agréablement; mais il mord à la fin comme un serpent, et il répand son venin comme un basilic.—Salomon.

"I had rather be a dog and bay the moon than such a Roman."—
Shakespeare.

"If the mighty works had been done in Tyre or Sidon."—(Luke xii. 3).

Standing by itself, the verb *do* has a very comprehensive signification.

Do becomes *did* in the past tense.

Do is also employed in combination. In combination, *do* slightly varies in form from *do* as uncombined, thus:—

Do Uncombined. *Do* Combined.

Sing. I do Thou dost (pronounced do-est) He does or doeth I did Thou didst He does

Plural. We do You do They do

In combination *do* is a very useful verb. *Do*, placed before a verb of general import, produces what may be termed the *emphatic form*, as I *do* love, I *do* did love. This form is found only in the present tense and in the past tense. *Do* also before the verb, but with the pronoun after itself, produces the *interrogative form*, as do I love? did I love? By the introduction of *not* we obtain the *emphatic negative* and the *emphatic interrogative*. Another form may be called the *substitutional*, namely, that in which *do* stands as a substitute for a verb immediately preceding, as "do you love learning?" "I *do*." Thus we have the ensuing forms.

The *emphatic affirmative*, I do love learning

The *emphatic negative*, I do not love learning

The *interrogative*, do you love learning?

The *emphatic interrogative*, do you not love learning?

The *substitutional*, do you love learning? I *do*; I *do* not.

I may exhibit these forms with the verb *touch*; e. g.

I do touch; I do not touch; do I touch? do I not touch? you touch, but I do not. So I did touch, &c.

In the passive, the emphasis is given by *accert*, that is the stress of the voice is thrown on the *emphatic* or *important* words; e. g. "you are touched;" "no! I am not touched;" "he you touched?" "Yes, I am touched." The emphasis may be varied according to the tense.

Shall and *will* are two verbs which are of great service in the English language. Being of Saxon origin, they are used with perfect accuracy only by men whose Saxon lineage secures them from mistake.

Shall comes from the German *ollen*, which denotes *duty*, obligation, or necessity as depending on the will of another. *Will* comes from the German *wollen*, which denotes determination depending on your own will; e. g.

"The wise shall inherit glory, but shame shall be the portion of fools."—(Prov. ii. 26).

"His enemies shall I clothe with shame, but upon himself shall his crown be set."—(Psalm cxviii. 18).

A more or less marked reference to these distinctive meanings runs through the applications of these words. Let us take a few instances:—

I shall go Thou shalt go

I will go Thou wilt go

When a person says "I shall go home this evening," he announces a future event as a matter settled and fixed by considerations independently of himself; but when he declares "I will go home this evening," he speaks of a future event as having its cause and its accomplishment in his own mind.

"Thou shalt go" announces my resolution; "thou wilt go" declares thine.

The following examples will illustrate the usage of these words.

A. "Let them go." B. "They will not go." A. "Will they not go?" they shall go." B. "They have changed their minds, and will go."

A. "I shall go to town this morning; will you go with me?" B. "No! I shall go this afternoon." A. "Not this afternoon, if you please." B. "Why not?" A. "Ask no questions, you shall not go."

B. "I beg your pardon, I shall go."

A. "John shall not go home." B. "John will go home." A. "Shall John go home?" B. "John will not go home." Here the will of another is contrasted with John's will; the will of another requires that John's will should be followed.

In general the meanings of these two verbs may be arranged under the heads of obligation, and resolution: thus:—

Obligation. I shall go Thou shalt go He shall go We shall go You shall go They shall go

Resolution. I will go Thou wilt go He will go We will go You will go They will go

Obligation and resolution have reference to the future. Hence *shall* and *will* come to express simple futurity, yet with some slight difference, thus:—

Futurity. 1. I shall go 2. Thou wilt go 3. He will go

*we shall go you will go they will go

The employment of *shall* instead of *will*, in the first person, arises probably from the fact, that the act thus announced as about to take place, ensues from duty or obligation arising outwardly, but inwardly contemplated as proper and as recognised, and consequently as now about to take place in virtue of a tacit act of the speaker's will. If, however, the will or resolution of the speaker even in a slight degree intervenes, and is prominent in his mind, then *will* is employed of a future act, and not *shall*; e. g.

Shall. I shall think my time well spent in instructing you.

Will. He keepeth thee that will not slumber (Ps. cxxi. 3).

In the ensuing verse (Ps. cxxi. 4.) we have these words, "Behold, he that keepeth Israel shall neither slumber nor sleep." Without a difference here between *will* and *shall*; yet is the difference one merely of manner, one that relates, I mean, solely to the way in which the fact is regarded, a *modal* difference; for in the former case the idea is presented as depending on God's will, in the latter it is presented as a settled fact; in the former there is a kind of implied promise, in the latter a future event is announced as simply future. It is curious to observe that a greater degree of certainty attaches to *shall* than *will*. The reason may be, that what depends on the will depends on a changeable cause; but what depends on obligation, on necessity, and on the fixed and settled states of things which hence arise, depends on certainties, on causes the operation and effects of which are parts of the regular course of events, or inevitable consequences of arrangements not to be changed. Compare the use of *shall* as found in Matthew xxv. 31 and following verses.

In the exercises for parsing or analysis, I shall give some instances of the use of *shall* and *will*, to which the student should pay close attention.

Will, when it signifies strictly to determine, may stand by itself, and is formed rather differently from *will* when used in combination; e. g.

Will Uncombined. *Will* Combined.

I will we will I will read we will read

Thou wilt you will Thou wilt read you will read

He will they will He will read they will read

The uncombined form is, the student will see, the ordinary form, as thou touchest, he touches.

This uncombined form must not be confounded with the elliptical form; e. g.

"Will he go?" Answer, "He will."

That is, "he will go, the elliptical word, or the word omitted, being go. *Shall* is occasionally employed in the same or a similar manner; e. g.

"He will not go." "But he shall."

Will has a past form, namely *would*; and *shall* has a past form, namely *should*. *Would* and *should* retain the meanings of their primitives *will* and *shall*. But those meanings undergo modifications. I give some examples.

Would denoting willingness.

I would come to you, if I could.

He would do it, if he had power.

They would have written, but we prevented.

Should denoting duty.

I should study more diligently, but I am idle.

He should go into the country to see his father.

You should learn pieces of poetry by heart.

They should not go out in the rain.

Would sometimes denotes a wish; e. g. "Would that the play

Obligation.

I shall go

Thou shalt go

He shall go

We shall go

You shall go

They shall go

Resolution.

I will go

Thou wilt go

He will go

We will go

You will go

They will go

Futurity.

1. I shall go

2. Thou wilt go

3. He will go

*we shall go

you will go

they will go

The employment of *shall* instead of *will*, in the first person, arises probably from the fact, that the act thus announced as about to take place, ensues from duty or obligation arising outwardly, but inwardly contemplated as proper and as recognised, and consequently as now about to take place in virtue of a tacit act of the speaker's will. If, however, the will or resolution of the speaker even in a slight degree intervenes, and is prominent in his mind, then *will* is employed of a future act, and not *shall*; e. g.

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Would denoting willingness.

I would come to you, if I could.

He would do it, if he had power.

They would have written, but we prevented.

Should denoting duty.

I should study more diligently, but I am idle.

He should go into the country to see his father.

You should learn pieces of poetry by heart.

They should not go out in the rain.

Would sometimes denotes a wish; e. g. "Would that the play

were over!" *Should* sometimes expresses a condition; e. g. "Should the French invade England, they will be thoroughly beaten." *Would* may signify a habit, as, "he would wander abroad like a distracted person."

Would and *should* may exist in an indicative (or independent) and in a dependent form; e. g.

Independent.

I should like some milk.

Dependent.

If I should like some milk.

It is impossible to find any one word which comprises all the compass of meaning involved in *will* and *shall* or in *would* and *should*. As, however, *will* and *shall* invariably denote futurity, whatever else they denote, they may be taken as signs of the future tense in English; and as *would* and *should* often denote a condition, they may be considered as forming a conditional tense or form. Thus arise these forms.

The future tense of the verb to teach.

I shall, thou wilt, he will, we shall, you will, they will—teach.

Shall and *will* combine with *have* and *been*, making other forms of the verb with corresponding modifications of import; e. g. I shall have taught; I shall be taught; they will have been taught. There are yet two forms of *would* and *should* which must be distinctly presented, thus:—

Absolute Form.

1. I will, I shall. We will, we shall.

2. Thou wilt, thou shalt. You will, you shall.

3. He will, he shall. They will, they shall.

Conditional Form.

1. I would, I should. We would, we should.

2. Thou wouldst, thou shouldst. You would, you should.

3. He would, he should. They would, they should.

Will has a participial form used as an adjective, namely *will-ing*; e. g.

A willing mind learns with ease and makes rapid progress.

The infinitive *to will* is sometimes used; e. g.

"Simply to will any thing, is of nature; but to will what is good, is of grace."—Cruiken.

Shall is without participle and without infinitive.

LESSONS IN GERMAN.—No. LXI.

§ 66. INTERROGATIVE PRONOUNS.

(1) The interrogative pronouns, that is, those used in asking questions, are the following:

wer? was? who? what?

welcher? who? which?

was für ein? what sort of a?

(2) They are the same in form as the relatives; or rather the relatives themselves employed in a different way. *Wer*, *was*, and *welcher*, *welche*, are declined just as when they are relatives, except that the pronoun *welcher*, —as when interrogative, never adopts the genitive of *er*.

(3) *Wer* and *was* (*who? what?*) can never be joined with a noun. They are used when the question is put in a manner general and indefinite. *Welcher*, *welche*, on the other hand, have a more definite reference, and may be employed adjectively; thus, *welcher Mann?* which man? &c.

(4) *Was für ein* (literally, *what for a?*) is a form used in inquiring as to the kind, quality, or species of a thing; as, *was für ein Mann?* what sort of a man? *was für eine Frau?* what sort of a woman? *was für ein Kind?* what kind of a child?

(5) The only part of *was für ein* capable of inflection, is *ein*; which, when the thing referred to in the question is expressed, takes the form of the indefinite article: when it is left understood, *ein* is inflected like an adjective of the Old form. The plural, in both cases, omits the article, and stands simply thus, *was für*.

(6) *Was für ein*, with a substantive.

	Singular.	Plural.
N.	was für ein, ein.	was für, what sort of?
G.	was für eines, eines, eines;	was für, of what sort of?
D.	was für einem, einem, einem;	was für, to what sort of?
A.	was für einem, einem, einem;	was für, what sort of?

(7) *Was für ein*, without a substantive.

	Singular.	Plural.
N.	was für, was für.	was für, was für.
G.	was für, was für.	was für, was für.
D.	was für, was für.	was für, was für.
A.	was für, was für.	was für, was für.

§ 67. OBSERVATIONS.

(1) Observe further, that *ein*, in *was für ein*, is sometimes omitted in the singular, especially before words denoting materials, as, *was für Holz?* what sort of stuff? *was für Stein?* what kind of wine.

(2) That *was für ein*, and also *welch* (that is, *welcher* without the terminations of declension) are occasionally employed in expressions of surprise or wonder; as, *was für ein Mann?* or *welch ein Mann?* what a man!

(3) That *was* is sometimes used for *warum*; thus, *was schläfst du nicht?* why sleepest thou not?

§ 68. VERBS.

(1) A verb is that part of speech which defines the condition of a subject: that is, shows whether it acts, is acted upon, or merely exists.

(2) In respect to form, verbs are either regular or irregular, simple or compound.

(3) In respect to meaning, verbs are active transitive, active intransitive, passive, neuter, reflexive, or impersonal. These terms have in German the same general signification which they have in English.

(4) The German, like the English verb, has its moods, tenses, numbers, persons and participles.

(5) There are five moods; viz.: the Indicative, the Subjunctive, the Conditional, the Imperative, and the Infinitive.

(6) There are six tenses; viz.: the Present, the Imperfect, the Perfect, the Pluperfect, the first Future and the second Future.

(7) Both of the moods and tenses designate in German, just the same things which the corresponding ones do in English. For their general signification, see the paradigms; and for explanation of their uses, see the Syntax.

§ 69. PARTICIPLES.

(1) There are three Participles: viz.: the Present, which terminates in *end*, and answers in signification to the English participle in *ing*; as *lobend*, praising.

(2) The Perfect, which, besides prefixing in most cases the augment *ge*, ends, in verbs of the Old Form, in *en* or *n*; and in those of the New Form, in *t* or *t*; and has a meaning corresponding to our participle in *ed*, as, *gelobt* (*ge-lobt*) praised.

(3) The Future, which is produced by prefixing the particle *zu* (*to*) to the form of the Present Participle, (*lobend*) thus, *zu lobend*, which means *to-be-praised*, that is, *praiseworthy*.

* The Conditional is made up of the Imperfect Subjunctive of the auxiliary verb *werden*, (which see) and the Present and Perfect Infinitive of another verb. It is used to denote what is also often denoted by the Subjunctive (Imperfect and Pluperfect), namely, a supposed condition of things, i. e. *possibility* without actuality. By some it is treated as a distinct mood; by others, it is made to consist of two tenses: its use is the same in both views.

The next book to be journalized is the *Day-Book*. As the form of the entries in the *Journal* is similar to that of the entries in the *Day-Book*, there is in general, no other change made upon the latter entries in transferring them from the one book to the other, than those which an abridgement or condensation of entries by means of combination is naturally suggested to the Bookkeeper from their exact similarity. The abridgement or condensation is made in three ways: 1. When the *same account* is debited to a number of different accounts at different dates of the same month; then make that account *Dr. to Sundries* for the amount of all the sums thus entered, specify the name of each account, and collect all the sums belonging to each account into one amount. 2nd. When a number of different accounts are debited to the *same account* at various dates of the same month; then make *Sundries Dr. to* the *same account*; then make this entry, specify the

the name of each account, and collect all the sums belonging to each account into one amount, as before. 3rd. When the same two accounts are found in several entries, having the same relation to each other as Dr. and Cr., and at different dates of the same month; you then make a single entry of the whole, and collect all the sums of the different entries into one amount. In these various cases of abridgement or combination, arrange the dates and the sums which belong to each Specified Account, in the proper columns of the Journal and in the same line with the name of each account, placing the latest date in a line with the first name or word in the combined entry, and the whole amount of all the sums in a line with the name of the general Dr. or general Cr. in the entry. The commencement of each month in the Journal is distinctly shown by writing the name of the month and the year across the page, in a space extending from side to side. The dates are inserted in a vertical column to the left hand of each page; and parallel to this column, is one intended for the folio of the Ledger when the entries of each name and sum are posted into that Book; the numbers denoting the folios should be entered in this column of the Journal when these particulars are entered in the Ledger, but not till then; the absence of a folio figure in its proper column opposite the name of any account will then indicate that an entry has been omitted; and the absence of all such figures will indicate that the entries without them have not yet been posted into the Ledger.

LESSONS IN GREEK.—No III.

By JOHN R. BEARD, D.D.

GENERAL REMARKS ON THE NOUN, THE ADJECTIVE, AND THE PREPOSITIONS.

GENDER.

Nouns or Substantives are names of objects or things which exist in space or in the mind. There are, in Greek, three genders; the masculine, to denote the male sex; the feminine, to denote the female sex; and the neuter (Latin *neuter*, neither) to denote objects which are neither male nor female. The genders are distinguished partly by the sense and partly by the terminations of the nouns. There are terminations, for instance, which denote the feminine gender, as *η*; there are other terminations which denote the masculine gender, as *ος* in the first declension; and again, there are others which are of the neuter gender, as *ον*. This is a peculiarity to which we have nothing similar in English. Those who have studied Latin are already familiar with it. In regard to gender as denoted by the meaning, let the ensuing facts be committed to memory.

1. Of the masculine gender are the names of male beings, of nations, of winds, of months, and of most rivers.
2. Of the feminine gender are the names of female beings.
3. Of the neuter gender are the names of fruits, the diminutives in *ον* (except the female proper name *η Αεστρον*), the names of the letters of the alphabet, the infinitives, all words not declinable in the singular and the plural, and every word used merely as the sign of a sound.

4. Of the common gender are personal nouns which, like our *child*, may be applied to male or female; thus, *θεος* may be used of a male or female divinity, and so be rendered either *god* or *goddess*.

This "common gender" is a grammatical phrase used to denote such nouns as are common to both males and females; that is, are sometimes masculine and sometimes feminine.

In Greek grammar it is usual to employ the definite article, in order to indicate the gender. The definite article, nominative singular, is *ο* for the masculine, *η* for the feminine, and *το* for the neuter; *ο*, therefore, put before a noun, intimates that the noun is of the masculine gender; *η*, that the noun is of the feminine gender; and *το*, that it is of the neuter gender. If both *ο* and *η* are put before a noun, it is done to show that the noun is of the common gender; thus *ο ανθρωπος*, the man; *η γυνή*, the woman; *το ερπον*, the work; *ο, η, θεος*, the (male or female) divinity; *ο, η, παις*, the child, whether boy or girl.

NUMBER.

Number is a distinction of nouns founded on the circumstance whether they denote one or more. If a noun denotes one object, it is in the singular number; if a noun denotes more objects than one, it is in the plural number. The Greek tongue has a third number, called the dual, (Latin *duo*, two), which denotes two objects; thus, *λογος* is a word (singular); *λογoi*, words (plural); *λογoi*, two words (dual); where *ος* is the singular termination, *οι* the plural termination, and *ω* the dual termination.

CASE.

These terminations, *ος*, *οι*, *ω*, undergo changes according to the relation in which they stand to a verb, to another noun, or to a preposition. Thus *ος* may become *ον*, and *οι* may become *ων*. Any word which is changed in form, to express a corresponding change in sense, is said to be inflected. Such inflections or variations in the endings of nouns, are termed cases. There are, in Greek, five cases, namely,

1. The Nominative, the case of the subject; as the father writes, *ο πατηρ γραφει*.
2. The Genitive, the case indicative of origin, whence; as the father's son, *ο υιος του πατρος*.
3. The Dative, the case indicative of place, where; as to the father's son, *τω του πατρος υιο*.
4. The Accusative, the case of the object, or whither; as the father loves the son, *ο πατηρ τον υιον αγαπα*.
5. The Vocative, the case of invocation, or direct address; as father, *λουθι υιον*, *αγαπα, πατερ, τον υιον*.

In Greek, there is no ablative case; the functions of the ablative case are discharged, partly by the dative, and partly by the genitive. The nominative and the vocative are called recti, direct; the other cases are called obliqui, indirect. Substantives and adjectives of the neuter gender have the nominative, the accusative, and the vocative alike, in the singular, the plural, and the dual.

The dual has only two case-endings; one for the nominative, accusative, and vocative, the other for the genitive and dative.

DECLENSION.

Declension is the classification of nouns and adjectives agreeably to the variations of their case-endings. There are, in Greek, three declensions; called severally, the first, the second, and the third declension. The learner will do well in regard to every noun and adjective, to ask himself, What is its nominative? What is its case? What is its number? What is its gender? What is its declension? For instance, *τραπεζα*, a table, is from the nominative *τραπεζα*, in the plural number, dative case, feminine gender, of the first declension. In order to practise and examine himself fully, he should also form or "go through" every noun, adjective, tense, mood, and indeed every word, again and again, according to the several models or paradigms given in the successive lessons.

THE ADJECTIVE.

An adjective denotes a quality. This quality may be considered as being connected with, or as being in an object, as the red robe, or as ascribed to an object, as the rose is red. In both cases the adjective in Greek, as in Latin, agrees in form, as well as in sense, with its noun. A change takes place in the adjective, conformably to the change in the signification; thus a good man is *αγαθος ανθρωπος*, but a good woman is *αγαθη γυνή*. Observe the *ος* of the masculine is for the feminine changed into *η*. Not only in gender, but in number and in case does the adjective in Greek, as in Latin, conform to its noun, e.g. *ο αγαθος ανθρωπος*; Latin, *bonus homo*; English, the good man; *η αγαθη γυνή*; Latin, *bona mulier*; English, the good woman; *οι αγαθοι ανθρωποι*; Latin, *boni homines*; English, the good men; *η καλη Μουσα*, pulchra Musa, the beautiful Muse; *η Μουσα εστι καλη*, Musa pulchra est, the Muse is beautiful; *το καλον εαρ*, pulchrum ver, the beautiful spring; *το εαρ εστι καλον*, ver pulchrum est, the spring is beautiful.

The adjective, then, like the substantive, has a threefold gender, the masculine, the feminine, the neuter. But many adjectives have only two terminations: one for the masculine and feminine, and another for the neuter: e.g.

Masculine. *ο ησυχος ανηρ*, the quiet man. Feminine. *η ησυχος γυνή*, the quiet woman. Neuter. *το ησυχον παις*, the quiet child. here *ησυχος* remains the same with *ανηρ*, *γυνή*, and *παις*, being changed into *ησυχον* before the neuter *παις*. An adjective of three terminations may be seen in this example:

Masculine. *ο αγαθος ανηρ*, the good man. Feminine. *η αγαθη γυνή*, the good woman. Neuter. *το αγαθον παις*, the good child.

Some adjectives have only one termination, as *μακροχρονος*, long-lived, *απαρτη*, without a father. In declension, adjectives, with a few exceptions, follow the forms of the substantives.

PREPOSITIONS.

Prepositions are words which go before nouns and show the relation which the nouns bear to the affirmation made in the sentence, or the member of the sentence in which they stand. Of prepositions I shall treat in full hereafter. At present some knowledge of them must be communicated in order to prepare the beginner for the following instructions. In the words

παραινουντες προς τον πατερα,
I go to the father,

the word *προς*, to, is a preposition?

In Greek, prepositions govern either one case, two cases, or three cases, and may accordingly be classified thus:

PREPOSITIONS GOVERNING

One Case.	Two Cases.	Three Cases.
<i>αντι</i> , in presence of, instead of	<i>δια</i> , through	<i>απεναντι</i> , on account of
<i>προς</i> , before, for the good of	<i>κατα</i> , down, against, for	<i>παρα</i> , on account of
<i>απο</i> , from	<i>μετα</i> , with	<i>επι</i> , upon
<i>εκ</i> , out of	<i>εξ</i> , from	<i>παρα</i> , for
<i>εναντι</i> , on account of	<i>προς</i> , for	<i>κατα</i> , by
	<i>επι</i> , around	
	<i>παρα</i> , around	
	<i>επι</i> , on	
	<i>μετα</i> , against	
	<i>παρα</i> , by, near (of rest)	
	<i>προς</i> , at (of rest)	
	<i>επι</i> , under (of rest)	
	<i>απεναντι</i> , about	
	<i>επι</i> , to	
	<i>μετα</i> , toward	
	<i>παρα</i> , by the side of	
	<i>προς</i> , to (of motion)	
	<i>επι</i> , under (of motion)	

A glance at this table will show that the case which in any example a preposition is connected with, has much to do in modifying its signification. Only by constant practice can the exact meaning and application of the several prepositions be known. The Latin student will, in this list recognise words with which he is familiar; thus *επι* is the Latin *super*; *προς* is the Latin *pro*; *απο* is the Latin *ab*; *επι* is the Latin *super*, and *επι* is the Latin *sub*.

UNIVERSITY OF LONDON.—No IV.

At the Matriculation examination of those who aimed at becoming Members of the University of London, which took place on the 4th, 5th, 6th, 7th, and 8th of July, 1853, no less than 201 students were admitted to this honour, consequence of their having passed this examination, generally with credit to themselves, as well as to the several institutions to which they belong. We have not room in our limited space to insert the names of these students of whom the list has been kindly handed to us by

the secretary; but we have arranged their numbers and their various institutions in the following table, to show the statistics of Collegiate Learning in the metropolis and in the various parts of the country. This table of course does not include the statistics of the older universities of England, Scotland and Ireland, but only that which belongs to the impetus given to Education, by the foundation of the University of London, and of the several colleges and institutions connected with it, as well as of the schools at which the students who have passed the matriculation received their previous instruction.

MATRICULATION, 1853.

INSTITUTIONS WHERE TAUGHT.	First Division.	Second Division.	Total.
Private Tuition	26	13	39
COLLEGES.			
King's College, near Somerset-house	23	5	28
University College, Gower-street	10	7	17
Owen's College, Manchester	5	2	7
Stonhurst College	7	1	8
New College, London	5	0	5
Airedale College	5	0	5
Queen's College, Birmingham	1	3	4
Brecon College, Brecknock	4	0	4
Manchester New College	4	0	4
St. Mary's College, Oscott	1	2	3
Baptist College, Bristol	1	2	3
Chesham College, Herts.	1	1	2
St. Peter's College, Priory Park	2	0	2
St. Gregory's College, Downside	2	0	2
Rothesay College	1	0	1
Horton College	1	0	1
Spring Hill College, Birmingham	1	0	1
Western College, Plymouth	1	0	1
Queenwood College, Hants.	0	1	1
Stepney College, London	0	1	1
St. Patrick's College, Carlow	1	0	1
Lancashire Independent College	1	0	1
INSTITUTIONS.			
Hackney Theological Seminary	3	0	3
Wesleyan Collegiate Institution, Taunton ..	1	0	1
HOSPITALS.			
St. Bartholomew's Hospital, London	5	0	5
Westminster Hospital	2	0	2
Guy's Hospital, London	0	2	2
St. George's Hospital, London	0	1	1
SCHOOLS.			
University College School, Gower-street ..	8	0	8
MIL Hill Grammar School	5	1	6
City of London School	2	0	2
Amersham Grammar School	2	0	2
Hull School of Medicine	1	0	1
St. Paul's School, London	1	0	1
King's College School, London	1	0	1
Charlton High School	1	0	1
Blackheath Proprietary School	1	0	1
Steeple Grammar School	1	0	1
Bruce Castle School, Tottenham	1	0	1
King's School, Rochester	1	0	1
Leatherhead Grammar School	1	0	1
Truro Grammar School	1	0	1
St. Peter's Collegiate School, London	0	1	1
Western Grammar School, London	0	1	1
Clewer House School	0	1	1
Cambridge House School, Hackney	0	1	1
St. Alban's Grammar School	0	1	1
Totals	154	47	201

On looking at this table, we rejoice to find that the greatest number of students are those who belong to no particular institution in the country, but who are entered in the list as

having been educated under Private Tutoring; this is a state of things approaching the grand desideratum of the country, namely, the diffusion of liberal education as a safeguard from ignorance, poverty, and crime, as well as from political anarchy and rebellion.

The principal element of this desideratum, however, is still wanting in the above list; we mean, those students who have sought and obtained the honour of being Members of the University of London, by their own unaided exertions and study, that is, by SELF-TUTORING. We shall augur well for this country, when the number of students under this head, in this preceding table, shall be to the number under all other heads taken collectively as a hundred to one! We believe that serious steps in this direction are being taken by many of our students; and we hope that next year, we shall have the pleasure of recording their names in our Journal.

From an inspection of the table it will be seen that the Metropolitan institutions, for learning, take the lion's share in the Matriculation, about one-half of the whole number of students forming their contributions to the list. The institutions in and about Manchester appear to be next in the order of magnitude; but alas! what a falling off is there; something is rotten in the "state of Denmark." The Lancashire Independent College has sent only half a student to be matriculated! This requires explanation. We find in the list of names that a certain student is entered as belonging both to Owen's College Manchester, and to the above mentioned college. As the proportion of his studies at each is not given, we have assumed this at $\frac{1}{2}$ in each college; hence the oddity of $\frac{1}{2}$ to Owen's College, and $\frac{1}{2}$ to Lancashire Independent College; but for this half, the latter college, which used to shine in the University lists, would not have been represented at all! There are several other colleges which have gone down in this list; and we are sorry for it; let them pull up for next year.

One word more: we are always glad to see no names in the Second Division attached to any college; the students well know the reason why; but we must regret that there should be none in the First Division attached to some colleges and institutions. These want pulling up; we hope they will take our hints in good part; and that next year, they will make a long pull, and a strong pull, and a pull altogether. Another word more; we are surprised at the paucity of names in some of the older and best endowed schools, especially in the metropolis; we hope this will be remedied by the proper authorities. The unendowed schools and institutions are now alive to the advantages offered by Matriculation and Graduation at the University of London; may the endowed as well as the self-taught students keep these things in view.

LESSONS IN ALGEBRA.—No. VI. DIVISION.

RULE FOR SIGNS IN THE QUOTIENT.

100. In division, the same rule is to be observed respecting the signs, as in multiplication; that is, if the divisor and dividend are both positive, or both negative, the quotient must be positive: if one is positive and the other negative, the quotient must be negative. (Art. 81.)

This is manifest from the consideration that the product of the divisor and quotient must be the same as the dividend.

For if $+x \div +y = +z$, then $+x = +y \times +z$;
if $-x \div +y = -z$, then $-x = +y \times -z$;
if $+x \div -y = -z$, then $+x = -y \times -z$;
And if $-x \div -y = +z$, then $-x = -y \times +z$.

EXAMPLES.

46. Divide abz by $-a$. Ans. $-bz$.
47. Divide $8a-10ay$ by $-2a$. Ans. $5y-4$.
48. Divide $3ax-5ay$ by $3a$. Ans. $x-2y$.
49. Divide $6amx+dh$ by $-2a$. Ans. $-3mx-\frac{dh}{2a}$.

101. If the letters of the divisor are not to be found in the dividend, the division is expressed by writing the divisor under the dividend in the form of a vulgar fraction.

EXAMPLES.

50. Divide xy by a .

$$\text{Here, } xy \div a = \frac{xy}{a}$$

51. Divide $(d-x)$ by $-h$.

$$\text{Here, } (d-x) \div -h = \frac{d-x}{-h} = \frac{x-d}{h}$$

This is a method of denoting division, rather than an actual performing of the operation. But the purposes of division may frequently be answered by these fractional expressions. For as they are of the same nature with other vulgar fractions, they may be added, subtracted, multiplied, or divided.

102. If some of the letters in the divisor are in each term of the dividend, the fractional expression may be rendered more simple, by rejecting equal factors from the numerator and denominator.

EXAMPLES.

52. Divide ab by ac . Ans. $\frac{b}{c}$.

53. Divide dix by dy . Ans. $\frac{hx}{y}$.

54. Divide $aim-3ay$ by ab . Ans. $\frac{hm-3y}{b}$.

55. Divide $ab+bx$ by by . Ans. $\frac{a+bx}{y}$.

56. Divide $2am$ by $2xy$. Ans. $\frac{am}{xy}$.

These reductions are made upon the principle, that a given divisor is contained in a given dividend, just as many times as double the divisor is contained in double the dividend; triple the divisor in triple the dividend, and so on.

103. If the divisor is in some of the terms of the dividend, but not in all, those which contain the divisor may be divided as in Art. 92, and the others set down in the form of a fraction.

EXAMPLES.

57. Divide $ab+d$ by a .
Here, $(ab+d) \div a = \frac{ab+d}{a} = \frac{ab}{a} + \frac{d}{a} = b + \frac{d}{a}$. Ans.

58. Divide $dxy+rx-hd$ by x . Ans. $dy+r-\frac{hd}{x}$.

59. Divide $2ah+ad+x$ by a . Ans. $2h+d+\frac{x}{a}$.

60. Divide $bm+3y$ by $-b$. Ans. $-\frac{m}{b}-\frac{3y}{b}$.

61. Divide $2my+dh$ by $2m$. Ans. $y+\frac{dh}{2m}$.

104. The quotient of any quantity divided by itself or its equal, is evidently unity or one. Thus $\frac{a}{a} = 1$, $\frac{abc}{abc} = 1$, &c.

EXAMPLES.

62. Divide $3az$ by $3az$. Ans. 1.

63. Divide $6a$ by $4a+2a$. Ans. 1.

64. Divide $a+b-3h$ by $a-3h+b$. Ans. 1.

65. Divide $ax+x$ by x . Ans. $a+1$.

66. Divide $3bd-3d$ by $3d$. Ans. $b-1$.

67. Divide $4axy-4a+8ad$ by $4a$. Ans. $xy-1+2d$.

68. Divide $3ab+3-6m$ by 3 . Ans. $ab+1-2m$.

105. If the dividend is greater than the divisor, the quotient must be greater than a unit; but if the dividend is less than the divisor, the quotient must be less than a unit.

EXAMPLES.

68. Divide $25a$ by $5a$. Ans. 5.

69. Divide $4x$ by $20x$. Ans. $\frac{1}{5}$.

DIVISION BY COMPOUND DIVISORS.

Example 1. Divide $ac+bc+ad+bd$, by $a+b$.
Here, arranging the quantities for division as we do in common arithmetic, we have

$$\begin{array}{r} \text{Divisor } a+b \overline{) ac+bc+ad+bd} \\ \underline{ac+bc} \\ 0 ad+bd \\ \underline{ad+bd} \\ 0 \end{array}$$

Here ac , the first term of the dividend, divided by a , the first term of the divisor (Art. 92,) gives c for the first term of the quotient. Multiplying the whole divisor by this term, we have the product $ac+bc$ which is to be subtracted from the two first terms of the dividend. The two remaining terms are then brought down, as in arithmetical division and the first of these divided by the first term of the divisor as before, gives d for the second term of the quotient. Then multiplying the whole divisor by d , we have the product $ad+bd$ which is to be subtracted from the remaining term of the dividend; as no remainder is left, the division is complete.

This operation suggests the following rule, which is founded on the principle, that the product of the divisor into the several parts of the quotient, is equal to the dividend. (Art. 91.)

106. RULE. Arrange the terms so that the letter, which is in the first term of the divisor, shall also be in the first term of the dividend. If this letter is repeated as a factor, either in the divisor, or dividend, or in both, the terms should be arranged in the following order; put that term first which contains this letter the greatest number of times as a factor; then the term containing it the next greatest number of times, and so on.

2. Divide $2ac^2+3ab+2abb+aaa$ by $aa+bb+ab$.
If we take aa for the first term of the divisor, the other terms must be arranged according to the number of times a is repeated as a factor in each. Thus,

DIVIDEND.

$$\begin{array}{r} \text{Divisor } aa+bb+ab \overline{) 2ac^2+3ab+2abb+aaa} \\ \underline{2aa^2+2abb+2aab} \\ 0 3ab+2abb+aaa \\ \underline{3aa^2+3abb+3aab} \\ 0 \end{array}$$

In division, it is necessary that the strictest attention be paid to the rules for the signs in subtraction, multiplication, and division.

EXAMPLES.

3. Divide $xx-2xy+yy$, by $x-y$. Ans. $x-y$.
4. Divide $aa-bb$, by $a+b$. Ans. $a-b$.
5. Divide $bb+2bc+cc$, by $b+c$. Ans. $b+c$.
6. Divide $aa+xxx$, by $a+x$. Ans. $aa-ax+xx$.
7. Divide $2ax-2aax-3axy+6aaax+axy-xy$, by $2a^2-y$. Ans. $x-ax+3aax$.
8. Divide $a+b-e-ax-bx+cx$, by $a+b-c$. Ans. $1-x$.
9. Divide $ac+bc+ad+bd+x$, by $a+b$. Ans. $c+d+\frac{x}{a+b}$.
10. Divide $ad-ah+bd-bh+y$, by $d-h$. Ans. $a+b+\frac{y}{d-h}$.

107. From the preceding principles and examples we derive the following rule.

GENERAL RULE FOR DIVISION.

1. Division, in all cases, may be expressed by writing the divisor under the dividend in the form of a fraction. 2. When the divisor and dividend are both simple quantities, and have the same or factors common to each; divide the co-efficient of the divisor by that of the dividend, and cancel the factors in the dividend, which are equal to those in the divisor. 3. When

the divisor is a simple, and the dividend a compound quantity, divide each term of the dividend by the divisor as before; setting down those terms which cannot be divided in the form of a fraction. 4. If the divisor and dividend are both compound quantities, arrange the terms according to Art. 106. 5. To obtain the first term in the quotient, divide the first term of the dividend by the first term of the divisor. Multiply the whole divisor by the term placed in the quotient; subtract the product from the dividend; and to the remainder bring down as many of the following terms as shall be necessary to continue the operation. Divide again by the first term of the divisor, and proceed as before, till all the terms of the dividend are brought down. If the signs in the divisor and dividend are ALIKE, the quotient will be +; if UNLIKE, the quotient will be -.

EXAMPLES FOR PRACTICE.

1. Divide $12aby+6abx-18bbm+24b$, by $6b$. Ans. $2ay+ax-3bm+4$.
2. Divide $16a-12+8y+4-2cax+m$, by 4 . Ans. $4a-3+2y+1-cax+\frac{m}{4}$.
3. Divide $(a-2h) \times (3m+y) \times x$, by $(a-2h) \times (3m+y)$. Ans. x .
4. Divide $ahd-4ad+3ay-a$, by $hd-4d+3y-1$. Ans. a .
5. Divide $cx-ry+ad-4my-3+a$, by $-a$.
Ans. $-x-d-1+\frac{ry+4my+6}{a}$.
6. Divide $amy+3my-mxy+am-d$, by $-dmy$.
Ans. $\frac{x-a-\frac{3}{d}}{d}-\frac{a}{dy}+\frac{1}{my}$.
7. Divide $ard-6a+2r-hd+6$, by $2ard$.
Ans. $\frac{1}{2}-\frac{3}{rd}+\frac{1}{ad}-\frac{h}{2ar}+\frac{3}{ard}$.
8. Divide $6ax-8+2xy+4-6hy$, by $4axy$.
Ans. $\frac{3}{2}y-\frac{2}{axy}+\frac{1}{2a}+\frac{r}{axy}-\frac{3h}{2ax}$.
9. Divide $16abx-12xyab+2abxd-36ahb$, by $4ab$.
Ans. $4cx-3xy+6xd-9hg$.
10. Divide $21aaby+42cdxa+14aaa-35aacab$, by $7ac$.
Ans. $3by+6cdx+2a-5aab$.
11. Divide $12abxyz-6hdabry+24xyabm$, by $3abxy$.
Ans. $4z-2hd+3m$.
12. Divide $3ax-35bx+42-72cx+30ax$, by $3x$.
Ans. $a-12b+\frac{14}{x}-24c+10a$.
13. Divide $40ab-4(x+y)+7z+12(a+b)+43c$, by -4 .
Ans. $-10ab+(x+y)-18-\frac{3}{4}(a+b)-12c$.
14. Divide $abx-cdx+8gx+x$, by $ab-cd+8g+1$.
Ans. x .
15. Divide $24xyz-36cd-48abcd$, by $12xyz-18cd-24abcd$. Ans. 2.
16. Divide $-ab-ad+ax(a+b)-42axy+ab$, by $-a$.
Ans. $b+d-x(a+b)+42xy-b$.
17. Divide $6am-10ab+20-12cd+17a$, by $-2am$.
Ans. $3+\frac{5h}{m}-\frac{10}{am}+\frac{6cd}{am}-\frac{17}{2m}$.
18. Divide $xyz+6x+2z-1+2xyz(a+b)$, by $6xyz$.
Ans. $\frac{1}{6}+\frac{1}{yz}+\frac{1}{3xy}-\frac{1}{6xyz}+\frac{1}{3}(a+b)$.
19. Divide $-6ax-12bc-6ab-10-2aabbcc$, by $6abc$.
Ans. $-\frac{1}{b}-\frac{2}{a}+\frac{1}{c}+\frac{5}{3abc}+\frac{1}{3}abc$.
20. Divide $18abyz+16abx-20bbcm+24ab$, by $2b$.
Ans. $9ayz+8ax-10bcm+12a$.
21. Divide $10x-24+8a+34-20ax-a$, by -4 .
Ans. $-4x+3+\frac{2a}{4}-21+5ax+\frac{a}{4}$.
22. Divide $(x-y) \times (3a+x) \times b$, by $(x-y) \times (3a+x)$.
Ans. b .
23. Divide $41d \times (4-a) \times (x+y)$, by $(4-a) \times 41d$.
Ans. $x+y$.
24. Divide $-40ry+7abx-3ahmx$, by $-40y+7ab-3ahm$.
Ans. x .

LESSONS IN FRENCH—No. LXXI.

By Professor Louis FASQUELLE, LL.D.

§ 77.—THE ARTICLE.—USE OF THE ARTICLE.

(1.) The article* must be used in French before every noun employed in a general sense, or denoting a whole species of objects; although in similar cases, the article is not used in English. Ex.:

Les bienfaits peuvent tout sur une âme bien née. VOLTAIRE.	Blessings are all powerful with a well disposed mind.
L'honneur, aux grands cours, est plus cher que la vie. CORNEILLE.	Honour is with magnanimous hearts more precious than life.
La honte suit toujours un lâche désespoir. CARRILLON.	Shame always follows a cowardly despair.

(2.) The article is used in French, as in English, before a noun denoting a particular object, or taken in a particular sense:—

Le bonheur des méchants comme une torrent s'écoule. RACINE.	The happiness of the wicked runs away like a torrent.
L'arbrisseau le plus sain a besoin de culture. FABRE D'ÉGLANTINE.	The healthiest shrub needs cultivation.
Le moment du péril est celui du courage. LA HAYE.	The time of peril is the time for courage.

(3.) The article is used before the names of countries, provinces, rivers, winds and mountains:—

La France est bornée au midi par les Pyrénées et la Méditerranée; à l'est, par la Suisse et la Savoie; au nord par la Belgique et à l'ouest par l'Océan. Ses principales rivières sont la Meuse, le Rhin, la Seine, la Loire, la Garonne et le Rhône.	France is bounded on the south by the Pyrenees and the Mediterranean; on the east by Switzerland and Savoy; on the north by Belgium, and on the west by the Ocean. Its principal rivers are the Meuse, the Rhine, the Seine, the Loire, the Garonne and the Rhône.
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(4.) Those countries which take their name from their capital, or some other city within their boundaries, take no article:—

Naples est un pays délicieux. Naples is a delightful country.
Venise était un état puissant. Venice was a powerful state.
New York est un état sain. New York is a healthy state.

(5.) The French use the article before titles* prefixed to names:—

Le général Cavaignac. General Cavaignac;
Le président Bonaparte. President Bonaparte.

(6.) The article is also used before the names of dignities, of certain* bodies, systems of doctrine, and with other words mentioned below:—

La monarchie, monarchy;	À l'école, at school;
Le parlement, parliament;	Au collège, at college;
Le gouvernement, government;	À la messe, at mass;
Le christianisme, Christianity;	À la messe, at mass;
L'épiscopat, episcopacy;	À la messe, at mass;
L'Église, at church;	

(7.) Before the names of the seasons, and the following expressions:—

L'année prochaine, next year;	L'automne dernier, last fall;
L'année dernière, last year;	La semaine dernière, last week;
Le printemps prochain, next spring;	&c.

(8.) The names of several cities take the article. Those nouns have generally a meaning, and indicate often natural objects:—

Le Havre, Havre;	La Rochelle, Rochelle;
La Haye, The Hague;	Le Détroit, Detroit.

(9.) In speaking of the parts of the body or of the qualities of the mind, the French use the article in cases where the English use a possessive adjective or the indefinite article:—

Votre frère a les cheveux noirs. Your brother has black hair.
Il s'est blessé à la main. He has hurt his hand.
Charles a la mémoire excellente. Charles has an excellent memory.

* The student will recollect that the French have only one article, *le*, the word *un* being by modern French grammarians very properly classed with the numeral adjectives.

§ 78.—REITERATION OF THE ARTICLE.

PARTITIVE SENSE.

(1.) A word when used to denote an entire object or class of objects, is said to have a general sense; when, however, it is employed to indicate a part of any thing or class of things, considered in reference to the whole, it is said to have a partitive sense. Before a word taken partitively, the word *some* or *any*, is, or may, in English, often be employed. If, for example, I use the words *courage* and *wood*, abstractedly, I take them in the general sense; but if I say *give me wood*, your brother *has courage*, I use them in the partitive sense, that is, I ask for a part of that substance called *wood*, and attribute to your brother something of that quality called *courage*.

(2.) The article accompanied by, or in combination with the preposition *de*, called by some grammarians the *partitive article* (§ 13, (10.)) is used before nouns taken in a partitive sense:—

Du pain et de l'eau lui suffisent. Bread and water are sufficient for him; that is, some bread.
Apportez-nous du sel et du vinaigre. Bring us salt and vinegar; that is, some salt.
Toujours la patrie des charités pour moi. My native land has always (some) charities for me.

(3.) The preposition *de* only is used, when the noun, taken in a partitive sense, is preceded by an adjective:—

Il possédait de belles maisons. He possessed fine houses.
Proposez-nous à nous-mêmes de grands exemples à imiter, plutôt que de vains systèmes à suivre. Let us propose to ourselves rather to imitate great examples, than to follow vain systems.

(4.) When, however, the noun preceded by the adjective, is connected with it, and the two form a compound noun, that noun takes the article according to rule (2.), as,

Des jeunes gens; des grands hommes. Young people; great men (some).
Heureux si de son temps, pour de si bonnes raisons. Fortunate would it have been, if in his time (Alexander's) Macedon had had similar arguments.
La Macedonia, eût eu des petites maisons! BUREAU.

(5.) The preposition *de* is used before a noun when it is preceded by a collective word or by an adverb of quantity:—

Une multitude de peuples. A multitude of nations.
Beaucoup de personnes. Many persons.
À quel bon tant d'amis? Of what use are so many friends?
Une seule nous suffit: il nous aime. A single one suffices if he loves us.

(6.) The article, however, is used, when the noun preceded by a collective word, is limited by what follows. The words *la plupart*, *the most*; *bien*, *many*; and *infinitement*, *infinitely*, form also exceptions to the preceding rule:—

Un grand nombre de personnes que j'ai vues. Many of the persons whom I have seen.
Il me reste peu de livres qui m'ont été donnés. I have few left of the books which have been given me.
Les méchants ont bien de la peine à demeurer unis. The wicked have much trouble to remain united.

(7.) The preposition is used alone* before a noun placed after a verb conjugated negatively, but not interrogatively at the same time:—

Je ne vous ferai pas de reproches. I shall cast upon you no reproaches.
L'en ne dit jamais que l'on n'a point d'esprit. We never say that we have no wit.
On ne fait jamais de bien à Dieu en faisant du mal aux hommes. We never can do good in respect to God by doing evil to men.

(8.) The commencement of rule (6.) will also apply to this sentence:—

Ne donnez jamais de conseils qu'il soit dangereux de suivre. Never give advice which it is dangerous to follow.

§ 79.—ENGLISH INDEFINITE ARTICLE A OR AN.

The French numeral adjective *un*, *une*, *seul*, *seule*, answers to the English article *a* or *an* (§ 13, (1.)) (11.).

The restrictions as to its use are specified in the remarks on the article.

§ 80.—REITERATION OF THE ARTICLE.

(1.) GENERAL RULE. The article* is repeated before every noun, and every word used as a noun, having a separate meaning.

Le cœur, l'esprit, les mœurs, tout gage la culture. The heart, the mind, the manners, every thing improves by cultivation.
Le père et la mère semblaient exciter leur petite compagne à s'en repaître la première. The father and mother seemed to excite their little companion to feed upon it first.

(2.) The article will, therefore, be repeated, when one of two adjectives united by the conjunction *et*, qualifies a noun* expressed, and the other a noun understood:—

L'histoire ancienne et la moderne. Ancient and modern history.
Les philosophes anciens et les modernes. Ancient and modern philosophers.
Le premier et le second étage. The first and second stories.

(3.) Should, however, the two adjectives qualify the same expressed word, the article must not be repeated:—

Le sage et pieux Fénelon a des droits bien acquis l'estime générale. The wise and pious Fénelon has well established rights to general esteem.
À ces mots, il lui tend le doux et tendre ouvrage. At these words he presents to him the sweet and tender book.

(4.) When two nouns are joined by the conjunction *ou*, and the second is merely a repetition or explanation of the first, the article should not be repeated:—

Les joues ou côtés de la tête du condor, sont couvertes d'un duvet noir. The cheeks or sides of the head of the condor, are covered with black down.
On distinguait parmi les nobles les palatins ou gouverneurs des provinces. They distinguished among the nobles the palatines or governors of provinces.

§ 81.—MISCELLANEOUS REMARKS ON THE USE OF THE ARTICLE.

(1.) The article is not used before numbers placed after the names of sovereigns, to designate their order of succession (§ 26, (3.)).

Louis dix-huit, Charles dix. Louis the eighteenth, Charles the tenth.

(2.) The French put no article before nouns placed in apposition with, or explanatory of, other preceding nouns:—

Louis treize fils de Henri quatre, fut bien différent de son père. Louis the thirteenth, the son of Henry the fourth, was very different from his father.

Le Tartufe, comédie de Molière. Tartuffe, a comedy of Molière.
Lamartine, célèbre poète et prosateur français. Lamartine, a celebrated French poet and prose writer.
Je suis français, vous êtes américain. I am a Frenchman, you are an American.

(3.) If the explanatory word be itself qualified or restricted by other words, the *ou* is then placed before it:—

Cet homme est un Français d'une famille illustre, mais malheureuse. That man is a Frenchman, of an illustrious but unfortunate family.
--

Ces messieurs sont des marchands de Lyon. Those gentlemen are merchants from Lyons.

(4.) Under the second rule of this Section (§ 76, Rules (11.)) (12.)) and (14.):—

une montre d'or. a gold watch;
un maître de dessin. a drawing-master;
un moulin à vapeur. a steam mill;
une chambre à coucher. a bed-room.

(5.) Some exceptions to rule (2.) will be better explained by examples than by precepts:—

un meuble à hay, une bouteille à vin. a hay-loft; a wine-bottle.
--

are a loft intended for hay, a bottle intended for wine, but not actually containing hay or wine.

un meuble à hay, une bouteille à vin. a hay-loft; a wine-bottle.
--

That is, the loft actually used for hay, the bottle now used for wine.

* This rule applies to the determinative adjectives, *mon*, *ton*, *son*, *ce*, *cet*, &c.

un magasin de vin, une bouteille de vin, a left a bottle of wine.

(6.) Proper names of persons do not receive the article, unless it forms a part of the name; as, *Lebrun, Lamartine, La Harpe, Le Fontaine*; as also in some gallicised Italian names; as, *Le Tasse, Tasso, Le Dante, Dante*, &c. An adjective, however, coming before proper names, is generally preceded by the article.

Le bon et naïf La Fontaine. The good and candid La Fontaine.
Le pieux Fénelon. The pious Fénelon.

(7.) It has been seen § 12, (1.) Examples that the plural article is often placed in elevated style before the names of renowned individuals:—

Nous avons vu à la fois à la tête des escadrons impériaux les Murat, les Kellerman, les Lassalle, les Mouton. Le Général Foy.

(8.) Names of kingdoms and provinces, when preceded by the preposition *en*, take no article:—

En France, en Amérique. In France, in America.

(9.) No article is placed after *en* preceding a noun used indefinitely; or after the word *standing* before a noun, which is the direct regimen of a verb, preceding the negative:—

Nous irons en voiture. We shall go in a carriage.
Vous êtes en peine. You are in trouble.
Nous n'avons ni or ni argent. We have neither gold nor silver.

(10.) The article is omitted before *plus* and *moins* in comparative sentences, where, in English, it would, in the corresponding place, be inserted:—

Plus une action est utile, plus elle est louable. The more useful an action is, the more praiseworthy it is.

(11.) The article precedes *plus* and *moins* to express comparison in the highest degree, and agrees in gender with the noun:—

Votre sœur ne pleurait pas, quoiqu'elle fût la plus affligée de toutes ces dames. Your sister did not weep, although she was the most grieved of all those ladies.

(12.) The article remains invariable when it stands before a superlative, in which, however, no direct comparison is intended:—

Votre sœur ne pleure pas lors même qu'elle est la plus affligée. Your sister does not weep, even when she is most grieved.

(13.) To give more force to the diction, the article is often omitted in a rapid enumeration of individuals:—

Citoyens, étrangers, amis, ennemis, tous se révérent. Citizens, strangers, friends, enemies, all reverence him.

ANSWERS TO CORRESPONDENTS.

D. LEACH: Book-keeping.—T. DOCK: Received.—J. W. A. (Airdrie): The Lessons in Arithmetic are all right: one or two have been misnumbered.—J. F. WILSON (Syke) requests a solution of the following problem: "If a globe two inches in diameter be suspended against an upright wall, at what distance from the wall must a lighted taper be placed, so that the enlightened part of the surface of the globe may be equal to the area of the shadow on the wall, the face of the taper and the centre of the globe being on the same horizontal line?"—H. CALMAN (Sheffield): should make himself master of Cassell's Arithmetic before he studies Book-keeping.—R. S. T. & Co. 2 Chanc. Lvl. 12.—W. F. H. (Hildesheim): Tolerably correct.—STUDENT: The letter regarding *Scip* is quite correct.—SCHNEIDER (Co. Down): Nearly correct.—H. Q. (Tulse Hill): Italian as soon as possible.—STUDENT (Machyniet): Go on with what you have proposed, giving one hour per day to each.—X. Y. Z.: See Literary Notices.—W. TAYLOR (Oldham): *Legend* is a misprint for *Legend*: see Cassell's Arithmetic p. 15.—D. F. C. H. wishes to know how to bisect a cone by a plane parallel to the base.

WILHELM OF ANSCHUTZ should have asked the captain or his mate about the compass: the needle is concealed. To increase the power of a water-wheel, make its diameter equal to the depth of the fall if not so already; and make it overtop, that is, let the water fall into the buckets at the top.—W. BLACK (Manchester): Most of our words ending in *able* or *ible* come to us through the French, from Latin adjectives ending in *ibilis*, and they of course follow the law of their parentage; of the four words which he has instanced, three are almost exactly the same in French and English, namely, *agreeable, plausible, and incapable*; others, like *suitable*, follow analogy and euphony.

STUDIOSUS (Colchester): To master the subjects required for Matriculation is an honourable ambition; so on and prosper. We are glad you have made converts to learning. Your exercises will be noticed in the proper place.—S. D. (West Lavington): Galvanism will come under Chemistry.—COLTUM:

hus: The foul air in the atmosphere is absorbed by plants, dissipated by winds and storms, and so combined with other gases as to keep the air in a medium state of purity. Hence Young, in his "Night Thoughts" says:—

"Thus, in thy world material, Mighty mind!
Not that alone which soars and shines,
The rough and gloomy, challenges our praise.
The Winter is as useful as the Spring;
The Thunder as the Sun. A stagnant mass
Of vapours breathes a pestilential air:
Nor more propitious the Paveian breeze
To nature's health, than purifying storms.
The dread volcano ministers to good;
His smother'd flames might undermine the world,
Loud Etna's fulminate in love to man.
Comets good omens are, when duly scan'd;
And in their use, eclipses learn to shun."

A NATURALIST wishes us to insert the following lines, (which we have corrected), on *Winter*:

The summer's sun has scarcely view'd
The fruitful earth, this year;
And winter, with his icy brood,
Is fast approaching here.

Winter arrests, ev'n for a time,
Our young and happy race;
And lays on those beyond their prime,
A stiff and hobbling pace.

The hoops and skates of youth avail,
When books are laid aside;
And all our robust manhood fail
The frost of Winter's tide.

The fields are deck'd with mantle white,
The trees festoon'd with snow;
And his old Winter's great delight,
To stop all streams that flow.

Our birds migrate to countries warm,
Where winter is not known;
And animals are freed from harm,
By hairy coats new-grown.

Ev'n lizards, toads, and slimy snakes,
With creeping things, and mice;
Each takes his annual sleep, and wakes
Just when the fields are nice.

Meanwhile December's heavy head,
Our cold but welcome friend,
To old and young, to rich and poor,
Does merry Christmas send.

DREXTER (York): Right, or nearly so.—W. LORD (P. O. Henly in Arden) quotes the following extract from the last notice relative to *Inland Book Post*, dated Feb. 1852:—"On and after March 1, (1852), a book-packet may contain any number of separate books, maps, or prints, and any quantity of paper, vellum, or parchment (to the exclusion of letters, whether sealed or open), and the books, maps, or prints may be either printed, written, or plain, or any mixture of the three." The rate of postage is 6d. under a lb. weight.—A. R. C. must send us something of his own.—REBERT must really consult the catalogue of the Great Exhibition; his penmanship is very good.—J. H. R., &c. (Hallifax), will find the names, and an account of the "Apostolic Fathers," in Bagster's "Miniature Bible," page 32, col. 2. Article 2. It is too long for us to transcribe.—PETER SIMPLE (Fleet St.): Received and under consideration.—PHILO (Nottingham) Received, and will be attended to.—A SUBSCRIBER (London) was right not to begin a new system of Phoenography, when he had learned one already.

LITERARY NOTICES.

GERMAN.

CASSELL'S GERMAN DICTIONARY is now issuing in Weekly Numbers, at 3d. each; Monthly Parts, 1s. each.

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Printed and published by JOHN CASSELL, La Belle Sauvage-yard, Ludgate-hill, London.—August 13, 1853.

LESSONS ON PHYSICAL EDUCATION.—No. V.

WALKING.

THE exercise of *walking* is at once the most simple and the most natural in the human body. It produces action chiefly in the extensor and flexor muscles of the thighs and the legs, in a great number of the muscles of the trunk, and in the muscles of the shoulders more or less, according to the degree of the rapidity of their motion and projection before the

that of course in proportion to the degree of inclination or acclivity. In ascending a hill, the effort exerted acts in a direction opposite to the general tendency of heavy bodies; hence the body becomes curved, and its upper part is bent forwards; the action of the posterior muscles of the leg, and of the anterior muscles of the thigh, becomes very considerable; and the circulation and respiration are speedily accelerated by the force of the contractions of the muscles. In descending a

Fig. 19.



Fig. 20.



Fig. 21.

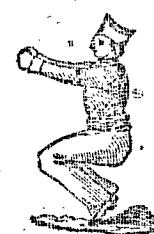


Fig. 22.



Fig. 23.



Fig. 24.



body. In walking, the arms are employed to balance the body, and each is put in motion in a direction contrary to that of the leg which is on the same side of the body.

Fig. 25.



69540

hill, an effort is exerted to preserve the body from obeying the law of gravity, by bending it in the contrary direction to that of ascending. In order to counteract the natural tendency to throw the centre of gravity of the body forwards, the trunk is thrown backwards, by strongly contracting the sacro-spinal muscles, and the muscles of the neck, by bending the knees, and by taking much

Fig. 26.



reference in the positions of the centre of gravity is seen in the vertical straight line to the right in each figure, whether ascending or descending.

The exercise of walking not only ensures the action of a great number of the muscles by alternate contraction and expansion, but it produces the most favourable effects on all the organs of the body, as well as on their different functions, by the general and pleasing motion which is experienced by the whole frame, or animal system. Walking is the graceful and majestic motion which enables the body to move from one place to another without disturbing the equilibrium of the parts in action. Walking is effected by an alternate succession of the motion of the lower extremities; the point of the toe is slightly lowered and turned a little outwards in taking a step.

the upper part of the leg being extended without rigidity, and the trunk kept free from motion, but inclined gently forward; the arms are allowed to hang naturally by the sides without any muscular action, and the fingers are closed; the right arm, and to a greater extent its fore-arm, are put forward with the left leg and foot, and in like manner the left arm with its fore-arm, with the right leg and foot; and so on alternately. Few people, even of those who are well formed, possess the boldness and the dignity requisite for a proper style of walking; it is necessary therefore to learn to walk like men.

Exercise 7. The words of command are:—

1. Forward!
2. Gracious step!
3. Walk!

At the word of command, *Walk!* each pupil starts with the right foot, and performs the motions of walking, which we have described in the preceding paragraph. All the steps should be equal in length and in velocity; the length of the step being of course proportional to the height and the shape of the pupil; as to the velocity of the steps, they should be gradually increased in this exercise, from 70 to 140 per minute. It is not necessary in these lessons to give instructions in the back step, the oblique step, the side step, &c. Teachers of gymnastics can supply the deficiency to those who require further instructions.

RUNNING.

The exercise of *Running* held the first rank in the gymnastics of the Greeks and the Romans. It commanded the memorable games called *Olympic*, the names of which alone have escaped the ravages of time. This exercise is as natural as that of walking; and the savage, deprived of the means of locomotion with which civilized nations are furnished, astonishes the traveler by the rapidity of his running, whether it be in the attack and pursuit of his prey, or in his flight from impending danger. Running is coeval with the first race of men. Man then exercised it no doubt in preserving himself from the teeth of ferocious animals. After the flood also, he exercised it in the chase after the weaker animals whether for food or sport; and Nimrod the Babylonian is described as the "mighty hunter" of ancient times. Running was held in such high estimation among the Greeks, that Homer, in his *Iliad* and *Odyssey*, and Pindar in his *Odes*, seem to delight in their description of this exercise by the praises which they lavish upon the runners. Homer indeed applies to the hero of the *Iliad*, the redoubtable Achilles, epithets which indicate his *swiftness of foot*, and surely he would not tarnish the glory of his hero by attributing to him a quality which was not held in the very highest estimation. In our day, however, such a quality in a soldier would only imply a tendency to fly at the sight of battle; so much do manners change and the people change with them.

The effects of running upon the animal system differ according to the velocity of the runner, the length of his steps, the nature of the ground, and the duration of the exercise. Its principal effect is to increase the contraction of the muscles, and consequently the circulation. In rapid running, the respiration is very much affected, the chest undergoes its greatest development, and receives the largest possible quantity of air; after the exercise has been conducted with great force, the breathing becomes short and quick, the heart beats violently, and all the natural functions become too active to admit of continuance in their excited state. Running, properly directed as an exercise, gives a favourable impulse to all the viscera of the frame, and disposes them to perform readily all their natural operations; and has a direct and powerful influence on the respiratory organs, which it wonderfully develops. But when running is performed with violence, it produces deep impressions of a serious nature; and therefore it is absolutely necessary that this exercise should be conducted by the pupils under management, in a very slow and progressive manner, and with great caution as to its duration and velocity.

Foot races are two-fold, that is, the exercises of the pupils are intended to produce habits either of resistance or of velocity, either of duration or of speed. Those of duration consist in running an indeterminate distance with a velocity equal, uniform, and measured. Those of velocity, consist in running an appointed distance with the greatest possible speed.

In commencing the exercises, the pupils are arranged in one or more lines at the full distance from each other.

Exercise 8. The words of command are:—

1. Uniform Running!
2. In position!
3. Start!

At the words *In position*, the pupil stands with the left foot about twelve inches in advance of the right, bending slightly forward on the leg thus placed in advance, and stretching without stiffness the hind leg; he then gently bends the body forwards, keeping the shoulders back, and the elbows behind the trunk; the hands closed, and the arms towards the body at the height of and near to the head. At the word *Start*, the pupil puts the right leg forward, trading lightly on the toe or fore-part of the foot, so as to give lightness and elasticity to the step; the fore-arms and the legs are thrown gently and alternately forwards, so that the left arm performs the motion with the right foot, and vice versa. The pupil moves forwards without any motion of his own, and the head is kept upright. He puts the left leg forward in the same manner, and thus carries on the exercise alternately, with each of his limbs; in short, the most perfect accordance must exist in the motions of the upper and lower extremities, fig. 20. The pupils are thus made to perform races in a straight line, in a curve, in various directions, winding, at right angles, zig-zag, &c.

LEAPING.

The exercise of *leaping*, like that of *running*, was included by the ancients among the exercises of the *Palaestra*. It made a part of the *Pentathlon*, a name which the Greeks gave to the union of five exercises which manifested at once *power, velocity, and agility*; these were *leaping, throwing, running, wrestling, and boxing*. This was a mixture of exercises denominated *heavy, and light*; and no one received the prize due to the *Pentathlon*, unless he excelled in all of them. The Greek *athletic* champions or prize-fighters, who practised leaping, performed the exercise not only with light weights in their hands, but they placed heavy weights sometimes on their heads, sometimes on their shoulders; and sometimes they affixed them to their feet. Others, no doubt with the intention of learning to preserve their equilibrium, leaped upon leather bottles full of wine, and well oiled. To travel up an inclined plane, without edge or border on either side, upon a ball or sphere, was an exercise in preserving equilibrium, reserved for more modern times.

There are various kinds of leaping exercises; we only describe here the most useful; *horizontal leaping*; *leaping upwards*; *leaping downwards*. The other exercises in this department are only combinations of these three. In general, leaping is effected by the flexure or bending of the lower extremities, and then their sudden and violent extension, the upper extremities performing only a secondary part in the operation. It is in the exercise of *leaping with the pole*, that the arms become more active; and then their energy is as much called into play as that of the legs.

Exercise 9.—The words of command are:—

1. Horizontal Leaping!
2. One!
3. Two!
4. Three!

At the first words of command, the pupil brings his feet together, particularly at the toes. At the word, *One*, he slightly bends his legs, and throws his fists forwards to the height of his shoulders, in the direction in which the leap is to be made; he then raises himself erect. At the word, *Two*, he repeats the same movement. At the word *Three*, he still performs the same movement, but instead of raising himself erect, this time, resting his whole weight on the points of his feet, he, by a sudden and violent extension of his arms and legs (or leap), clears the appointed space, lights upon his toes, throws himself down upon all the joints of the lower extremities, quickly raises himself up, and replaces his arms in their natural position. In this exercise the arms should be thrown forward, before putting the legs in motion, and taking the spring upon the toes. Fig. 21.

The downward leap is one of the most useful, difficult, and

dangerous of all. It requires much application and study, and must be performed at first, with vertical distance, or depths, very small; and differing from each other by insensible degrees; and the pupil should not be allowed to perform the greater leaps until he has been well accustomed to the smaller. As a general principle, a pupil should never be made to leap a greater vertical distance than three times his own height.

Exercise 10.—The pupil being raised on a bank, a table, a platform, &c., the words of command are:—

1. Downward Leap!
2. One!
3. Two!
4. Three!

At the first word of command, the pupil closes his fingers, and brings his toes together. At the word, *One*, he bends himself down as low as possible, raises his fists as high as he can, and then resumes his original position. At the word, *Two*, he repeats this movement. At the word, *Three*, he begins the same movement, and instantly, by a sliding motion, causes his feet to leave the place where they are resting; he now descends the vertical distance, at the same time raising his hands above his head as fast as he reaches the ground. During his descent, his body and legs must resume the position of a straight line, in order that he may be ready to bend his legs again whenever his feet touch the ground. At this instant, his hands having reached their highest elevation, the pupil throws himself down upon all the joints of the lower extremities; he then instantly raises himself, and replaces his arms in their natural position. During the leap downwards, the body and the legs take successively three positions: a complete flexure at the moment of starting, an extension of the trunk and legs in a straight line, and a flexure of the lower extremities when the feet reach the ground. Whatever the height or depth of the leap may be, the motion of the flexure or bending of the legs is always the same; as to the power or strength of flexure, this must always be kept proportional to the depth of the leap. Fig. 22. The pupil must be made to understand this rule, in order to enable him to avoid the accidents which might arise from this exercise, so important and so difficult in a physical point of view.

Exercise 11.—The upward leap. The words of command are:—

1. Leaping upwards!
2. One!
3. Two!
4. Three!

At the first word of command, the pupil shuts his fingers and brings his toes together. At the word, *One*, he bends his legs and throws his fists to the height of his shoulders in the direction in which the leap is to be made. At the word, *Two*, he repeats this movement. At the word, *Three*, he performs the same movement as that directed in No. 4 of Exercise 9. The force of the motion of extension in the legs must be quick and sudden, and proportional to the height to be cleared. Fig. 23.

Exercise 12.—Horizontal leap with a run. In the performance of this exercise the pupil is placed about fifteen paces from the place where he is to take the leap. He then practices individually and without the word of command. He takes the position previous to the run, starts quickly from that position, and reaches the place which he must clear; he next presses firmly, but instantaneously on the ground with that foot which first reaches the point of starting, and throws himself forwards, raising at the same time his fists as high as his shoulders, and in the direction of the leap; he thus clears the space, and reaches the ground, first bending the lower extremities as before, then rising up, and assuming his first position. Fig. 24.

Exercise 13.—Upward leap with a run. This exercise is performed in the same manner as the preceding one, with this difference, that the direction of the fists must be the same that the body is to take in leaping, in order to clear the obstacle. Fig. 25.

LESSONS IN ENGLISH—No. LXI.

By JOHN R. BEARD, F.D.

THE VERB:—*May, Can, Must, Ought.*

THE verb *may* from the German *mögen*, indicates permission. A mistress says to her servant, "having done your work, you may go out for the day." In the same way a boy reports to his school-fellow, "I may (that is I am permitted to) go home after I have said my Latin." I subjoin other instances.

The idea of permission may be so reduced as to leave merely the notion of a general dependence on outer objects. *May*, however, always retains at least a latent reference to something beyond one's self. In the following example this reference is found:—

In the docks at Liverpool you may see ships of all nations.

This use of *may* is very near to *can*, that is to imply ability or power; as is seen in the following:—

"It may be true, but I can hardly believe it."

"Will it rain to day?" "I cannot tell, it may."

Yet the tacit reference to external causes is not lost.

May is also employed in the expression of a wish; e. g.

"May a thousand blessings come on your family."

The past tense of *may* is *might*, in German *möchte*. The idea of permission more nearly disappears in *might* than in *may*. I subjoin some exemplifications of its use:—

You might aid me, if you would.

A visit to Madeira might restore his health.

They wished I might succeed.

It is hardly correct to describe *may* as a present and *might* as a past tense: "I might go, if he came." "I may go, if he comes."—here *might* implies the present as much as *may*. Both indeed denote a present possibility, but a future and contingent act. "I may go" "I will go" are forms pretty nearly free from conditions of time or manner, that is, they approach to absolute forms. The other epithet, namely "conditional," is more suitable than the term past.

Absolute.	Conditional.
I may &c.	I might &c.

In what are called "the Auxiliary verbs," namely *shall, will, may, can, &c.*, the third person singular has no specific termination; e. g.

He shall, he will, he may, he can love.

May and *might* enter into combination with parts of *be* and *have*, as well as with parts of ordinary verbs; e. g.

I may have; I might have; I may be, I might be; I may love; I may have taught; I might have taught; I might read.

Can, from the German *können*, to know, to be able, and connected with our *knowing*, that is skill, and our *king*, that is the man who has power in virtue of his knowledge, signifies inherent power, specially arising from knowledge.

The idea is generalised; any internal power or faculty, and so instinctive faculties, are expressed by *can*; e. g.

The bird can fly. The dog can bark. The lion can swim.

Still farther is the idea carried so as to embrace ability of any kind; e. g.

I can shoot that deer. The child can walk alone.

Of even inanimate objects may the term *can* be used, though by no means generally; e. g.

It can not be that you have committed a theft.

That can not be true. Can gold be melted?

The absolute form *can* becomes in the conditional form *could*; e. g.

He could, if he would, disclose the whole matter.

Can and *could* unite with *be, have, &c.*, as in,

I can be; I can have been; I could be; I could have been; I can relate; I could relate.

Could is employed in the way of entreaty, so as to soften a request; e. g.

Could you let me see the newspaper?

These verbs, namely *be, have, can, may, shall, will*, are commonly called Auxiliary verbs, since by their aid (in Latin *auxilium*) the ordinary verbs are formed or conjugated.

From thence enthroned, or rulers of the earth ; " *
yet the whole held a sovereignty in the realms of mind incomparably superior to the monarchy of nations.

Learn these case-endings very carefully. You will then, as it were by anticipation, have acquired the chief forms of the first and second declensions. And observe, here, some general facts, the recollection of which you will hereafter find very useful. These are signs of tokens of the feminine gender, namely, *η, ης, η, ην, αι, αις, αις*. These are usually signs or tokens of the masculine gender, namely, *οι, ους, ο, ους, ος, ος, ους*. These are marks of the neuter gender, namely, *οι, ος*. Then, in regard to the cases, observe that *ς* and *ων* are indications of the genitive singular; the iota subscript of the dative singular; *ς* of the dative plural; and *ων* of the genitive plural.

The first declension has four terminations in the nominative singular, namely *η*, *ᾱ* (or *ᾶ*), *ης* and *ας*. Of these four terminations, two, namely *η* and *α*, are feminine; and two, namely *ης* and *ας*, are masculine.

† A mina is a Greek coin.

these adjectives ends in a when preceded by ε or ρ. The adjectives in ορ have ο in the feminine when ο is preceded by ρ; otherwise they end in ον; thus αβρα, dense, ονδον, eight.

Nouns and Adjectives combined; First Declension.

	Distinguished Honour.	A Just Opinion.	A hateful Language.
S. N.	καλή τιμή	δικαία γνώμη	εχθρά χώρα
G.	καλῆς τιμῆς	δικαίας γνώμης	εχθρᾶς χώρας
D.	καλῇ τιμῇ	δικαίᾳ γνώμῃ	εχθρᾷ χωρᾷ
A.	καλὴν τιμὴν	δικαίαν γνώμην	εχθρὰν χώραν
V.	καλῇ τιμῇ	δικαίᾳ γνώμῃ	εχθρᾷ χωρᾷ
P. N.	καλαί τιμαί	δικαίαι γνώμαι	εχθραί χωραί
G.	καλῶν τιμῶν	δικαίων γνώμων	εχθρῶν χωρῶν
D.	καλαῖς τιμαῖς	δικαίαις γνώμαις	εχθραῖς χωραῖς
A.	καλας τιμας	δικαίας γνώμας	εχθρας χωρας
V.	καλαί τιμαί	δικαίαι γνώμαι	εχθραί χωραί
D. N. A. F.	καλα τιμα	δικαία γνώμη	εχθρά χώρα
G. & D.	καλῶν τιμῶν	δικαίων γνώμων	εχθρῶν χωρῶν

Write out in full the following nouns: Μηδία, Medea; ἀλήθεια, truth; μοῖρα, fate; ἀρούρα, arable land; δοξα, opinion. Write out also, in pairs, as in the last table, these nouns and adjectives, namely, μικρά μαῦρα, short madness; μακρά λυπή, long grief; βραχεία ἡδονή, short pleasure; πᾶσα κακία, all wickedness.

VOCABULARY.

Ἀδολοσχία, ας, ἡ, garrulity, talkativeness.	Φιλία, ας, ἡ, friendship.
Ἀρετή, ης, ἡ, virtue.	Ἀληθινή, true.
Βία, ας, ἡ, force.	Χαλεπή, hard, troublesome.
Βοήθεια, ας, ἡ, assistance.	Εἶκω, I yield.
Διαβολή, ης, ἡ, calumny.	Ἄγω, I lead, drive.
Δίκη, ης, ἡ, justice.	Ἐπαγω, I bring.
Ἄδικια, ας, ἡ, injustice.	Θεραπεύω, I attend to, heal, court.
Ἦδον, ης, ἡ, pleasure.	Ἄνω, I undo, loose, dissipate.
Κακία, ας, ἡ, wickedness.	Τίρω, I rub (Lat. tero), grieve.
Καρδία, ας, ἡ, the heart.	Τίτω, I bring forth.
Καταφύγιον, ης, ἡ, a refuge.	Ἀντεχομαι, I keep myself firm, abstain from.
Λυγία, ης, ἡ, shame.	Ἐπαγγελομαι, I promise.
Ἀντη, ης, ἡ, grief.	Γίγνομαι, I become, I arise.
Λυγία, ας, ἡ, a lyre.	Πισθόμαι (with dat.), I am persuaded, I believe, trust, obey.
Μερίμνα, ης, ἡ, care.	Πολλάκις, often.
Πενία, ας, ἡ, poverty.	Ὅς, as.
Πλεονεία, ας, ἡ, avarice.	Ὅς, as.
Συνήθεια, ας, ἡ, intercourse, companionship.	Καί, and.
Ἱσχυρία, ης, ἡ, luxury.	

EXERCISES:—GREEK-ENGLISH.

Μη μετὰ τὴν βίαν; ἡ λυγία μερίμνας λυγία; ἡ φιλία επαγγελεται καταφύγιον καὶ βοήθειαν; ἡ μερίμνα τὴν καρδίαν ἐσθίει; θεραπεύετε τοὺς Μουσούς; μη πειθὸν διαβόλους; ἡ δικὴ πολλὰκις τὴν ἀδικίαν ἐκεί; πολλὰκις χαλεπὴ πεινῶν τιμωρεῖται; τῆς ἀδολοσχίας φεγγερε; ἡ κακία λυγὴν ἐπαγεῖ; τρυφὴ ἀδικίαν καὶ πλεονείαν τικτεῖ; φεγγε τὴν τρυφὴν ὡς λυγὴν; δεῖ αρετῆς καὶ εὐνηθείας ἀληθινὴ φιλία γίγνεται.

ENGLISH-GREEK.

Abstain from force; he abstains from force; he does not abstain from force; they abstain from force; avoid injustice; you avoid injustice; I avoid injustice as madness; force brings grief; through justice pleasure arises; true friendships arise through virtue; the heart is grieved by poverty; cares are dissipated by the lyre.

ETYMOLOGICAL VOCABULARY.

ΔΙΚΗ, justice, judgment.	ΚΑΚΟΣ, bad, wicked.
Διχοποιία, punishment.	Κακία, wickedness, baseness.
Διχοπορεῖν, bringing punishment, or retribution.	Κακίζω, I make wicked, revile.
Δικτωρ, a (trumpet) lawyer.	Κακισμός, reviling, blame.
Δικογραφία, an indictment.	Κακοβουλία, bad counsel, folly.
Δικολογία, I speak in a court of justice.	Κακογαμος, unhappily married.
Δικολογός, a slanderer.	Κακογείνη, a bad neighbour.
Δικολογέω, I litigate.	Κακογενής, of low origin.
	Κακογλωσσία, evil-speaking.
	Κακογλωσσός, an evil speaker.

Κακογενής, having an evil spirit, unhappy, wretched. ΦΙΛΙΑ, a friend. ΦΙΛΙΑ, friendship. ΦΙΛΙΚΟΣ, besetting a friend. ΦΙΛΙΟΣ, friendly. ΦΙΛΟΠΡΟΣ, fondness for horses. ΦΙΛΟΓΕΛΟΣ, fond of laughter, sportive. ΦΙΛΟΠΡΟΣ, loving the people (Lat. Publicola). ΦΙΛΟΚΟΣ, fond of law-suits.

SECONDARY COMPONENTS.

Φορεῖν, bearing, from Φέρω, I bear, produce; μάχη, a fight, battle; γαμος, marriage; γειτῶν, a neighbour; γενετήρ, begetting, from γεννᾶν, I beget; γλωσσία (or γλωττία), a tongue; δαίμων, a divinity; ἵππος, a horse; γέλοιος, laughable; γέλος, laughter; ἔθνος, the people.

By the help of these "Secondary Components" and the Vocabulary, the learner ought to be able to give the meanings of the several derivative words. Words, the roots of which have occurred previously, as γραφία in δικογραφία, are not repeated under the head of "Secondary Components," unless for special reasons.

In επαγω you see a preposition prefixed to a verb: επαγω is made up of ἐπι, upon, or to, and ἀγω (Lat. ago), I lead or conduct. Hence επαγω means, I lead to. Instead of ἐπι, we might have had the preposition ἀπο, as in ἀπαγω. Now ἀπο means from, away from; accordingly, ἀπαγω is I lead away. With ἀνα, which denotes motion upwards, ἀγω in the form of ἀναγω, signifies, I lead up; and with κατά, as in καταγω, the same root means, I lead down. You thus see how the prepositions are used as prefixes, and how, as such, they modify the signification and increase the vocabulary. A comparison of the English "meanings" with the Greek verbs as just given, will show that what we express by an uncombined verb and an adverb or preposition, the Greeks express by a verb and a prefix in combination.

N. 3. It may be well distinctly to state, though it is already implied, that the genitive in Greek is to be Englished by of, and the dative by to. Sometimes from is a better translation of the genitive, and by is required for the dative. The subject and direct object are generally without a preposition in English; and when the Greek verb has its object in the genitive or the dative case, the English idiom must be followed in the translation, and not the Greek, except when the two correspond. An English construction corresponding with the Greek construction is to be preferred, when it can be had with the preservation of perfect purity in the translation. After all, the idioms of the two languages vary considerably, and it is possible for a rendering in English to be too close to the original. Keep as near as you can to the Greek, but never forfeit correctness in the English.

LESSONS IN GERMAN PRONUNCIATION.—No. IX.

Die vier Jahreszeiten.

Dee feer yáh'-ress-tai'-ten.

Ich wünsch doch immer Winter bliebe! sagte Ernst, als ich vorschlug ihm im Winter zu bleiben. Das ist ein sehr alter Wunsch, den ich dir schon oft gesagt habe. Der Winter verging, es kam der Frühling. Ernst stand da und sah sich um. Er war sehr froh, dass er im Sommer war. Er hatte sich sehr auf den Sommer gefreut. Er hatte sich sehr auf den Sommer gefreut. Er hatte sich sehr auf den Sommer gefreut.

Ein Vater sagte, er möchte diesen Wunsch in sein Schicksal schreiben, und er that es. Der Winter verging, es kam der Frühling. Ernst stand da und sah sich um. Er war sehr froh, dass er im Sommer war. Er hatte sich sehr auf den Sommer gefreut. Er hatte sich sehr auf den Sommer gefreut. Er hatte sich sehr auf den Sommer gefreut.

Der Winter verging, es kam der Frühling. Ernst stand da und sah sich um. Er war sehr froh, dass er im Sommer war. Er hatte sich sehr auf den Sommer gefreut. Er hatte sich sehr auf den Sommer gefreut. Er hatte sich sehr auf den Sommer gefreut. Der Winter verging, es kam der Frühling. Ernst stand da und sah sich um. Er war sehr froh, dass er im Sommer war. Er hatte sich sehr auf den Sommer gefreut. Er hatte sich sehr auf den Sommer gefreut. Er hatte sich sehr auf den Sommer gefreut.

Das ist eine Freude des Frühlings, sagte sein Vater. Dies ist eine Freude des Frühlings, sagte sein Vater. Dies ist eine Freude des Frühlings, sagte sein Vater. Dies ist eine Freude des Frühlings, sagte sein Vater. Dies ist eine Freude des Frühlings, sagte sein Vater.

Ich antwortete Ernst, wenns doch immer Frühling wäre. Ich antwortete Ernst, wenns doch immer Frühling wäre. Ich antwortete Ernst, wenns doch immer Frühling wäre. Ich antwortete Ernst, wenns doch immer Frühling wäre. Ich antwortete Ernst, wenns doch immer Frühling wäre.

Schreib diesen Wunsch in meine Schreibtafel, sagte Ernst. Schreib diesen Wunsch in meine Schreibtafel, sagte Ernst. Schreib diesen Wunsch in meine Schreibtafel, sagte Ernst. Schreib diesen Wunsch in meine Schreibtafel, sagte Ernst. Schreib diesen Wunsch in meine Schreibtafel, sagte Ernst.

Der Frühling verging, es kam der Sommer. Der Frühling verging, es kam der Sommer. Der Frühling verging, es kam der Sommer. Der Frühling verging, es kam der Sommer. Der Frühling verging, es kam der Sommer.

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Lieber als als Obst. Die schöne Zeit, sagte sein Vater. Lieber als als Obst. Die schöne Zeit, sagte sein Vater. Lieber als als Obst. Die schöne Zeit, sagte sein Vater. Lieber als als Obst. Die schöne Zeit, sagte sein Vater. Lieber als als Obst. Die schöne Zeit, sagte sein Vater.

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mannigfaltigen Gaten sind, und daß der liebe
 man-mig-fäl-tig-en gäh-beu zint, -könt dass' dair leg-bai
 große Gott viel besser seine Welt eingerichtet hat,
 gro-ssai gott veel bess'-ser ai-nai velt ine'-gai-ris'-tet häht,
 als ihr armen Menschen versetzen.
 Also voor är-men men-schen ferr-stey-ben.

VOCABULARY.

2. Jahreszeit, f. season
 2. Jhr, n. years
 Zeit, f. time
 2. oh, alas
 2. man's contraction, if it
 2. Schiffs, n. sledge
 er möchte, that he should
 2. Wunsch, m. wish, desire
 2. schreiben, to write
 2. Schuttsack, m. pocket book,
 2. tabak
 2. zu, prefix, andy

Bett, n. bed (in a garden)
 Blumenbett, n. flowerbed
 außer, out of, beside
 bald, soon
 einige, pl. some
 Spiel, m. play-fellow
 nicht, next
 Dorf, n. village
 dorthin, there
 grün, green
 Saat, f. cornfield, seed
 2. Stute, f. meadow

tausend, thousand
 fällig, adj. fold
 schmücken, to adorn
 Aus, f. pasture
 mutwillig, playful, wanton
 Gullen, n. oolt, foal
 Spring, m. spring, gambol
 Kirche, f. cherry
 Obst, n. fruit
 sich wohl sein lassen, to make one's
 self comfortable
 recht, very, right
 zurück, back
 müssen, to be obliged, must
 Herbst, m. autumn, fall
 zutreffen, to spend
 heiß, hot
 feier, serene, cheerful
 Wein, m. wine
 Stuck, m. stick
 reif, ripe
 Traube, f. grape
 Düng, m. manure

Wissbet, n. hot-bed
 Zweig, m. branch, bough
 niederziehen, to bend
 ziehen, to draw, march, move
 erst, only, not till now
 Feiertag, n. feast, festival
 lieber, rather, dearer
 lieber essen, to prefer to eat
 verüber, past, over
 treiben, to drive
 vertreiben, to drive away, to ex-
 pel

wirklich, really
 kennen, to know
 fortsetzen, to continue
 Tasche, f. pocket
 Seite, f. page, side
 fester, singular
 nachdenken, to reflect
 folgen, to follow
 mannigfaltig, manifold
 einrichten, to arrange
 richtig, to right, judge

LESSONS IN GERMAN.—No. LXII.

§ 72. PARADIGMS OF THE AUXILIARIES OF THE FIRST CLASS.

(1) Haben, to have.

INDICATIVE.	SUBJUNCTIVE.	CONDITIONAL.	IMPERATIVE.	INFINITIVE.	PARTICIPLE.
Present Tense.	Present Tense.		Present Tense.	Present Tense.	Present.
1. ich habe, I have.	1. ich habe, I may have.		1. habe tu, have thou.	haben, to have.	habend, having
2. du habest, thou hast.	2. du habest, thou mayst have.		2. habe er, let him have.		
3. er hat, he has.	3. er habe, he may have.		1. haben wir, let us have.		
1. wir haben, we have.	1. wir haben, we may have.		2. habet ihr, have ye or you.		
2. ihr habet, you have.	2. ihr habet, you may have.		3. haben sie, let them have.		
3. sie haben, they have.	3. sie haben, they may have.				
Imperfect Tense.	Imperfect Tense.				
1. ich hätte, I had.	1. ich hätte, I might have.				
2. du hättest, thou hadst.	2. du hättest, thou mightst have.				
3. er hätte, he had.	3. er hätte, he might have.				
1. wir hätten, we had.	1. wir hätten, we might have.				
2. ihr hättet, you had.	2. ihr hättet, you might have.				
3. sie hätten, they had.	3. sie hätten, they might have.				
Perfect Tense.	Perfect Tense.			Perfect Tense.	Perfect.
1. ich habe gehabt, I have had.	1. ich habe gehabt, I may have had.			gehabt haben, to have had.	gehabt, had
2. du habest gehabt, &c.	2. du habest gehabt, &c.				
3. er hat gehabt, &c.	3. er habe gehabt, &c.				
1. wir haben gehabt, &c.	1. wir haben gehabt, &c.				
2. ihr habet gehabt, &c.	2. ihr habet gehabt, &c.				
3. sie haben gehabt, &c.	3. sie haben gehabt, &c.				
Pluperfect Tense.	Pluperfect Tense.				
1. ich hätte gehabt, I had had.	1. ich hätte gehabt, I may have had.				
2. du hättest gehabt, &c.	2. du hättest gehabt, &c.				
3. er hätte gehabt, &c.	3. er hätte gehabt, &c.				
1. wir hätten gehabt, &c.	1. wir hätten gehabt, &c.				
2. ihr hättet gehabt, &c.	2. ihr hättet gehabt, &c.				
3. sie hätten gehabt, &c.	3. sie hätten gehabt, &c.				
First Future Tense.	First Future Tense.	First Future.		First Future.	
1. ich werde haben, I shall have.	1. ich werde haben, (if) I shall have.	ich würde		haben werden, to be about to have.	
2. du wirst haben, &c.	2. du wirst haben, &c.	du würdest			
3. er wird haben, &c.	3. er werde haben, &c.	er würde			
1. wir werden haben, &c.	1. wir werden haben, &c.	wir würden			
2. ihr werdet haben, &c.	2. ihr werdet haben, &c.	ihr würdet			
3. sie werden haben, &c.	3. sie werden haben, &c.	sie würden			
Second Future Tense.	Second Future Tense.	Second Future.			
1. ich werde haben, I shall have.	1. ich werde haben, (if) I shall have.	ich würde			
2. du wirst haben, &c.	2. du wirst haben, &c.	du würdest			
3. er wird haben, &c.	3. er werde haben, &c.	er würde			
1. wir werden haben, &c.	1. wir werden haben, &c.	wir würden			
2. ihr werdet haben, &c.	2. ihr werdet haben, &c.	ihr würdet			
3. sie werden haben, &c.	3. sie werden haben, &c.	sie würden			

LESSONS IN GEOGRAPHY.—No. XXVIII.

MAP OF SOUTH AMERICA.

(Continued from page 250.)

The most remarkable natural feature in the continent of South America is with one exception, the *grand range of mountains* called Cordilleras de los Andes, or Chains of the Andes, which run nearly parallel and comparatively close to its western shores. The commencement of this range is south of the Isthmus of Darien or Panama, and its termination is at the Strait of Magellan, its whole extent being about 4,000 miles, but varying considerably in altitude, as well as in name. The mountains of this range, indeed, take their names according to the countries through which they pass; hence we have the Colombian, the Peruvian, the Bolivian, the Chilean, and the Patagonian Andes. The average heights of the Colombian Andes is about 12,000 feet above the level of the sea, and the highest peak is Chimborazo, which is 21,416 feet above the same level. Antisana, Pichincha, Cayambe, Cotopaxi, and others, are little inferior in altitude to the "giant of the western world," and the latter is reckoned the most tremendous volcano on the face of the globe. The Peruvian and Bolivian Andes are more elevated than the Colombian chain, their average elevation being about 14,000 feet, and their highest peaks, Sorata and Illimani, reaching the respective elevations of 25,400 feet and 21,350 feet above the level of the sea; and many of the passes across the chain of Upper Peru, are about 16,000 feet above the same level. The Chilean Andes have a less average elevation than any of the former; but the peak of Aconcagua, which is 23,944 feet above the level of the sea, rivals several of the high peaks already mentioned. The Patagonian chain is very considerably lower than any of the preceding, its average height being only about 3,000 feet, and its highest peaks only about 9,000 feet above the level of the sea.

The plateaus or table-lands of South America are formed of the elevated intervening grounds between the chains or ridges of its mountains just described, and they rival in elevation those of the continent of Asia. The principal of these plateaus, are those of Quito, Pasco, Titicaca, and El Desapollado. The elevation of the plateau of Quito, above the level of the sea, is about 9,000 feet; of Pasco, 11,000 feet; of Titicaca, 13,000 feet; and of El Desapollado, about 14,000 feet. The vast plains of South America give rise to a system of rivers unparalleled in the rest of the world for magnitude and extent. The great central plain of this continent is divided into three large portions, which receive their names from the immense rivers which run through them respectively, viz., the plain of the Orinoco in the north, the plain of the Amazon in the middle, and the plain of the Rio de la Plata in the south. The Llanos or Savannahs occupy nearly the whole plain of the Orinoco. These are level grassy tracts similar to the Prairies (or vast meadows) of North America, and are annually inundated by the rivers, like the regions of the Nile. The Selvas or Forest-plains extend over the great basin of the Amazon, and as their name denotes, cover the ground with trees, shrubs, and plants; to which may be added vast tracts similar to those in the basin of the Orinoco, and salt and sandy deserts in the interior. The Pampas or immense level plains covered with grass, oats, clover, and other herbage, occupy the plains of the Rio de la Plata, and the regions to the south of it, and in their present wild state form small encouragement for the habitation of man; hence the generally desolate state of the whole of the Patagonian region. The river Orinoco is about 1,200 miles long; it rises in the mountains of Guiana and falls into the Amazon on the north of British Guiana. The Amazon, which in the upper part of its course is called the Marañon, rises amidst the elevated parts of the Peruvian Andes, flows first northerly and then easterly, and, after a course of 3,900 miles, falls into the Atlantic at the Equator. The basin of the Amazon includes upwards of 2½ millions of square miles or about three-fourths of the surface of Europe, and is supplied with its waters by a number of large tributaries. The Amazon is navigable for large vessels from its embouchure to its junction by the Ucayali, or 2,500 miles from the sea, and for small vessels to the foot of the mountains. Its volume of water is so great, that its freshness is perceptible 600

miles out at sea. To give an idea of the level nature of the basin of this mighty river, we may state that for the space of 600 miles before it discharges its flood into the deep, it has only a fall of 10.5 feet, or about one-fifth of an inch per mile, yet it is reckoned to flow into the ocean with about the same velocity as the Ganges. For the whole of this distance, the tides of the Atlantic oppose its majestic flow; but above this point, the declivity being about 6 inches per mile, the velocity of its waters surpasses that of our swiftest steamers; and at this point the opposition of its waters to the flow of the tide becoming tremendous, their united action produces waves which sometimes rise to the height of 180 feet, rolling back upon the rapid stream like the noise of a cataract, and overwhelming all the banks of the Orinoco region. This phenomenon is justly called the bore, or by the native Indians *pororoca*, with for ever impede the useful navigation of this king of rivers.

The Rio de la Plata is a broad estuary formed by the junction of the rivers Parana and Uruguay. The length of the Parana is about 2,350 miles from its source to the embouchure of the Plate; and that of the Paraguay, a branch of the same which joins it at the distance of 760 miles from the sea, is about 1260 miles. The Uruguay branch is 800 miles in length. The Parana and the Uruguay are navigable for vessels of considerable burden for nearly 1,000 miles. Other rivers of some importance in South America, are the Magdalena, 850 miles long, which flows into the Caribbean Sea; and the Atrato, 300 miles long, which flows into the Gulf of Darien. The rivers Essequibo, Demerara, Berbice, Surinam, and others, which flow into the Atlantic eastward of the Orinoco, will be remembered chiefly from the important settlements to which they have given their name. The San Francisco, in Brazil, is 1,600 miles long. The Colorado, 600 miles long, and the Negro, 600 miles long, both flow into the Atlantic, south of the La Plata. The rivers on the west coast of South America have all short courses, owing to the vicinity of the Andes to the shore.

The Lakes of South America are few. The lake of Titicaca on the table-land of the same name, and at an elevation of 12,847 feet above the level of the sea, contains about 3,800 square miles; near its shores the depth is 720 feet; its waters are fresh. The Lake of Maracaybo, near the shores of the Caribbean Sea, is connected by a narrow strait with the Gulf of Maracaybo, and its waters are brackish; it contains about 5,000 square miles. The Lake dos Patos of the same area, on the south-east coast of Brazil, discharges its waters into the sea, by a channel called the Rio Grande do Sul. The *Cuyes* in this Continent are few and unimportant, with the exception of those mentioned at the commencement of our last lesson. The others are mentioned on the map itself.

BIOGRAPHY.—No. XII.

JEROME STONE.

JEROME STONE may be added to the list of those who are called "self-educated men." Edmund Stone, whose brief biography has been read no doubt by all our readers, was the contemporary of him who is the subject of this biography; and although their minds were not directed to the same studies, yet both of them are illustrious examples of the power of Self-Education.

Jerome Stone was born in 1727, in the parish of Scoonie, in Fifeshire. His father was a seafaring man, and died in a foreign land when Jerome was only three years old. Difficult as it was for his widowed mother to struggle through pecuniary and other difficulties, yet she found means to send Jerome to the parish school. There he learnt reading, writing, and a little arithmetic.

As soon as he was able to work even whilst yet a boy he commenced to toil for his own support. He began to travel around the country as a pedlar trading with common wares, such as tapes, needles, combs, &c. But the mind of Jerome was not at rest in this situation. He aspired to something which he thought would give more exercise to his mental faculties. Accordingly he resigned this profession, and began to trade in books. Here he found ample means for acquiring

knowledge, and forthwith he determined to make himself a scholar.

He was first engaged in the study of the Hebrew language, and although he was unassisted by any teacher, he attained to such a proficiency in the language, by unwearied diligence and application, as to read any passage in the Old Testament at first sight. His next study was the Greek language, and by his wonted perseverance he was soon able to read any passage in the New Testament as well as the Old. He had obtained a knowledge of these languages without being acquainted with the Latin, it is difficult to say. For almost all the Greek and Hebrew grammars or dictionaries were written in Latin at that time. But it has been conjectured by some, and we think it is very probable, that he learnt these languages through the medium of the common translation of the Bible, comparing the Greek and Hebrew words with the English.

He now resolved to learn Latin, but in the study of this language he did not proceed in the same manner as he did with the others. Perhaps he did not remember that "the same resource was open to him still" or perhaps he found he could not learn this language so thoroughly as he had done the Greek and Hebrew. In this dilemma he determined to apply to the parish schoolmaster. With his assistance he made great progress in the Latin language, and in a short time we are told that "he became known as a prodigy of learning."

At this time by some means or other he got acquainted with the Rev. Dr. Tullidolph, principal of the United College in the University of St. Andrews, who was a man of remarkable talent and erudition. Having asked young Stone several questions, he was struck with his talent and abilities; and he proposed that he should proceed to the University, where he undertook to provide him with such things as were necessary to enable him to pursue his studies.

By his industry and perseverance he made rapid progress in every branch of literature and science. The expectations of his friends were more than fulfilled. His abilities and acquirements soon distinguished him, and it is said that "the display of talent out of the class contributed to make him the pride of the University, and the idol of his fellow students."

When he had passed three years in the college, he was appointed assistant in the grammar school of Dunkeld, on the recommendation of the professors. We cannot tell how long he held this office, but alas! in the midst of his literary career, he was suddenly attacked by fever and died, in the thirtieth year of his age, in 1757.

None of his works had been given to the public save a few comic pieces in verse which were printed in the "Scots Magazine." After his death "an Allegory on the Immortality of Authors" was printed, and another work, although it has not been printed, "displayed," we are told, "extraordinary ingenuity and learning." It was entitled "An inquiry into the origin of the nation and language of the Ancient Scots, with conjectures about the Primitive state of the Celtic and other European nations."

W. E. C.

LESSONS IN FRENCH.—No. LXXII.

By Professor LOUIS FARQUET, LL.D.

§ 82.—IDIOMS IN WHICH THE ARTICLE IS OMITTED.

Ajouter foi, to give faith;	Avoir raison, to be right;
Avoir besoin, to have need;	Avoir sommeil, to be sleepy;
Avoir chaud, to be warm;	Avoir soif, to be thirsty;
Avoir coutume, to be accustomed;	Avoir soin, to take care;
Avoir dessein, to intend;	Avoir sujet, to have reason;
Avoir dispute, to have difficulties;	Avoir tort, to be wrong;
Avoir envie, to wish, to desire;	Chercher fortune, to seek one's fortune;
Avoir appétit, to have an appetite;	
Avoir faim, to be hungry;	Courir risque, to run the risk;
Avoir froid, to be cold;	Demander justice, to demand justice;
Avoir honte, to be ashamed;	Demander pardon, to beg pardon;
Avoir mal, to have a pain;	Donner avis, to inform;
Avoir patience, to have patience;	Faire part, to share;
Avoir peur, to be afraid;	Entendre raillerie, to bear jokes;
Avoir pitié, to take pity;	Faire attention, to pay attention;

* Entendre la raillerie is also said, but it means to understand joking.

Faire bonne chère, to live well;	Prendre congé, to take leave;
Faire crédit, to give credit;	Prendre feu, to catch fire;
Faire envie, to desire envy;	Prendre garde, to take care;
Faire honneur, to honour;	Prendre haleine, to take breath;
Faire horreur, to inspire horror;	Prendre médecine, to take medicine;
Faire peur, to frighten;	Prendre racine, to take root;
Faire mention, to mention;	Rendre compte, to account;
Faire naufrage, to suffer shipwreck;	Rendre justice, to render justice;
Faire place, to make room;	Rendre service, to oblige;
Faire plaisir, to please;	Rendre visite, to visit;
Faire présent, to present;	Tenir compagnie, to accompany;
Faire réflexion, to reflect;	Tenir lieu, to take the place;
Faire tort, to injure;	Tenir parole, to keep one's word;
Mettre fin, to put an end;	Trouver moyen, to find means;
Mettre ordre, to arrange;	Avec ardeur, &c., with ardour;
Prendre courage, to take courage;	Par dépit, &c., through spite;
Porter envie, to envy;	Pour récompense, &c., as a reward;
Porter malheur, to cause misfortune;	Sans peine, without difficulty;
	Sans souci, without sorrow or care.

§ 83.—THE ADJECTIVE.

(1.) We have seen [§ 18, Rule (3)] that an adjective relating to two substantives of the same gender must agree with them in gender, and be put in the plural:

(2.) And Rule (4.) that an adjective, relating to two or more nouns of different genders, must be put in the masculine plural.

(3.) When, however, nouns, united or not by the conjunction *et*, are somewhat synonymous; when the writer wishes actually to qualify only the last; or when the mind, more particularly occupied with the last noun, seems to forget the others; the adjective will assume the gender and number of the last noun only.

Toute sa vie n'a été qu'un travail, qu'une occupation continuelle.	His whole life has been nothing but continual labour and occupation.
Je ne connais point de roman, point de comédie espagnole sans combats.	I know no romance, no Spanish comedy, without combats.
Le fer, le bandeau, la flamme est toute prête.	The sword, the band, the flame is all ready.

(4.) Sometimes the adjective preceded by two or more substantives joined by the conjunction *et*, qualifies the last only. It must then, of course, agree with that noun only.

Le bon goût des Egyptiens leur fit aimer la solidité et la régularité toute nue.	The good taste of the Egyptians made them like solidity and adorned regularity.
Le sourire est une marque de bienveillance, d'approbation, et de satisfaction intérieure.	The smile is a mark of good-will, of applause, and of inward satisfaction.

§ 84.—REMARKS ON THE PECULIARITIES OF SEVERAL ADJECTIVES.

(1.) The adjective *feu* (*late deceased*) is invariable, when placed before the article or adjective determining a noun, but varies when placed after the determining word:—

J'ai ouï dire à feu ma sœur, que sa fille et moi baptisâmes même année.	I have heard my late sister say, that her daughter and I were born the same year.
Le duc de... doit à la bienveillance dont l'honorait la reine, les bonnes grâces de l'empereur.	The duke of... owes to the good-will of the late queen towards him the good graces of the emperor.

(2.) The adjectives *nu*, *bare*; and *demi*, *half*, are invariable when placed before the noun:—

Il était nu-tête; les pieds chaussés de petites sandales.	He was bare-headed; he wore on his feet small sandals.
Une demi-heure après avoir quitté le vaisseau, je foulai le sol américain.	Half an hour after having left the ship, I trod the American soil.

(3.) The adjectives *nu* and *demi*, when coming after the noun, agree with it:—

Accoutumez vos enfants à demeurer étié et hiver, jour et nuit toujours tête nue.	Accustom your children to remain summer and winter, day and night always bare-headed.
Optimus pays la tête de Caius Gracchus, dix-sept livres et demi d'or.	Optimus paid for the head of Caius Gracchus, seventeen pounds and a half of gold.

(4.) The adjectives excepté, except; passé, past; y-compris, including; ci-joint, ci-inclus, annexé, inclosed; franc-de-port, postage free; come under the two last rules:—

Vous trouverez ci-joint la copie de la lettre que M. . . m'a écrite.

J. J. ROUSSEAU.

Le dessin de cet oiseau m'a été envoyé d'Angleterre, avec la description ci-jointe.

BUFFON.

Vous trouverez ci-inclus, copie de ma lettre.

DOMERGUES.

Je vous recommande les cinq lettres ci-incluses.

BERNARDIN DE ST. PIERRE.

J'ai reçu franc-de-port une lettre anonyme.

J. J. ROUSSEAU.

Le Contrat social est imprimé, et vous en recevrez douze exemplaires, francs-de-port.

THE SAME.

I received, postage free, an anonymous letter.

The Social Contract is printed, and you will receive twelve copies free of postage.

(5.) An adjective used adverbially, that is, modifying a verb, is of course invariable [§ 67, (3)]:—

En Laponie, une peau d'hermine coûte quatre ou cinq sous; la chair de cet animal sent très mauvais.

RENAUD.

De ma vie je n'ai entendue des voix de femme monter si haut.

MME. DE SÉVIGNÉ.

In Lapland the skin of the ermine costs four or five sous; the flesh of this animal smells bad.

Never in my life have I heard women's voices sound so loud.

§ 85.—PLACE OF THE QUALIFYING ADJECTIVE.

(1.) No invariable rule can be given for the place of the adjective in French, although it follows the noun much more frequently than it precedes it.

(2.) The adjectives which are generally placed after the noun are:—

une personne recommandable,	a grateful person;
une histoire amusante	an amusing history;
un enfant chéri	a beloved child;
de la viande rôtie	roast meat.

(3.) Adjectives expressing the form, the shape:—

une table ronde,	a round table;
une chambre carrée,	a square room;

(4.) Those expressing colour, taste, or relating to hearing and touching:—

un habit noir,	a black coat;
du fruit amer,	bitter fruit;
des sons harmonieux,	harmonious sounds;
de la soie molle,	soft wax.

(5.) Adjectives which may be used substantively:—

un homme riche,	a rich man;
une femme aveugle,	a blind woman.

(6.) Adjectives representing a nation:—

une grammaire française,	a French grammar;
une dictionnaire allemand,	a German dictionary.

(7.) Adjectives expressing the defects of the body and mind;—

un homme boiteux,	a lame man;
un esprit aliéné,	an unsound mind.

(8.) Almost all adjectives ending in *al*, *able*, *ible*, *ique*, and *if*:—

un homme libéral,	a liberal man;
une nation paisible,	a peaceful nation;
un esprit fanatique,	a fanatical spirit;
un soldat fugitif,	a fugitive soldier.

* The French often use the name of the country instead of the adjective of nation; particularly when speaking of the produce of the country:—

De la laine d'Espagne,	Spanish wool;
Du fromage d'Angleterre,	English cheese.

(9.) It must not be inferred from the rules above, that the adjective always comes after the noun. The deviations are quite frequent; and no other reason than taste can be assigned for them. We give a few examples, in which the same adjective is, by different authors, placed before and after the noun:—

Before the Noun. Jamais nous ne goûtons de parfaite allégresse. CORNEILLE.

After the Noun. Qu'a-t-il dit, qu'a-t-il fait, Qui ne promet à Rome un empereur parfait?

Il faut réveiller d'un profond sommeil cet autre Alexandre. BOSSUET.

Il est nécessaire de rouser d'un profond sommeil que second Alexandre. BOSSUET.

Craignez, d'un vain plaisir les trompeuses amours. BOULEAU.

Le monde est une figure trompeuse qui passe. BOULEAU.

(10.) We find, however, in our best writers, few examples of a long adjective placed before a short noun; although they often place the adjective before the noun to give variety or force to the diction, they never, for instance, would say (in prose) *d'imaginaires lois*, for *des lois imaginaires, imaginary laws*.

(11.) The following adjectives when used in a literal sense, generally precede the noun: See § 141, Note:—

Bon, fine, handsome;	Mauvais, bad;
* Bon, good;	Méchant, wicked;
* Brave, brave;	Meilleur, better;
Cher, dear (loved);	Moindre, less;
Chétif, mean;	Petit, small;
Grand, tall;	Saint, holy;
Gros, large;	Vieux, old;
Jeune, young;	Vrai, true.
Joli, pretty;	

Those marked with an asterisk are included in the following table.

§ 86.—LIST OF ADJECTIVES HAVING A DIFFERENT MEANING ACCORDING AS THEY PRECEDE OR FOLLOW THE NOUN.

Un bon homme, a simple, artless man;	Un homme bon, a good, benevolent man (un homme de bien);
Un brave homme, a worthy man;	Un homme brave, a brave man;
Une certaine histoire, a certain story;	Une histoire certaine, a reliable story;
Un cher enfant, a dear child;	Une robe chère, an expensive dress;
Une commune voix, a unanimous voice;	Une voix commune, an ordinary voice;
Un cruel homme, a tiresome man;	Un homme cruel, a cruel man;
La dernière année, the last year (of a series);	L'année dernière, last year;
Une fausse clef, a false key; an imitation key;	Une clef fautive, a key belonging to another lock (the wrong key);
Un furieux menteur, an excessive liar;	Un lion furieux, a furious lion;
Un galant homme, a gentleman;	Un homme galant, a man attentive to the ladies;
Un grand homme, a great man;	Un homme grand, a tall man;
Le grand air, the air of good society;	L'air grand, a noble appearance;
Le haut ton, a haughty tone;	Le ton haut, a loud tone;
Un honnête homme, an honest man;	Un homme honnête, a polite man;
Le jeune Plin, young Pliny;	Plin le jeune, Pliny the younger;
Un malhonnête homme, a dishonest man;	Un homme malhonnête, an unpolite man;
Mauvais air, awkward appearance;	L'air mauvais, malicious appearance;
Un méchant livre, a poor book;	Un livre méchant, a biting, caustic book;
Morte eau, lowest tides;	Eau morte, stagnant water;
Un nouveau livre, a new book (another book);	Un livre nouveau, a book recently published;
Un pauvre historien, a wretched historian;	Un historien pauvre, a historian without pecuniary means;
Un plaisant homme, a ridiculous man;	Un homme plaisant, an agreeable man;
Un petit homme, a man of small size;	Un homme petit, a small man;

ANSWERS TO CORRESPONDENTS.

CONSTANT ADMIRER: A Key to the German Exercises will most likely be published separately, like the Key to the French Exercises. The Latin instructions or Lessons profess only to introduce the student to a knowledge of the language; he must complete that knowledge by the study of higher manuals: see the Literary Notices.—J. W.: The book entitled "Our Evening" has been supplanted by others: see the Literary Notices.—NICHOLAS (Okehampton): We have neither time nor opportunity to answer all questions. *Understanded* is now an obsolete word, but may be met with in the works of old Divines, and in the 24th Article of the Church of England.—J. D. D. (Aberdeen): Read Hall's able work on the "Liberty of the Press."—T. J. B. (Andover): Very well; go on and prosper.—J. Wood (Hawick), J. W. (Dundalk): We don't know.—JOSEPH H. (Temple): Learn English.—DAVID JONES (Dorset): Many thanks.—SACIUS and ALPRA (Notte): Latin first.—J. THOMAS (Chippingham): The Latin Dictionary will include the classical knowledge required.—A. FALCONER (Eaton): His questions are old, but they will reappear sooner or later in a new form.—J. S. TAYLOR (Glasgow): See Cassell's Euclid, page 82.—CONSTANT SUBSCRIBER (Oldham): A fly can walk on a ceiling, on the same principle that the walrus walks upon ice: see page 209, Vol. II., P. E.—A. SHERDEN (Sleaford): We never saw her of the word *Præterit*, except in his letter; it is not English; it is not *Christian*: 1 Cor. xiv. 34.—ORATOR and SUIP-KNOWLEDGE (Received): J. H. (Woolwich): *Greek and Latin* together, or *Latin and French*—UW ELVER (Birmingham): Possibly well, pronounce *g* like *kt*.—T. POOL (Carnarvon): Study Dr. Beard's Lessons in Latin in the P. E., and you will succeed. You may add the study of the French Lessons at your leisure.—G. W. C. (Wiltshire): His answer to the problem proposed by T. Taylor appears to be quite correct.—W. E. C. (Colne): Thanks.—R. A. P. (Bristol): That depends on our friend Mr. Curwen.—DISCIPULUS (Bradford): Surely he knows that every vowel forms a separate syllable only with the adjacent consonants; thus *Al-egs-an-dros* is pronounced *Al-egs-an-dros*, in four syllables with the accent on the second.—KARLIS (Edinburgh): Four numbers, or Part I. of the German Dictionary are now ready, as also the shilling "Latin made Easy," and may be had by order of any of Mr. Cassell's agents, G. E. (Edinburgh): The houses of French or German merchants are open to Englishmen.

JOHN LESTER (Falkirk): Has made good use of his time. We are glad to find that the French and German letters he has sent us, that our lessons in those languages have been useful to him: Though not faultless, they indicate an amount of knowledge which we should think amply sufficient to qualify him for a clerkship in a commercial house.

J. G. ANDERSON (Birmingham): As to the *stale infidel question* about the "creation of light," it has been answered satisfactorily a "thousand and one" times; nevertheless, we shall answer it again, for the benefit of the rising generation. "We have thought proper to attempt a reply to the question in our last, 'Why light was created on the first day, when the sun, the great primary cause of light, was not created till the fourth?' Our reason is, that it is a question commonly proposed by infidel philosophers, who think, that because this part of the Mosiac account of the creation does not agree with their notions of simplicity and sequence in matters of philosophy, that, therefore, it is not entitled to credit itself, and that it likewise throws a degree of doubt over the whole scriptural history. Before entering upon our conjectures on this subject, we would remind all such philosophers, and their followers, that there is a great difference between what is contrary to reason, and what is beyond reason; and that, therefore, in every question of infidel interpretation, it behoves them, before they dare to impugn its validity, to demonstrate, either that it is contrary to reason, or that it is contrary to the nature of things, whether we are able, or not, to conceive of its possibility. Theologians, in explaining such questions, have, perhaps, generally passed over them too slightly, and thus they may have led their opponents to conclude, that they have fairly given up their validity in philosophy; while others may have, perhaps, deemed it a species of profanity to make them a subject of discussion, from the unwarrantable fear, that the false friends to truth to remember, as a valuable maxim—that truth, whether physical or moral, never suffers by investigation and discussion; but that, on the contrary, like the gold that is thrown into the furnace, it will come forth from the severest scrutiny, seven times purified. In stating our conjectures on the present subject of inquiry, it is necessary to advert to the original of all things. "In the beginning, God created the heavens and the earth." In what state did matter exist at this period? "The earth was without form, and void;" or, as the original words signify, it existed in a state of chaos, darkness, and confusion. The Great Being who thus gave existence to matter? in this rude and imperfect state, could have as easily commanded the whole system of the universe, harmonious and beautiful as it is, into full and perfect existence in one instant of time. He willed a different mode of procedure. The work of creation was progressive. The Word of God was reduced to order in six days. The agency employed was the fiat. "He spake, and it was done; he commanded, and it stood accord with the might of his imagination in antiquity; expressed by Ovid; universalized among mankind; and found to coincide with the actual giving birth to nature. The first impression made upon matter, by the Creator, was the communication of separate existence to a portion of it, which constituted light. This may have taken place by the instantaneous abstraction of the latent particles of light from the whole mass. They might then exist in a solid state, darting their rays into the infinity of space, and indeed, here we can find no difficulty in supposing the pre-existence of light other than the rays of the sun, since He, who dwells in "light that is inaccessible," far equally disperse the wonderful effect of his power over all created matter, as concentrate it into an innumerable multitude of solid masses, from which its rays might be reflected to their respective systems. Some have conjectured that the sun was then in existence, but had not yet become visible, for want of an atmosphere in the earth, in itself, or in both. This seems not to be without foundation, as we know that the atmosphere of our earth was not created till the second day of creation, when the firmament,

or *expansion*, was made, as the original word signifies. The same invisibility of the sun, however, would have been the result of the non-existence of its atmosphere, as we have almost presumptive evidence, from the phenomena of solar spots, that the body of the sun is opaque: these spots being supposed to be cavities in it, through which the dark matter of the sun is observed. The creation of this atmosphere of light around the sun on the fourth day, will amount to an explanation of the question, while it would be absurd to suppose that light could exist no where but in the sun, when He who formed it, on the first day of the creation, was present at the gradual accomplishment of his "hardy-work." Objectors will, no doubt, be ready to call in question the propriety of attributing so much importance to the earth, as to suppose that the sun, a globe of such magnitude that it is one million three hundred thousands times greater than our globe, was formed in this way solely for her use; while so many planets, some of which are a thousand times greater than it, are all equally dependent upon the sun for the light and heat which they enjoy. It is not necessary, however, to suppose that the earth alone was formed at the beginning of the world; the other planets may have been created at the same time, and may have been subjected to a similar mode of procedure at their creation. Moses does not profess to give a history of the universe, but merely an account of the creation of this world. On the fourth day, the sun and the moon were created; which are described by the historian, according to their visible appearance, as "the greater and the lesser lights;" his language being accommodated to the popular sense, rather than confined to philosophical precision; the moon, although much less than the sun, approaching so near us, appears of almost equal magnitude; and though far inferior in dimensions to those heavenly and distant bodies which are so insignificant to the naked eye, she yet occupies a more important and useful station to us, in her immediate connection with the globe which we inhabit. Such a mode of expression, conformed to ordinary appearances, is perfectly allowable, interfering with no system of philosophy, and is rendered more valuable, as it sinks to the level of the meanest comprehension. The heavenly bodies are evidently represented in their immediate relation to us, when their uses are specified, "to give light upon the earth"—to distinguish between day and night—to measure out, and to regulate the seasons of the year. The ancients regarded them as signs of another order; and built upon this imagination the splendid, imposing, but unphilosophical and futile theory of astrology. The sacred historian states, that "He made the stars also;" but whether on that day, or whether the account extends to the entire universe, to the sun, moon, and earth only, or to the solar system, of which our globe is a part, and which some celebrated writers have considered most probable, the history does not determine. Of the same nature is the inquiry, whether angels were created on the first day, and as the first work of that day?—or, whether they subsisted before, and were called into being at some unknown and more remote period, selected from eternity? We only know that they witnessed the process of the creation—which, indeed, they might have done had they been only the first-created, on the first day. Of their creation, Moses does not speak; but Job assures us (or rather the Supreme Being addressing himself to Job), that at the creation of the earth "the morning stars sang together; and all the sons of God shouted for joy."—*Ed. in Glasgow Mechanics Magazine.*

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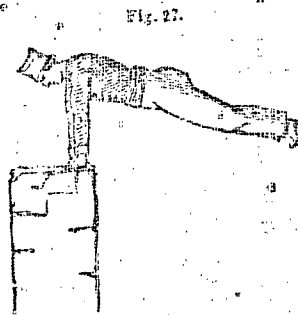
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LESSONS ON PHYSICAL EDUCATION.—No. VI.

(Continued from page 303.)



EXERCISE 15.—This leap may also be performed horizontally, to some extent, by swinging the body backwards at the moment of throwing the feet off the wall, and pushing the legs as much as possible in the same direction. Fig. 27.



Leaping with the pole is our next exercise. In this exercise the pole usually employed is made of ash very sound, but thin. It is slightly coniform, and its length is adjusted to the height of the pupil, and to the space to be cleared in the leap. This exercise is twofold; horizontal and vertical.

EXERCISE 16.—This exercise is performed individually, and without the word of command. The pupil takes hold of the pole, at a place above his head, with his right hand, thumb upwards, and with his left hand at a place nearly the height of

his haunch, thumb downwards, separating his feet to a distance of about twenty-four inches. The pupil, then standing about fifteen paces from the ditch or space he is to clear, he takes a run, holding the lower extremity of the pole before him; when he reaches the starting point, he plants his pole



some distance forwards, and by a sudden and violent motion of his legs, springs from the ground, with his hands resting on the pole, turns round from right to left, clears the space with his body nearly in the horizontal position, and lights



upon the ground in a manner similar to that of former exercises. The greater the distance is that is to be leaped, the greater must be the distance between the bottom of the pole and the position of the pupil's hands. This exercise must of course be commenced with distances short at first, and their length must be gradually increased. When the pupil has become perfect in this exercise, with the right hand uppermost on the pole, he may then learn to practice it with the left hand uppermost; in this case, the body in leaping will

be turned round in the opposite direction to that above described. Fig. 28.

Exercise 17.—Leaping upwards with the pole. The principles employed in this exercise are the same as in the preceding, with this difference, that the force of impulsion from the lower extremities is in a direction nearly vertical, and that it describes a parabolic line, owing to the nature of gravity. During the performance of the exercise, the body must be placed, as to its length, nearly perpendicular to the pole. The force of impulsion given by the arms and the legs must also be proportional to the height which is to be leaped. Fig. 29.

III.—CLIMBING AND DESCENDING BY MEANS OF ROPES, CORDS, &c.

Exercise 1.—Ascending or descending a knotted rope. This exercise is performed individually, and without the word of command. In ascending, the pupil takes hold of the rope as high as possible, with his hands one above another, and close together; he then draws up his body by the muscular power of his arms, his legs hanging straight, and his heels close together; on meeting with one of the knots as he draws up his feet, he makes it a point of support, and takes a higher hold of the rope with one hand after another, bringing them close together, as before. This alternate action of the feet and hands enables him to ascend the rope till he reaches the top. During the performance of this exercise, the pupil must avoid all jerks and sudden shocks. The knotted rope is descended by the pupils by just reversing the preceding operations. Fig. 30.

Exercise 2.—Ascending and descending a smooth rope. This exercise is also performed individually, and without the word of command. Here the pupil takes hold of the rope as above described; he then twists the rope round his right leg from right to left, so that it passes along the calf and the ankle; he now holds it firmly by placing the sole of the left foot on the right ankle, so as to make it a point of support for enabling him to take a higher hold of the rope; this done, he raises his body by the power of his arms, the rope slides between his legs, and is again firmly held by the feet as before. These alternate movements of the feet and hands enable the pupil to reach the top of the rope, as in the last exercise. The pupil descends the rope by allowing it to slide between his feet, and by moving his hands alternately the one below the other. Fig. 31.

During this exercise, the nearer that the pupil can keep his legs at a right angle with his trunk the better; as thus the friction of the rope round the leg is increased, and the hold on the rope, as a point of support, more firm; but the velocity of ascent and descent, particularly the latter, will be considerably diminished. The nearer the trunk and the legs are to a straight line, the more difficult will it be to obtain a point of support, and the greater will be the velocity of descent.

Another exercise is ascending the smooth rope by the muscular power of the arms only; a more difficult one, and only adapted for those who possess this power in a great degree. The pupil in this exercise grasps the rope between his legs slightly twisted, with his toes pointed downwards.

Exercise 3.—Climbing the pole. This exercise is performed individually, and without the word of command. The pupil takes hold of the pole as high as possible with his hands, raises his body by the power of his arms, bending both it and his legs; he then puts his right leg before the pole, turning his ankle round it; he next places the calf of the left leg behind the pole, with the heel resting on it, and thus forms a point of support with his legs. He now raises his arms in order to take a higher hold of the pole. By this alternate motion he accomplishes his ascent. The same exercise may be performed by changing the legs and feet in the operation. Fig. 32.

SPHERISTICS.

Exercise 1.—Throwing a projectile or ball which can be held in the fingers. The ball being placed on the ground at a short distance from the feet, the words of command are:

1. Take the ball in the right hand (or left)!
2. In position!
3. Throw! One!

4. Two!
5. Three!

At the first words of command, the pupil stoops, takes the ball in his right hand, and resumes his position. At the second, he throws the right foot about twenty inches behind the left, and the right hand about eight inches behind the ear; the left arm being allowed to fall naturally with the hand near the left thigh. At the third, the pupil takes aim, throwing the right arm quickly forward, and then resumes the position of the second. At the fourth he repeats this movement. At the fifth and last, he performs the same movement, but with all his force throws the ball forward, stretching his right leg and pressing the ground with his toes; he then resumes his first position. Throwing with the left hand is performed in a similar manner. Fig. 33.

SWIMMING.

Swimming is the locomotion of the human body in water; it is the faculty which man acquires of making progressive motion in a fluid. An important principle, which is not well understood by those who have written on this art, is that of knowing whether the density of the human body is greater than, equal to, or less than the density of the bulk of water, which it displaces on immersion in water. It is evident that if the density of the human body is greater than that of the fluid, the body will sink in it, and will descend to the bottom of the vessel which contains it with a force proportional to the difference between the densities of the body and the fluid; if these densities be equal, the body will float in the fluid, but not above it; and if the density of the body be less than that of the fluid, the pressure of the fluid which surrounds the body will push it upwards with a force proportional to the difference between the densities of the body and the fluid which it displaces. In the latter case, the body, by an ascending movement, will rise above the fluid until the bulk of the part immersed represents a weight of the fluid equal to the weight of the body.

From a consideration of these remarks, it is obvious that a man, whose weight of body is always the same, and who possessed the power of increasing or diminishing his bulk, could keep himself above, in the middle, or at the bottom of a vessel of water, according as he increased, preserved, or diminished his natural size, that is, according as the quantity of water he displaced weighed less than, equal to, or greater than his body. Fishes possess this power; they keep themselves easily in any position, and at all depths in their native element. Nature has provided them with a reservoir of air surrounded by a membrane which has the power of contracting and expanding, and consequently of increasing or diminishing their bulk. When a fish rises in water, it distends the muscles which compress this bladder, commonly called the swim, it then increases its bulk without increasing its density, and reaches the surface; when it goes to the bottom, it produces a contrary effect on the same organ.

Man, according to his physical constitution, will float on the surface, sink to the bottom, or occupy all intermediate positions. Thus, a man of an athletic constitution, with protuberant and well-developed muscles, has a great density under a small bulk; he will sink to the bottom of the water. A man of a fat constitution, whose obesity is developed, with flabby, soft, and spongy flesh, has great bulk with small density; he will float on the surface of the water. Intermediate constitutions will sink more or less according as their constitution lies between these two.

Among all nations, bathing and swimming have been resorted to as a means of preserving health and strengthening the constitution. Hence the Greek fable of Achilles, the son of Thetis, having been dipped into the sea, to render him invulnerable in war. By bathing every day in the year in the icy water of the lakes and rivers which surround his hut, the young Iroquois acquires that vigour of constitution which renders him proof against fatigue and disease. Bathing is also used for the purpose of imparting to children a strong and vigorous constitution, and removing from them the weaknesses which commonly accompany slender, feeble, and debilitated constitutions.

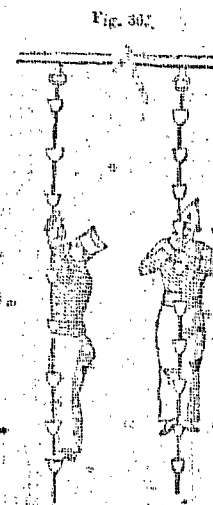


Fig. 30.

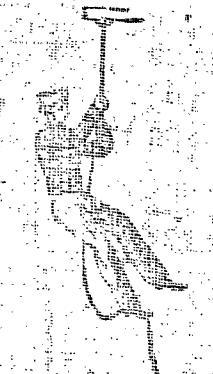


Fig. 31.

Fig. 32: Illustration of a person climbing a pole, showing the body positioned vertically with legs and feet gripping the pole.

LESSONS IN GREEK.—No. IV.

By JOHN H. BRADY, D.D.

VOCABULARY.

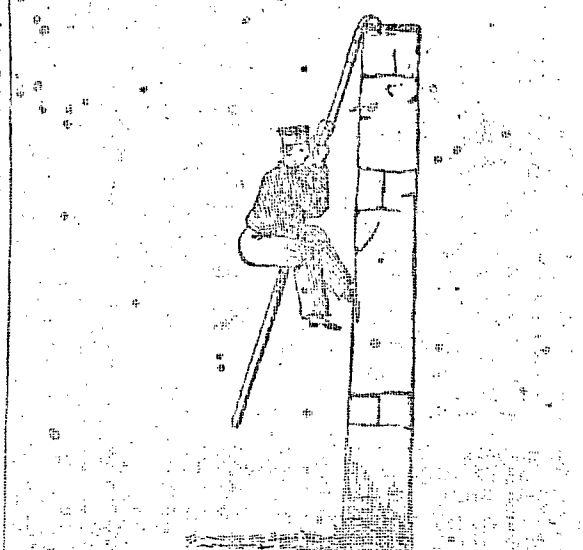
Λαμπρά, ης, η, lightning.	Στολή, ης, η, a robe.
Βροντή, ης, η, thunder.	Τυχή, ης, η, fortune, fate.
Ατίμια, ας, η, dishonour.	Ευθλία, γυναικ., honest.
Βασιλίσσα, ας, η, a queen.	Καλή, beautiful.
Βασιλεία, ας, η, a kingdom.	Λαμπρά, κληιδ., splendid.
Βλάβη, ης, η, injury.	Σκολεα, κληιδ., wrong.
Γλῶσσα, ας, η, a tongue, speech.	Ευθλία, λ. μακροστέγ., make right.
Διαίτα, ης, η, manner of life.	Κατέχω, I hold back.
(Erg. dict.)	Πιπτο, I fall.
Δόξα, ας, η, glory.	Φέρω (Lat. fero), I bear.
Ενορμία, ας, η, regard to law.	Ραδίως, easily.
Μεταβολή, ης, η, change.	

EXERCISES.—GREEK-ENGLISH.

Τὴν κατὰ ἀρχὴν ἐπέμειν; ῥαδίως φέροι; τὴν τιμὴν; βροτὴν ἢ

ground. Otherwise, there might arise from its undue use, erysipelas, inflammation of the neck, with swellings and tumours of various kinds, as consequences which might have

Fig. 32.



been avoided. The middle of the day is not the most favourable time for this exercise; it should be performed in



the morning before breakfast; and better still, in the evening before supper. The water should not be too cold; the body is in a state of perspiration, but only when it is perspiring. As soon as possible, after the whole body should be bathed from head to foot. The exercises will be described in our next lesson.

ENGLISH-GREEK.

Flores carere; baseness begets dishonour; virtue follows fame; they bear poverty easily; poverty is borne easily; you bear poverty easily; that heat changes; abstain from baseness; they have a beautiful robe; do not yield to fortune; they yield to fortune readily; do ye restrain (hold back) the tongue; (that is, in English, your tongue) wrong judgments are made right.

Having in the previous lesson treated of feminine nouns of the first declension, I now pass on to

MASCULINE NOUNS OF THE FIRST DECLENSION.

S. N.	EXAMPLES.	Mercury.	A Youth.
S. N.	πόλις	Ἑρμῆς (εἰς)	νῆπιος
G.	πόλιος	Ἑρμῆος	νῆπιου
D.	πόλιος	Ἑρμῆϊ	νῆπιῳ
A.	πόλιος	Ἑρμῆα	νῆπιον
P. N.	πόλιος	Ἑρμῆων	νῆπιῶν
G.	πόλιος	Ἑρμῆων	νῆπιῶν
D.	πόλιος	Ἑρμῆας	νῆπιῶν
A.	πόλιος	Ἑρμῆα	νῆπιῶν
V.	πόλιος	Ἑρμῆα	νῆπιῶν
D. N. A. V.	πόλιος	Ἑρμῆα	νῆπιῶν
G. D.	πόλιος	Ἑρμῆων	νῆπιῶν

N.B.—In pronouncing Greek, as in Latin, the rule is to accent dissyllables always on the first syllable, and words of more than two syllables on the last but one, if it is long; but if short, on the last but two.

The vocative of such nouns as have *ης* in the nominative singular ends in *α* in the following cases; namely, 1. in all nouns in *της* as *πόλις*, *ἀρχὴς*, vocative *πόλις*, *ἀρχή*, a foreteller, a prophet, vocative *πόλις*; 2. in all substantives in *ης* compounded of a substantive and a verb, as *γεωμέτρης*, a land-measurer, a geometrician, vocative *γεωμέτρης*; *μετρητής*, a perfumer, vocative *μετρητής*; 3. in names of nations in *ης*, as *Περσῆς*, a Persian, vocative *Περσῆς*.

Several nouns in *ης* have the genitive that is customary in the Doric dialect, ending in *α*, e.g., *πατράδης*, a father; *μητράδης*, a mother; *οὐνοῦ*, a birdcatcher; also several proper names, as *Σύλλης*, a Sylla; finally, contracted nouns in *ης*, as *Βορρῆς* (from *Βορρῆς*) genitive *Βορρῆα*, the north wind.

According to these models decline adjectives of one termination, in *ης* and *ας*; e.g., *ἐθέλωντης* πολίτης, a willing citizen; *μονίας* νεότης, a lonely youth, e.g.

A masculine noun and adjective of the First Declension are inflected thus:—

S. N.	ἐθέλωντης ἀροτῆς, a willing ploughman.
G.	ἐθέλοντος ἀροτῆος, of a willing ploughman.
D.	ἐθέλοντι ἀροτῇ, to or by a willing ploughman.
A.	ἐθέλοντι ἀροτῇ, a willing ploughman.
V.	ἐθέλοντι ἀροτῇ, O willing ploughman.
P. N.	ἐθέλονται ἀροτῇ, willing ploughmen.
G.	ἐθέλοντων ἀροτῶν, of willing ploughmen.
D.	ἐθέλονταί ἀροτῇ, to or by willing ploughmen.
A.	ἐθέλοντας ἀροτῇ, willing ploughmen.
V.	ἐθέλονται ἀροτῇ, O willing ploughmen.
D. N. A. V.	ἐθέλονταί ἀροτῇ, two willing ploughmen.
G. D.	ἐθέλοντων ἀροτῶν, of two willing ploughmen.

VOCABULARY.

Ἀλόεσχης, οὐ, δ, a chatterer.	Σοφία, ας, ἡ, wisdom.
Ἀκροῦχος, οὐ, δ, a hearer.	Τεχνή, ης, ἡ, art.
Θεῶτης, οὐ, δ, a spectator (Eng. theatre.)	Ἀκούω (with Gen. or Acc.), I hear.
Δεσποτής, οὐ, δ, a master (Eng. despot.)	Βλάπτω, I injure.
Ναυτής, οὐ, δ, a sailor.	Μαθαίνω, I learn.
Τροφῆτης, οὐ, δ, a v. upuary.	Μέλη (with Gen. of the thing, and Dat. of the person), it concerns; μέλη μοι, I have to do with.
Σπαρτιάτης, οὐ, δ, a Spartan.	Πρέπει, it becomes, it is proper.
Συβαρίτης, οὐ, δ, a Sybarite.	Προσέρχεται, it is suitable.
Εὐκοσμία, ας, ἡ, decorum, politeness.	Ὀρεγμαι, I reach towards, arrive after (with Gen.)
Ἠσυχία, ας, ἡ, tranquillity; ἡσυχίαν ἀγν, to be quiet.	
Θαλάττα, ης, ἡ, the sea.	

* The "Doric dialect" was a form of the Greek tongue employed by the Dorians. As Greece was divided into several small states, so there were several dialects, such as the Doric, the Ionic, the Attic. These dialects must be distinguished from our provincialisms, for they were in their own locality severally classical. The Attic, however, is the generally recognised form of the Greek tongue; and the writings of Demosthenes (Attic) are accounted the model for prose in Greek, as Cicero's writings are held to be the model for Latin prose.

EXERCISES.—GREEK-ENGLISH.

Μαθηταί, ὦ νῆπια, τὴν σοφίαν πολὺν πρέπει ἐκμαίνα; τὴν νεανίαν ἀδολοσχίαν φέρον; φέγγε, ὦ πολῖτα, τὴν ἀδικίαν; τὴν οὐκ ἐθελοντὴν τεχνὴν θανατοῦν; ἀροτῆας καὶ θιαταῖς προσήκει ἡλέων. ἀγν; φέγγετε, ὦ θάνατοι, θορῶν; θορῶν ταύτας πολλαὶς βλάπτει; ορεγέσθε, ὦ πολῖται, τὴν ἀρετὴν; Σπαρτιάται τρυφῶνται ἤσαν; ταύτας μέλει τῆς θαλάττης (sailors are concerned with the sea); φέγγε, ὦ Πέρσα. Σπαρτιάται καλὴν δόξαν ἔχουσιν; φέγγε νεανίαν τρυφήν; τὴν ἀδολοσχίαν ἀπεχού; ἀκού, ὦ δεσποτά.

ENGLISH-GREEK.

Flee, O Persians; wisdom becomes citizens; it concerns a citizen to be quiet; O youths, learn wisdom; they learn wisdom; you learn wisdom; I learn wisdom; wisdom is learned; decorum becomes a youth; O north wind, injure not the sailor; O sailor, avoid (φύγε) the north wind; the north wind is avoided; O Spartan, strive after glory; chatterers, be quiet; abstain from a chatterer.

VOCABULARY.

Ἐραστής, οὐ, δ, a lover, a friend.	Ναυαγία, ας, ἡ, shipwreck (literally ship-break).
Κλεπτής, οὐ, δ, a thief.	Θαυμάσιος, admirable.
Κριτής, οὐ, δ, a judge.	Τρέφω, I nourish, bring up.
Ὀκιστής, οὐ, δ, a servant.	Μαχομαι, I fight.
Στρατιώτης, οὐ, δ, a soldier.	Επιμελομαι, (with Gen.) I care for.
Τεχνίτης, οὐ, δ, an artist.	ἔστι (with Gen.) it is the duty of.
Ψευστής, οὐ, δ, a liar.	
Δικαιοσύνη, ης, ἡ, justice.	

EXERCISES.—GREEK-ENGLISH.

Ἦ Σπαρτιάτων ἀρετὴ θανατοῦν ἢ; φέγγε, ὦ νεανία; φέγγετε, ὦ ἐρασταί; οἱ κλεπταὶ θύγονται; κριταὶς πρέπει δικαιοσύνη; ἔστι τῶν στρατιωτῶν περὶ τῶν πολιτῶν μαχεσθαι; φέγγε ψευστὰς ἔστι δεσποτῶν ἐπιμελεσθαι τῶν οἰκτῶν; μη πιστεύει ψευτῇ; τεχνίτην τρέφει ἡ τεχνή; ἐκ ψευστῶν θύγονται κλεπταί; Σπαρτιάται δόξης καὶ τιμῆς ἐρασταὶ ἤσαν; ἐκ θορῶν πολλαὶς βλάπτει; θανατοῦν τὴν Ἑρμού τεχνήν.

ENGLISH-GREEK.

The lovers of glory flee not; liars are not lovers of virtue; the virtue of the Spartan was admirable; O Spartans, believe not liars; the art of (Mercury) Hermes was admirable; we admire the virtue of the Spartans; O Spartan, avoid a liar; it is the duty of a master to care for his servant; it is the duty of servants to care for masters; the arts nourish the artists; it becomes the soldiers to fight for the citizens; be quiet, O northwind; I admire Mercury.

LESSONS IN GERMAN PRONUNCIATION.—No. X.

Die Rose und die Lilie. Doe ro-zai önt doe lee-lee-ai.

Malvina stand mit ihrem Vater vor einer Lilie. Mal-vee-nä stant mit-er-rem fah-ter fœe i-ner lee-lee-ai, die unter einem Rosenstrauch schlüßte. Blendend des önt-ter; i-ner ro-zen-strouch blü-hai-tai. Man-dent weiß wie ein Lichtstrahl erhob die schöne Blume vœe, vœe me. Rät-strahl, err-hope doe sho-nai bloo-mai ihren öffnen. *duftenden Rœsch. Neber ihr hing eine ee-ren of-ner döst-ten-den kœch. ü-ber er hing i-nai voll aufgeblühete fräutige Rose, und warf einen rœth-foll out-gai-blü-tai kœst-ig-ai ro-zai, önt vœf i-ner rœt-fischen Schimmer, auf die *garten Eißerblätter der lœ-shen shim-mœt, out doe tsähr-ten zil-ber-blœ-ter dair Lilie, und so floß auch beider Blumen-duft in ein lœ-lee-ai, önt zo floss auch bi-der bloo-men-döst in in-ander.

LESSONS IN GERMAN.

O, wie schön ein schöner Bund! rief Malvina, und Oly, wie schön das Bündel! rief Mal-vee-nä, önt nœgie. lœchelt ihr Haupt zu den Blumen hinab. nœ-gi: tai lœf-œant eœr hœupt tsœo dœm bloo-men hin-ab. Es ist der Bund der Unschuld und Liebe! er-œie. Es ist dair bœnt dair öst-schœlt öst lœ-bœi: er-vœe-ber-ber. Vater. So standen sie schweigend vor den der-tai dair fœh-ter. Zo stœn-den zœe schwi-gœnt fœe dair Blumen. bloo-men.

Indes trat Olyar in den Garten, Malvina's In-dœss trœt O-œ-lœr in dair gœr-ten, Mœl-vee-nœ-hœss nœl-œr Gœlœcher. Da floß ein rœthlicher Sauch über stœl-œr gai-lœch-ter. Dœh floss iœs rœt-lœch-œr hœuch ü-ber Malvina's. Wœngen, wie der Rœse Wang über die Mœl-vee-nœ-hœss, vœng-œn, vœe dair ro-zai blœnt ü-ber doe Lilie. lœ-lee-ai.

Da sah der Vater sie an, und sprach: Nicht wahr, Dœh zœh dair öh-ter zœe du önt sprœch: Nœht vœhr, wiech, -œ, -œ, which, what

Malvina, die Blumen haben eine Sprache und Mal-vee-nœ, dœe bloo-men hœh-bœn i-nœi sprœh-œt öœnt ein Rœttsch. iœs önt-lœts?

Für die Unschuld und Liebe! siehe Olyar hing. Fœr dœe öœn-schœlt öœnt lœ-bœi: œts-tœi O-œ-lœr hin-tsoe.

VOCABULARY.

liebe, f. lily	Band, m. union, alliance
Strand, m. bush	neigen, to incline
blinden, to blind, dazzle	fiel, down
Strahl, m. beam	lieftut, f. innocence
bluten, to spread colour	Schuld, f. guilt, debt, fault
sauch, m. cup, calix	schuldig, guilty, indebted
auflösen, to blow, to open	in, in the meantime
traft, f. strength	schœne, m. & f. beloved, love
Schimmer, m. glimmer, faint light	Glanz, m. splendour, splendor
Silber, n. silver	Sprache, f. language
Duft, m. odour	hinsetzen, to add
wiech, -œ, -œ, which, what	setzen, to put

LESSONS IN GERMAN.—No. IXUL.

(2) Sein, to be.

INDICATIVE.	SUBJUNCTIVE.	CONDITIONAL.	IMPERATIVE.	INFINITIVE.	PARTICIPLE.
<i>Present Tense.</i>	<i>Present Tense.</i>		<i>Present Tense.</i>	<i>Present Tense.</i>	<i>Present.</i>
1 ich bin, I am.	1 ich sei, I may be.		2 sei du, be thou.	1 sein, to be.	1 seind, being.
2 du bist, thou art.	2 du seiest, thou mayest be.				
3 er ist, he is.	3 er sei, he may be.		3 sei er, let him be.		
1 wir sind, we are.	1 wir seien, we may be.		1 sein wir, let us be.		
2 ihr seid, you are.	2 ihr seiet, you may be.		2. sit ihr by-ye.		
3 sie sind, they are.	3 sie seien, they may be.		3. sein sie let them be.		
<i>Imperfect Tense.</i>	<i>Imperfect Tense.</i>				
1 ich war, I was.	1 ich wäre, I might be.				
2 du warst, thou wast.	2 du wärest, thou mightest be.				
3 er war, he was.	3 er wäre, he might be.				
1 wir waren, we were.	1 wir wären, we might be.				
2 ihr wart, you were.	2 ihr wäret, you might be.				
3 sie waren, they were.	3 sie wären, they might be.				
<i>Perfect Tense.</i>	<i>Perfect Tense.</i>			<i>Perfect Tense.</i>	<i>Perfect.</i>
1 ich bin gewesen, I have been.	1 ich sei gewesen, I may have been.			1 gewesen sein, to have been.	1 gewesen, been
2 du bist gewesen, &c.	2 du seiest gewesen, &c.				
3 er ist gewesen, &c.	3 er sei gewesen, &c.				
1 wir sind gewesen, &c.	1 wir seien gewesen, &c.				
2 ihr seid gewesen, &c.	2 ihr seiet gewesen, &c.				
3 sie sind gewesen, &c.	3 sie seien gewesen, &c.				
<i>Pluperfect Tense.</i>	<i>Pluperfect Tense.</i>				
1 ich war gewesen, I had been.	1 ich wäre gewesen, I might have been.				
2 du warst gewesen, &c.	2 du wärest gewesen, &c.				
3 er war gewesen, &c.	3 er wäre gewesen, &c.				
1 wir waren gewesen, &c.	1 wir wären gewesen, &c.				
2 ihr wart gewesen, &c.	2 ihr wäret gewesen, &c.				
3 sie waren gewesen, &c.	3 sie wären gewesen, &c.				
<i>First Future Tense.</i>	<i>First Future Tense.</i>	<i>First Future.</i>		<i>First Future.</i>	
1 ich werde sein, I shall be &c.	1 ich werde sein, (if) I shall be, &c.	1 ich werde sein, to be about to be.			
2 du wirst sein, &c.	2 du werdest sein, &c.				
3 er wird sein, &c.	3 er werde sein, &c.				
1 wir werden sein, &c.	1 wir werden sein, &c.				
2 ihr werdet sein, &c.	2 ihr werdet sein, &c.				
3 sie werden sein, &c.	3 sie werden sein, &c.				
<i>Second Future Tense.</i>	<i>Second Future Tense.</i>	<i>Second Future.</i>		<i>Second Future.</i>	
1 ich werde sein, I shall have been, &c.	1 ich werde sein, (if) I should have been, &c.	1 ich werde sein, I should have been, &c.			
2 du wirst sein, &c.	2 du werdest sein, &c.				
3 er wird sein, &c.	3 er werde sein, &c.				
1 wir werden sein, &c.	1 wir werden sein, &c.				
2 ihr werdet sein, &c.	2 ihr werdet sein, &c.				
3 sie werden sein, &c.	3 sie werden sein, &c.				

* The word *gentle* is always feminine.⁴

Classes.—None.

§ II. ON THE MOTION AND ACTION OF GLACIERS.

Their motion is slow but unremitting. In one case, the motion was observed and calculated, and was found to have been $\frac{1}{4}$ 400 feet, or more than three-quarters of a mile, in nine

years. It used to be thought that glaciers never moved in winter, but the observation of Professor James Forbes and his friends—observations continued for the whole year have

and put into motion in some slanting trough, within which it moves by its own gravity. In the case of the fresh mortar or the thick mud the motion is greatest in the centre, according

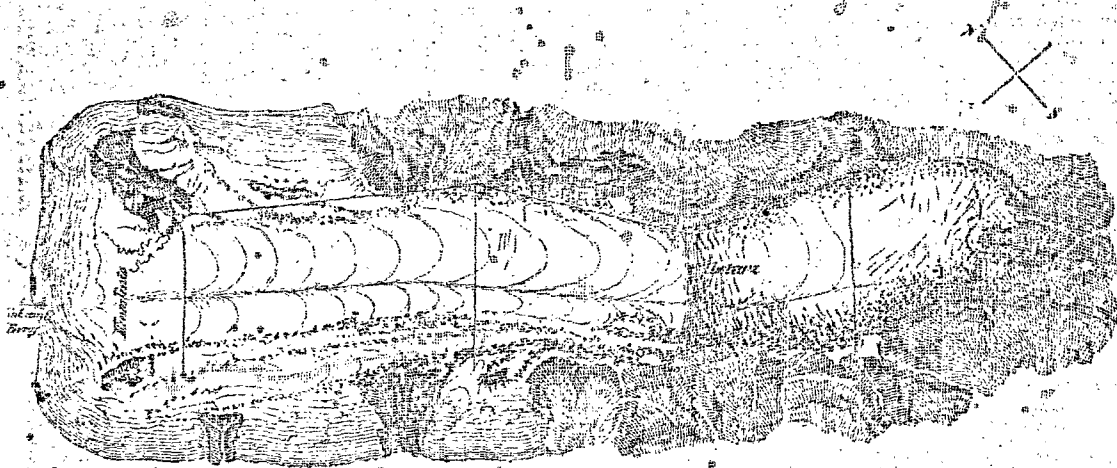


Fig. 86.—Sets of Curves in the Glacier of the Great Glockner, in the Alps.

demonstrated that they are in perpetual motion, summer and winter. The careful investigations of scientific men, especially of

to the laws of rivers and all flowing liquids. This is precisely the case with the movement of glaciers, because the parts which come in contact with the sides, or which grind against

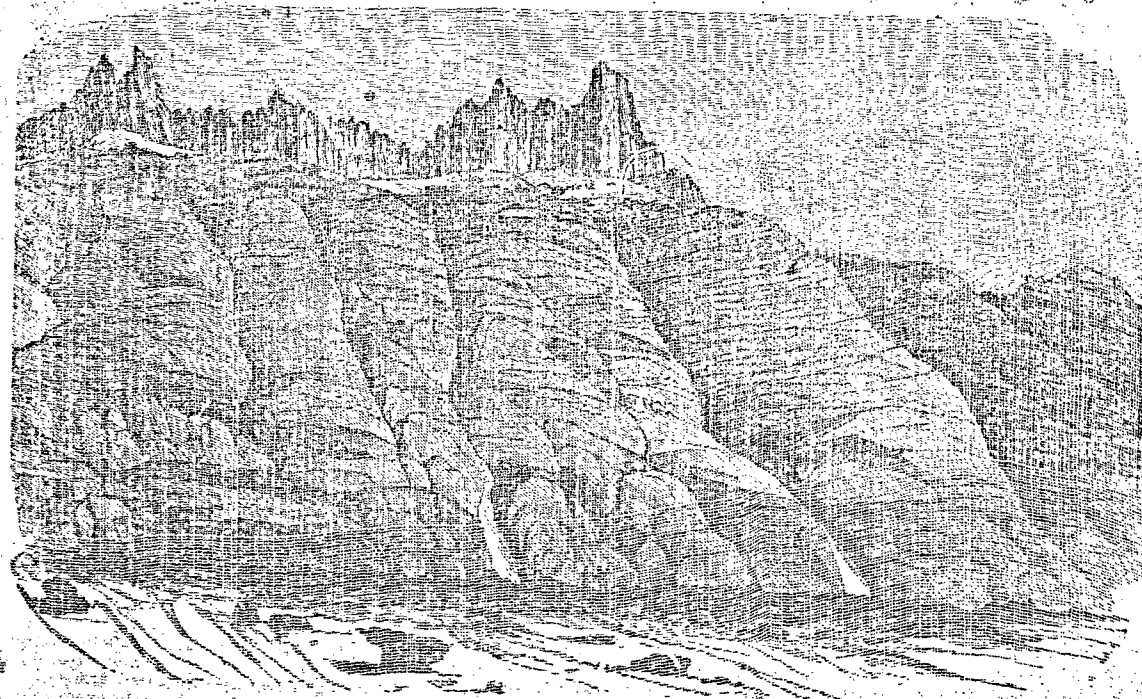


Fig. 87.—Cliff of Rock rounded and striated by Glaciers in the Unter Aar Valley, in the Alps.

Professor J. Forbes, have shown that the motion of a glacier is much like that of any semi-liquid mass, or what is called a viscous body, something like treacle, or say thick mud, or an enormous mass of fresh mortar, situated on the slope of a hill

the rugged bottom, have to contend with resistance from the lateral and surface rocks. The increase of movement in the middle course of the glacier accounts for the curved lines which are frequently in

their surface, with their convexity towards the lower parts of the valley. These curved lines are best seen when the observer, during the subdued light of evening, looks down upon the glacier from some height. In such a position he will discover a great number of brown-looking curves, appearing as if they were successive waves descending slowly from the fields of firn snow that had been melted and then re-congealed. A double set of these curves is represented in fig. 86. Naturalists have shown that they are just such curves as the froth or scum of a thick fluid would form in gliding down a gentle slope; and that the downward swell of the curve is occasioned by the greater rapidity of the glacier in the centre than at the sides.

In general there is but one set of curves in each glacier, but there is a remarkable exception in the glacier of the Great Glockner, in the Alps. The glacier originates in the firn snow on the east flank of the Glockner, 12,137 feet above the level of the sea. This firn snow presses into the glen

of this, the curved lines show the two separate motions of the glacier.

The constant and irresistible pressure of such a ponderous mass in motion must occasion certain rubbings and chafings against the rugged bottoms and projecting sides of the rocks amid which they move. These chafings are the causes of what geologists have called the "surface markings" which some ancient rocks present.

Though a glacier consists of smooth ice, yet the lower surface and the sides of it are generally found to be thickly set with stones and fragments of rocks, and coarse sand, all firmly frozen into one compact hard mass. The movement of a glacier containing such coarse, angular, and pointed, hard stones, must give it the action of an immense rasp.

The rasping action of the glacier is two-fold. When the rocky materials impacted in the ice are small and fine, the motion of the glacier smooths away the rough points of the cliffs, and polishes the surface of the rocks both on the bottom

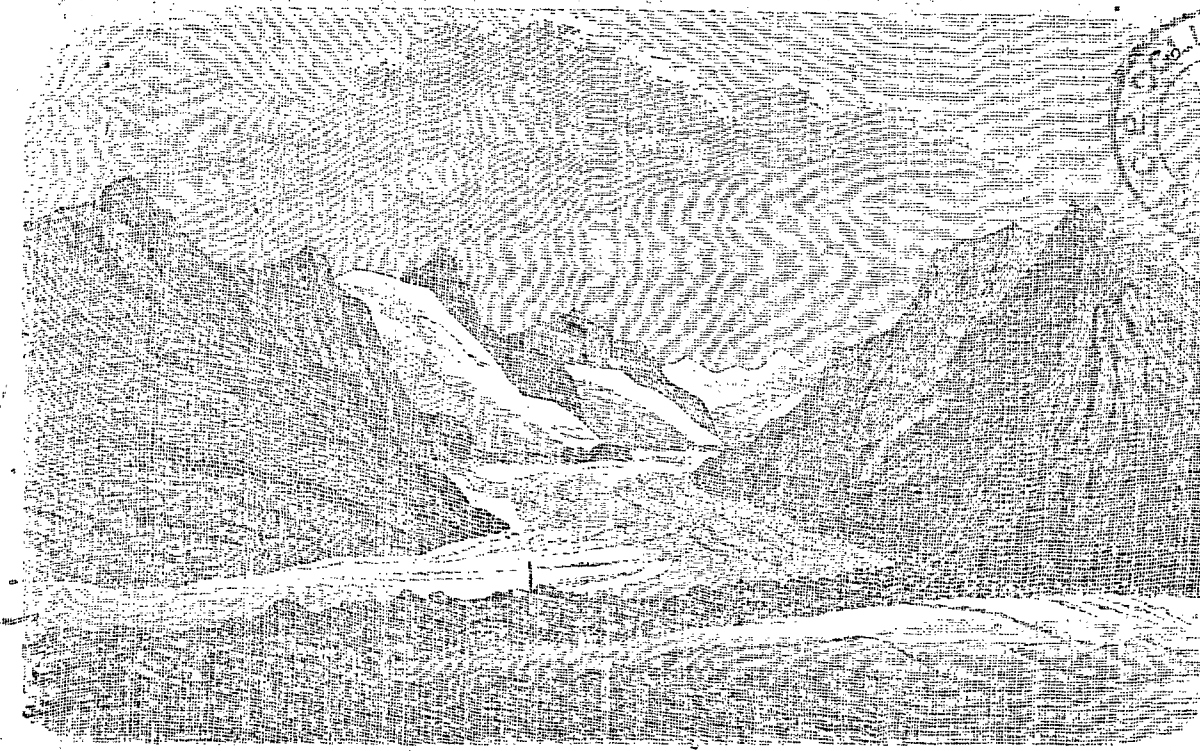


Fig. 88.—The Union of Two Glaciers in the Oetzth Valley with Lateral and Medial Moraines.

from the northern and southern parts of this eastern flank of the mountain. The two streams of firn meet at the bottom of the valley, and the glacier formed by them moves in two courses, each having a motion of its own. This is illustrated by fig. 86.

In this engraving you see, on each side of the glacier, several distinct longitudinal lines of what are called moraines. These moraines are ridges formed by heaps of stones which have fallen from the cliffs on each side of the valley. Generally there are only two lines of fragments, one on each side; but where there are several. All these separate ridges of stones are carried down in several lines till they come to a precipice, represented by the line above x. After descending headlong to a lower valley between x and y, they form but two moraines, one on each side, and with one set of curves. What is most remarkable in the upper part of this glacier is, that the line in the centre, between the two curves, is not a moraine of rocky fragments, but a moraine of firn snow. On each side,

and at the sides. But, when the coarse and pointed fragments of rock project a little out of the lower surface or at the sides of the glacier, the pressure of such an enormous weight in motion, scratches the solid rocks, and makes grooves, or what are called striae, in their surface.

Rocks that have been thus affected by glaciers are called, according to their respective appearances, smoothed or polished rocks, and striated or scratched rocks. These striae or scratches, wherever found, are always in parallel lines, because the angular and pointed materials that produced them were firmly fixed in the rasping glacier; and the grooves or scratches are always in the direction of the moving mass.

Some rocks exhibit a remarkable variety in the direction and the parallelism of these striae or grooves. As a glacier is known to rise and sink in thickness at different seasons, and to have different sets of movement in different circumstances, a new set of scratches corresponding with such movement will be produced, scratches which sometimes cross, at a small

angle, those which had been previously made. Fig. 87 shows how the surface of a cliff of rocks along which glaciers have passed, has been rubbed, rounded, smoothed and polished by ice and fine sand; or scratched and indented, as if by the edges and points of hard angular stones, forcibly urged along by the enormous pressure of the gliding glacier, and acting on the rock like diamonds upon glass.

The rocks in the higher districts of the Valley of the Aar exhibit the appearances of rounding, grooving, and smoothing of the sides up to a certain height. It is evident that up to the highest lines of these smoothings and markings, the upper surface of a glacier must, at one time, have reached. In looking at the face of this section, you must remember that the pointed, columnar, and needle-shaped rocks at the top of the engraving, and the rounded and scratched rocks in the foreground, are precisely the same rock, as to lithological character and formation; that the only difference between them is in their external appearance, and not at all in their internal structure—and that, consequently, such an external difference could have been produced only by an external agency, which is the agency of glaciers.

It will serve you, in your future inquiries, to keep in mind the fact that some large masses and huge blocks of such striated and scratched cliffs may, in their turn, be disintegrated, either by frost or by glacier pressure, and be removed and carried downward, and be deposited far from their parent bed, but bearing upon one or more of its sides all the scratchings and groovings or polishings which it had received from its contact with glaciers. This will prepare you to understand what will be said, in a future lesson, on drifted boulders with surface markings.

Some of the most important phenomena developed by the motion and action of glaciers, is the formation and deposition of moraines, which have been already described as ridges of stone brought down on the surface of glaciers.

The stony fragments and coarse gravel which compose the ridges called moraines are always derived from the high rocks or cliffs in the immediate neighbourhood of the glacier. These masses are loosened from their parent rocks by atmospheric agents. During the heat of summer days, the snow which lies in dents and cliffs of the rock, is melted by the sun; and, as water, it finds its way into the smaller cracks and crevices of the cliffs. When this water is frozen, the icy wedge between the masses of rock expands, and by increasing in bulk, splits the surface rock into fragments. The rocky pieces that are thus loosened and shattered fall, from the tops of precipices and the sides of cliffs, down to the surface of the solid ice. A very large quantity of such detritus is brought down to the glaciers by the fall of avalanches, and by the rush of torrents formed by melted snow. Besides these agents of disintegration, the glaciers themselves, by their great pressure, break up large masses and blocks from the sides of the valleys in which they move, and then remove them to a lower level, where they deposit them.

Moraines are divided into three classes.

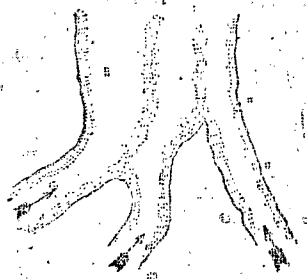
1. The lateral or side moraines. These consist of longitudinal ridges of stone, stretching sometimes along the entire length of the glacier, and resting on each side or shore of the glacier, immediately under the walls of each cliff. They are consequently a double ridge of stones, of all sizes, formed on what may be called each bank of the glacier.

2. Medial moraines. Where two glacier glens meet in a lower valley, the two glaciers of both glens will, as in the meeting of two streams, form one glacier. The consequence of such a junction is that the moraine ridge on the left side of one valley, and the moraine ridge on the right side of the other valley will, in their downward movement, crowd together and form one ridge in the middle of the lower valley. This larger ridge, formed by the other two, constitutes in the further course of the glacier, the middle or medial moraine. The middle ridge marks for many miles the actual separation of the two ice streams, though they glide in a common valley. Sometimes three or more glens descend into one wider valley, and then there will be two or more medial moraines as represented in fig. 89.

3. Terminal moraines? You have seen that the glacier at its lowest extremity melts away and vanishes, and that, consequently, all the ridges of stones which it bore downwards at

its sides and in its centre must fall and be deposited near where the lower part of the glacier ends. The mass of stones and blocks which are thus deposited form terminal moraines. As there is a daily waste of the ice at its lower extremity and a daily renewal of the glacier front, there must of necessity be a daily addition of stones deposited in proportion to the amount of that waste and renewal. When the glaciers advance

Fig. 89.



The formation of Medial Moraines, when two or more Valleys unite.

far down among plots of uncultivated land, and melt away in those positions, they leave behind them immense quantities and large heaps of stones and debris, which convert vineyards and orchards into a scene of rocky desolation.

The ridges of stone and gravel that form the lateral and medial moraines are sometimes very high, reaching even thirty or forty feet in elevation. Some of the stones in these moraines are mere rough pebbles, but others are huge blocks as large as a small cottage. When the terminal moraine is examined, it is found utterly destitute of every appearance of stratification. The terminal mounds consist of a confused mass of fragments of all sizes; for the glacier transports everything, the largest blocks and the finest gravel, mingles them altogether, and then leaves them in one confused heap wherever it is melted away.

The sands that are found in a moraine are formed by the action of the moving glacier in chafing, grinding and crushing against the bottoms and sides of rocks, and wearing them down into gravel, sand, and mud. The same process accounts for the facts, that many of the larger and the harder fragments found in the glacier have their angular points worn and rounded.

Imagine that glaciers are sometimes, as has already been represented, deeper or thicker than at other times. In these cases their surface rises to higher levels, and reaches the loftier flanks or ledges of the mountains on each side of them. It is obvious that when the surface of such a glacier melts away into a lower level, the lateral moraines which it bore in its higher state, must be left behind to remain on the higher flanks or ledges to which it had risen on each side of the mountain. When the upper surface of a glacier rises, like what takes place in a swollen torrent at particular seasons, the moraines resting on it must, of course, be correspondingly lifted up. When the increase of temperature at any season reduces the bulk and depth of the ice, the blocks and gravel which the glaciers bore in their higher level are left at a considerable height above its surface in a reduced state.

This fact in the physical geography of glacier mountains is of great importance when applied to geological phenomena. The account which you have had in this lesson of the surface markings on the rocks in the Unter Aar, and represented by fig. 87, shows that at some earlier period in the history of the Alps, the Swiss glaciers rose much higher and reached much farther than they do now. The scratches which are found upon very high cliffs, and the blocks and rocky fragments which are seen resting on the flanks of high mountains, beyond the reach of all the present glaciers, prove, that at a former geological period, the whole of the lower valleys of Switzerland now lying between the High Alps and the mountains of the Jura, were covered with high and vast glaciers which came down from the principal valleys of the Rhone and the Aar. Of

these immense glaciers, the present are only small remnants, small compared with their gigantic ancestors, though still of sufficient magnitude to demand the attention of the noblest intellects.

Glaciers, though dangerous and often fatal to the traveller, and barren and destructive to the farmer, are sources of the greatest blessings to our earth. In their dread solitudes they are mysterious productions of the Creator, but in their results they are clear and extensive demonstrations of his infinite wisdom and bountiful goodness. Were it not for these glaciers and the treasures of perpetual snow, many rivers and streams would become completely dry, and the meadows and cornfields of rich valleys and fertile plains would become an arid wilderness. God commands his sun to rise upon the eternal snow and to melt the crystal glacier, and makes them to contribute to the hidden stores, drops and rills and streams and torrents, to form rivers that shall spread fertility, beauty, and wealth over fields and meadows.

LESSONS IN ENGLISH.—No. LXII.

By JOHN R. BEARD, D.D.

VERBS;—Review; Verb-Parsing.

THE three root-forms of the English verb may pass into a great variety of forms as appears from the following combinations of the verb to teach.

With the Infinitive Mood.

I do teach, I shall teach, I will teach, I may teach, I can teach, I must teach, let me teach.

With the Participle Present.

I am teaching, I shall be teaching, I will be teaching, I may be teaching, I can be teaching, I must be teaching, let me be teaching.

I have been teaching, I shall have been teaching, I will have been teaching, I may have been teaching, I can have been teaching, I must have been teaching, let me have been teaching.

With the Participle Past.

I am taught, I shall be taught, I will be taught, I may be taught, I can be taught, I must be taught, let me be taught.

I have taught, I shall have taught, I will have taught, I may have taught, I can have taught, I must have taught, let me have taught.

I have been taught, I shall have been taught, I will have been taught, I may have been taught, I can have been taught, I must have been taught, let me have been taught.

Mark that when two or more of what are called auxiliary verbs are combined with a participle, usually the first expresses the manner and the second the time; the first only admits of variation in itself (inflection), as, *I might have loved, thou mightst have loved.*

The forms just given have to be multiplied first by the persons—three singular, three plural; secondly, by the tenses—present and past; thirdly, by *if* and other conjunctions giving rise to the dependent and the elliptical constructions. Then there are the affirmative, the negative, and the interrogative forms; as well as the interrogative negative. Besides this there is the uncontracted and the contracted form, as well as the solemn or the scriptural form; e. g.

Forms multiplied by the Persons.

I am teaching, thou art teaching, he is teaching, we are teaching, you are teaching, they are teaching.

Forms multiplied by the Tenses.

I teach, I taught, I was teaching.

Forms multiplied by *if*, &c.

If I teach, if I taught, if I am teaching, if I was teaching, &c.

Affirmative, negative, interrogative and interrogative-negative forms.

I teach; I do not teach; do I teach? do I not teach? &c.

Contracted and uncontracted forms.

They don't teach they do not teach? I don't teach, I do not teach.

Scriptural forms.

He teacheth, he loveth, he instructeth, he guideth.

A few facts respecting the verb remain to be set forth.

The most general division of verbs is that which exhibits them as personal and impersonal.

Personal verbs are such as take the ordinary persons *I, thou, he, &c.* Impersonal verbs take only the third person of the neuter gender, namely *it*; e. g., *it rains, it snows, it hails, it thunders.* It has been proposed to call these verbs *impersonal* (having one person) on the ground that *impersonal* signifies that which has no person. I do not know that the proposed change is worth adopting. Strictly speaking it is not a person, inasmuch as a thing is not a person. It is more important to remark that in these impersonal verbs the action of the verb is represented in the most abstract form of which it is possible next to the infinitive. Thus the noun *snow* passes into an indefinite verbal shape in *to snow*, and *to snow* becomes a little less indefinite in the form of *it snows*. Impersonal verbs mostly refer to atmospheric changes, and are used less extensively in English than in most other languages.

Verbs may be divided into *primitive* and *derivative*. The *primitive* are intransitive, the *derivative* are transitive. The change is effected for the most part by operating on the vowel; e. g.

Primitive.	Derivative.
Rise	raise
Lie	lay
Sit	set
Fall	fell
Drink	drench

I have already given instances of verbs derived from nouns by a change in the accent or pronunciation. Another class of verbs is formed from nouns by hardening the final consonant; e. g.

Nouns.	Verbs.	Nouns.	Verbs.
Abuse	abuse (abuze)	Grease	grease
Advice	advise	House	house
Close	close	Mouse	mouse
Devise	devise	Prophesy	prophesy
Diffuse	diffuse	Rise	rise (rize)
Excuse	excuse	The	use

Some verbs are termed *defective*; they are such as want some of the parts ordinarily ascribed to verbs. *Defective* is a defective verb being used only in the imperative or to give a caution. *Quoth* is a defective verb, and is employed in no other than the third person singular. *Bequeath* may be accounted another defective verb like *beware*. *Bequeath* is a compound, made up of *be* and *queath*, that is *get away*; and *beware* is composed of *be* and *were* found in *aware*, and *wary*.

Specimen of Verbal Parsing.

I love, I do love, I do not love, do I love? I loved, I shall love, I will love, I may love, let me love; I am loving, I shall be loving, I may be loving; I am loved, I have loved, I shall have loved, I have been loved, if I love; if he love; to love, love thou.

N.B. I omit the pronouns, as there is no need of the repetitions which reference to them would involve. *I love* is a transitive verb of the independent construction (the indicative mood) present tense, first person singular, and is used affirmatively.

I do love, *do* is a modal verb, of the independent construction, affirmative, first person singular, governing *love* in the indefinite form (the infinitive mood) *love* is a transitive verb in the indefinite form dependent on *do*; the two verbs united form the emphatic present; the emphatic past is *I did love*.

I do not love, is the negative form of the last proposition.

Do I love, is the interrogative form of the same sentence.

I loved, the past tense of the verb to love.

I shall love, *shall* is a qualifying verb here used to denote futurity, and governing *love* in the infinitive mood.

I will love, *will* is a qualifying verb here used to denote a design or intention, and governing *love* in the infinitive mood.

I may love, *may* is a qualifying or modal verb, it qualifies *love*, and it governs *love* in the indefinite form, commonly called "the infinitive mood."

Let me love, *let* is a transitive verb having *me* for its object and having the infinitive *love* depending on it.

I am loving, is the contracted present formed by *am*, the present tense first person singular of the verb to be, and the present participle *loving*.

I shall be loving, a compound form having a continued sense, and made up of the qualifying verb *shall*, the infinitive *be*, and the present participle *loving*.

I may be loving, a compound continued form, consisting of the modal verb *may*, the indefinite *be*, and the participle *loving*.

I am loving, a compound form, of the present time made up of *am* and the past participle *loved*, with a reflexive action on the subject, or forming what is called "the passive voice."

I have loved, a compound form of past signification with a continuance down to the present, consisting of *have*, the present tense of *to have*, and the past participle *loved*.

I shall have loved, shall (as before explained) have an infinitive dependent on *shall*, combined with the past participle *loved*; the form denotes an action which will have taken place previously to another action yet unperformed.

I have been loved, a reflex (or passive form) made up of the verb *have* and the participles *been* and *loved*; the form is affirmative and independent, and denotes an act which recently took place.

If I love, a dependent form from *I love*.

If he love, an elliptical form (from *he loves*).

To love, the indefinite form of the verb *love*, commonly called "the infinitive mood."

Love thou, the imperative of the transitive verb *love*; the second person singular, affirmative, the negative being *do not thou love, or love not*.

THE PARTICIPLE.

Participles can scarcely be considered a separate form of speech. A participle (Latin *pars a part* and *capio I take*) is so called because it partakes of the qualities of a verb and an adjective. It would be more correct to say that participles may be used as adjectives, and that sometimes, wholly losing their verbal force, they become adjectives.

We have seen that the English verb, when reduced to its simplest form, consists of three parts; e. g. *talk, talking, talked*.

Talking is called a present participle; it is emphatically present. "I talk" describes a general habit rather than an act now taking place; *I am talking*, is evidently a continued act and in regard to time may be spoken of as a *continued present*.

It is the termination *ing* that makes *talking* present.

A transitive participle may be used intransitively; e. g.

The house is building.

This use of the present participle seems to have been derived from the old idiom which prefixes the preposition *a* to the present participle, which then probably performs the function of a noun; e. g.

"The house is *a* building."

In this particular instance, however, the words "a building" would be liable to be taken as an article and a noun, equivalent in sense to "an edifice."

The present participle has the force of the Latin gerund; e. g.

In building the house they used stone.

The present participle may stand as an infinitive; e. g.

Buying a house is better than building one, that is, *to buy* is better than *to build*.

How readily in English acts run into results, and actives become passives, you may see by comparing *building* taken as an active participle with *building* taken as an edifice.

Applications of the participle ending in *ing*.

Transitive. "He is building a house."

Intransitive. "The house is building."

Gerund. "In building the house bricks were used."

Infinitive. "Building is a costly pleasure."

Result. "The building is very fine."

Adjective. "A talking bird is rare."

The other participle, namely that ending in *ed* (abbreviated into *d* and *t*, as *build*, *built*) seems to have for its essence the idea of past time.

A word which denotes what is past, may easily be made to denote the past effect of an action sometime present. We may see this fact illustrated in the verb, *to think*. The result of thinking is thought, and so thought is at once the past tense, the past participle.

Pres.	Past.	Past part.	Noun.
I think	I thought	thought	thought

The past participle is sometimes termed "the passive participle." Hence it appears that this participle may signify either simply a past act, or a result, and that as denoting a result, it at least approaches a passive signification. Hence the ambiguity which exists in what grammarians term "the passive voice present tense;" e. g.

The house is built.
The boy is loved.

When we say "the boy is loved" we signify a present fact; but when we say "the house is built," we mean, that the house stands there complete.

When a process is meant it is better to say,

The house is building.

or to employ the active form, as,

I am reading the volume.

some, however, prefer,

The house is being built.

But this form has no sufficient authority. Besides there is an evident absurdity in speaking of a thing as at the same moment past and present, e. g. being built.

LESSONS IN GEOMETRY.—No. XXII.

LECTURES ON EUCLID.

PROPOSITION XIII.—THEOREM.

The angles which one straight line makes with another upon one side of it, are either two right angles, or are together equal to two right angles.

Let the straight line *AB*, fig. 13, make with *CD*, upon one side of it, the two angles *CBA* and *ABD*. These angles are either two right angles; or are together equal to two right angles.

For, if the angle *CBA* be equal to the angle *ABD*, then each of them is a right angle, by Def. 10. But, if the angle *CBA* be not equal to the angle *ABD*, from the point *B*, draw the straight line *BE* at right angles to the straight line *CD*, by Prop. XI. Then, because the two angles *ABC* and *ABD* occupy the same space about the point *B*, and on the same side of *CD*, as the two angles *ABC* and *EBD*, therefore, by Axiom 8, the two angles *ABC* and *ABD* are equal to the two angles *ABC* and *EBD*. But the two angles *ABC* and *EBD* are, by construction, two right angles; therefore, the two angles *ABC* and *ABD* are equal to two right angles. Wherefore, the angles which one straight line makes with another. &c. Q. E. D.

Scholium.—The demonstration of this proposition, as given by Euclid himself, is unnecessarily complex, and to some even difficult; but, after all, it amounts to the same thing, as we have stated in the preceding demonstration. For the equality of the two angles *ABC* and *ABD* to the two angles *ABC* and *EBD*, is inferred from the equality of each pair to the three angles *ABC*, *ABD*, and *EBD*. Now these three angles are simply the angles which occupy the whole space about the point *B*, on the same side of *CD*.

Corollary 1.—All the angles made by any number of straight lines meeting at a point on one side of a straight line are together equal to two right angles. This is simply the fact, for the same reason as given in the demonstration, that they occupy the same space, and are therefore equal by Axiom 8.

Corollary 2.—All the angles made by any number of straight lines meeting in a point, are together equal to four right angles. Because if a straight line be drawn through the point, it is evident by the preceding corollary that all the angles made by any number of straight lines meeting in a point on the one side of that straight line, are equal to two right angles; and all the angles made by any number of straight lines meeting in the same point on the other side of that straight line, are also equal to two right angles; therefore all the angles made by any number of straight lines meeting in the same point on both sides of that straight line are equal to

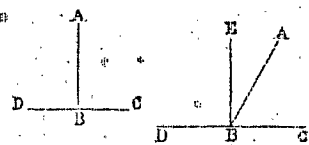


Fig. 13.

Definition 1.—When two angles are together equal to two right angles, the one is called the *supplement* of the other.

Definition 2.—When two angles are together equal to a right angle, the one is called the *complement* of the other.

EXERCISE TO PROPOSITION XIII.

If an angle and its supplement be bisected, the bisecting lines are perpendicular to each other.

In fig. (R), let *ABC* and *ABD* be supplementary angles; if the angle *ABC* be bisected by the straight line *BE*, and the angle *ABD* by the straight line *BF*; then the angle *EBF* is a right angle. For, the angle *ABC* is the half of the angle *ABD*; and the angle *ABE* is the half of the angle *ABD*; therefore the whole angle *EBF* is half of the two angles *ABC* and *ABD*; but these two angles are, by Prop. XIII., equal to two right angles; therefore, the angle *EBF* is one right angle. Wherefore, if an angle and its supplement, &c. Q. E. D.

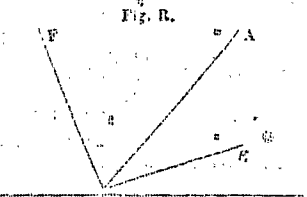


Fig. R.

Scholium.—This demonstration virtually requires a new axiom, namely, that if two things be the halves of two other things, the sum of the former two is half the sum of the latter two. This axiom might, of course, be demonstrated by means of those already given, and so might the proposition; but this exercise we leave to the mathematical student himself, who by this time should be able to meet the case required, and in the proper manner.

PROPOSITION XIV.—THEOREM.

If, at a point in a straight line, two other straight lines, upon the opposite sides of it, make the two adjacent angles together equal to two right angles, these two straight lines are in one and the same straight line.

At the point *B*, fig. 14, in the straight line *AB*, let the two straight lines *BC* and *BD* upon the opposite sides of *AB*, make the adjacent angles *ABC* and *ABD* together equal to two right angles. Then, *BC* is in the same straight line with *BD*.

For, if *BD* be not in the same straight line with *BC*, let *BE* be in the same straight line with it. Then, because the straight line *AB* makes with the straight line *CE*, upon one side of it, the two angles *ABC* and *ABE*, these two angles are together equal, by Prop. XIII., to two right angles. But the two angles *ABC* and *ABD* are likewise together equal to two right angles by hypothesis. Therefore the two angles *ABC* and *ABE* are equal, by Axiom 1, to the two angles *ABC* and *ABD*. From each of these equals, take away the common angle *ABC*, and the remaining angle *ABE* is equal, by Axiom 3, to the remaining angle *ABD*; that is, the less to the greater, which is impossible. Wherefore, *BD* is not in the same straight line with *BC*. In like manner, it may be shown that no other straight line but *BD* can be in the same straight line with *BC*. Therefore *BD* is in the same straight line with *BC*. Wherefore, if at a point, &c. Q. E. D.

Corollary.—If at a point in a straight line, two other straight lines upon the same side of it, make each a right angle with it, these two straight lines shall coincide with each other.

For, suppose that at the point *B*, fig. 14, the two straight lines *BE* and *BD* on the same side of it, make the angles *ABE* and *ABD*, each a right angle, then *BE* must coincide with *BD*. Produce *BD* to *C*; then, by Prop. XIII., the angles *ABD* and *ABC* are equal to two right angles; but, by hypothesis, *ABD* is a right angle; therefore *ABC* is also a right angle. But, by hypothesis, *ABE* is also a right angle; wherefore at the point *B*, in the straight line *AB*, the two straight lines *BC* and *BE* make the adjacent angles equal to two right angles; therefore the

The exercise to Prop. XIII. was solved by T. H. BOOCK, Great Watley. The exercise to Prop. XIII. was solved by F. H. BRIGHTWELL, C. MARSHALL, Bolton-le-Moors; T. BOOCK, Great Watley; QUENTIN PEARCE, Glasgow; J. H. EASTWOOD, Middleton; E. J. BRENNER, Cayle; D. H. DRIFFIELD, and ED. RICE, Pentonville.

straight lines *BC* and *BE* are in one and the same straight line; but the straight lines *BC* and *BD* are also in one and the same straight line. Wherefore the straight lines *BE* and *BD* have a common segment *BC*; but this is impossible, by the corollary to Prop. XI. Therefore, the straight line *BE* must coincide with the straight line *BD*. Wherefore, if at a point, &c. Q. E. D.

Scholium.—Euclid has not thought it necessary to add this corollary to the text; but he takes it for granted in the demonstration of several of his subsequent propositions. The want of any reference to such a corollary as this, in these propositions, has always created a hiatus, or halt in the steps of reasoning, in the mind of the acute student. This want is particularly felt in the demonstration of Prop. XI., Book II., where it is taken for granted by Euclid, that when the square *AC* is described upon the straight line *AB*, its side *AC* must necessarily coincide with the given straight line *AD*, and thus determine the point of section *C*. Dr. Thomson appears to have felt this defect in Euclid's demonstration of this proposition, and accordingly he has made a change in his construction of it, which removes the hiatus, and renders any reference to such a corollary as the preceding unnecessary in his demonstration of it. Dr. Thomson has silently made this change in Prop. XI., Book II.; hence it is probable that many persons who have read both Simson's edition and his, have never noticed the difference. Nevertheless, it is one to which we attach great importance, not so much on account of the said proposition, as of others which we intend to bring under review in future lessons.

PROPOSITION XV.—THEOREM.

If two straight lines cut one another, the vertical, or opposite angles are equal.

Let the two straight lines *AB* and *CD* cut one another in the point *E*. The angle *AEC* is equal to the angle *DEB*, and the angle *CEB* to the angle *AED*.

Because the straight line *AB* makes with *CD* the two angles *CEA* and *AED*; these angles are together equal (I. 13) to two right angles. Again, because the straight line *CD* makes with *AB* the two angles *AED* and *DEB*, these angles are together equal (I. 13) to two right angles. But the two angles *CEA* and *AED* have been proved to be equal to two right angles. Therefore the two angles *CEA* and *AED* are equal (Ax. 1) to the two angles *AED* and *DEB*. From these equals, take away the common angle *AED*. Therefore the remaining angle *CEA* is equal (Ax. 3) to the remaining angle *DEB*. In the same manner, it can be demonstrated, that the angle *CEB* is equal to the angle *AED*. Therefore, if two straight lines, &c. Q. E. D.

Corollary.—Two angles are equal if their supplements be equal; and if the supplements of two angles be equal, the angles are equal.

Scholium.—The corollaries usually added to this proposition by Euclid, are included in those now added to Prop. XIII.

EXERCISE I. TO PROPOSITION XV.

If at a point in a straight line, two other straight lines meet upon the opposite sides of it, and make the vertical or opposite angles equal, these two straight lines are in one and the same straight line.

At the point *E*, fig. 15, in the straight line *AB*, let the two straight lines *CE* and *DE* meet at the point *E*, upon opposite sides of *AB*, and make the vertical angles *CEA* and *DEB* equal; then the straight lines *CE* and *DE* are in one and the same straight line.

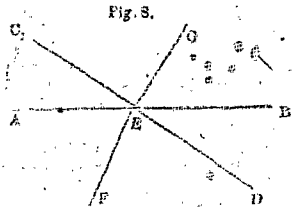
Because the straight line *AB* makes with the straight line *CE* upon one side of it, the angles *AEC* and *CEB*, these angles, by Prop. XIII., are equal to two right angles. But the angle *AEC* is, by hypothesis, equal to the angle *DEB*; to each of these equals, add the angle *AED*; therefore, the two angles *AEC* and *AED* are together equal to the two angles *AED* and *DEB*; but the two angles *AEC* and *AED* are equal to two right angles; therefore, by Axiom 1, the two angles *AEC* and *AED* are together equal to two right angles. Because at the point *E* in the straight line *AB*, the two straight lines *CE* and *DE* upon the opposite sides of *AB* meet, and make the two adjacent angles equal to two right angles; therefore, by Prop. XIV., the straight lines *CE* and *DE* are in one and

the same straight line. Therefore, if at a point in a straight line, &c. Q. E. D.

EXERCISE II. TO PROPOSITION XV.

If two straight lines cut one another, and the vertical angles be bisected, the bisecting lines are in one and the same straight line.

Let the two straight lines A B and C D, fig. 8, cut one another in the point E; and let the two vertical angles A E D and C E B be bisected, respectively by the straight lines E F and E G. Then the straight lines E F and E G are in one and the same straight line.



Because the two angles A E D and C E B are equal, and are respectively bisected by the straight lines E F and E G; Therefore, by Axiom VII., the angle F E D is equal to the angle G E B. But, by Prop. XV., the angle C E A is equal to the angle B E D; therefore, by Axiom II., the whole angle A E D is equal to the whole angle C E B. To each of these equals, add the angle F E D; therefore, the two angles A E D and C E B are equal to the two angles C E A and B E D. Again, because the straight line A B makes with A E upon one side of it the two angles A E D and C E B, these angles, by Prop. XIII., are equal to two right angles; therefore, by Axiom I., the two angles C E A and B E D are equal to two right angles. But at the point E in the straight line A B, the two straight lines E F and E G make the two angles C E B and B E D equal to two right angles; therefore, by Prop. XIV., the two straight lines E G and E F are in one and the same straight line. Wherefore, if two straight lines cut, &c. Q. E. D.*

Corollary.—If two straight lines cut one another, and if the vertical angles be bisected, the four bisecting lines will form two straight lines at right angles to each other.

LESSONS IN FRENCH.—No. LXXIII.

By Professor LOUIS VELLE, LL.D.

§ 87.—REGIMEN OF ADJECTIVES.

(1.) The regimen or complement of adjectives is a noun or a verb completing or defining their sense. Between the noun and the adjective comes one of the prepositions, à, de, dans, en, sur, &c. :—

Cet homme est digne de louange. This man is worthy of praise.
Cet général est digne de commander. That general is worthy to command.

In the first phrase, *louange*, in the second, *commander*, is the regimen of the adjective *digne*.

(2.) The regimen is not always necessary to the adjective. It is added to it only to give the latter a particular limitation :—

Without a regimen. With a regimen.
Cet homme n'est pas content. Cet homme n'est pas content de son fils.
That man is not pleased. That man is not pleased with his son.

(3.) As may be seen in the last sentence, an adjective is not always, in French, followed by the same preposition as the corresponding adjective in English. Thus, after the adjective *content*, the French use the preposition *de* (of), while after its English representative (*pleased*), the preposition *with* must be employed. M. Bescherelle, and several other French grammarians, while acknowledging the difficulty, give us the consoling assurance, that "L'usage et les dictionnaires les feront connaître" (use and dictionaries will make us acquainted with them); that is, with the prepositions required after the adjectives.

* Exercise I. to Prop. XV. was solved by F. H. Brightwell; F. Ross, Pentonville; T. Boppe, Great Witley; QUENTIN PRINCE, Glasgow; H. EASTWOOD, Middleton; C. L. HADFIELD, Bolton-le-Moors; D. H. BRIDGES, and STURTEVANT, Colchester. Exercise II. to Prop. XV. was solved by F. H. BRIGHTWELL; F. H. BRIGHTWELL; T. BOPPE, Great Witley; QUENTIN PRINCE, Glasgow; H. EASTWOOD, Middleton; C. L. HADFIELD, Bolton-le-Moors; E. J. BRENNAN, Carlisle; and STURTEVANT, Colchester.

tives. As the student will scarcely be satisfied de cela, we give a rule or two on this difficult subject; and add lists of adjectives with their proper accompanying prepositions.

(4.) When an adjective follows the verb *être*, used unipersonally, the preposition *de* is placed after that adjective, and before the verb following :—

Il est doux de mourir pour son pays. It is sweet to die for one's country.
Il est plus aisé d'être sage pour les autres que pour soi-même. It is easier to be wise for another than for one's self.
LA ROCHEFOUCAULT.
Il est plus glorieux de se vaincre soi-même, que de vaincre les autres. It is more glorious to conquer one's self than to conquer others.
SCUDÉRY.

(5.) It should be recollected, that, it is only when the verb *être* is unipersonal, that it thus seems to influence the choice of the preposition. In other cases, the adjective must be followed by the preposition proper to it. See § 88, 89, 90, 91, 92, below.

Cela est doux au toucher. That is soft to the touch.
Cela n'est pas aisé à faire. That is not easy to be done (easily done).

§ 88.—LIST OF ADJECTIVES REQUIRING THE PREPOSITION *de*.

Absent <i>de</i> , absent (from)	Glorieux <i>de</i> , proud of
Ambitieux <i>de</i> , ambitious of	Honteux <i>de</i> , ashamed of
Amoureux <i>de</i> , in love with	Impatient <i>de</i> , impatient of
Avide <i>de</i> , eager for	Incapable <i>de</i> , incapable of
Approchant <i>de</i> , approaching, near	Inconsolable <i>de</i> , inconsolable for
Capable <i>de</i> , capable of, to	Indigne <i>de</i> , unworthy of
Chéri <i>de</i> , beloved by	Indigné <i>de</i> , indignant with
Complice <i>de</i> , accomplice in	Inquiet <i>de</i> , uneasy about
Content <i>de</i> , pleased with	Ivre <i>de</i> , intoxicated with
Curieux <i>de</i> , curious to	Las <i>de</i> , weary of
Désireux <i>de</i> , desirous to, of	Mécontent <i>de</i> , displeased with
Désolé <i>de</i> , grieved with	Parent <i>de</i> , related to
Différent <i>de</i> , different from	Pien <i>de</i> , full of
Digne <i>de</i> , worthy of, to	Ravi <i>de</i> , glad to, of
Envieux <i>de</i> , envious of	Rassasié <i>de</i> , satiated with
Eloigné <i>de</i> , remote, far from	Reconnaissant <i>de</i> , grateful for
Esclave <i>de</i> , a slave to	Rempli <i>de</i> , filled with
Exempt <i>de</i> , exempt from	Redevable <i>de</i> , indebted for
Fiché <i>de</i> , sorry for	Solennel <i>de</i> , solemn of, to
Fatigué <i>de</i> , tired with, of	Sûr <i>de</i> , sure of
Fier <i>de</i> , proud of	Surpris <i>de</i> , surprised of
Fort <i>de</i> , confident in	Tribunaire <i>de</i> , tributary to
Pou <i>de</i> , excessively fond of	Victime <i>de</i> , victim to, of
	Vide <i>de</i> , void of

Qui vit content de rien, possède toute chose. BOILEAU.
Il n'est pas de Romain, qui ne soit prêt à se couper la main. CORNEILLE.
He who lives content with a little, possesses all.
There is no Roman that is not desirous to reach you his hand.

§ 89.—LIST OF ADJECTIVES REQUIRING THE PREPOSITION *à*.

Accessible <i>à</i> , accessible to	Formidable <i>à</i> , formidable to
Accoutumé <i>à</i> , accustomed to	Fatal <i>à</i> , fatal to
Adhérent <i>à</i> , adhering to	Importun <i>à</i> , importunate to
Agreeable <i>à</i> , agreeable to	Impénétrable <i>à</i> , impenetrable to
Ajusté <i>à</i> , fitted for	Indispensable <i>à</i> , indispensable to
Antérieur <i>à</i> , prior to	Intéressé <i>à</i> , interested in
Aisé <i>à</i> , easy to	Invisible <i>à</i> , invisible to
Ardent <i>à</i> , zealous for	Insensible <i>à</i> , insensible to
Assidu <i>à</i> , assiduous to	Naturel <i>à</i> , natural to
Attentif <i>à</i> , attentive to	Nécessaire <i>à</i> , necessary to
Bon <i>à</i> , good for	Nuisible <i>à</i> , hurtful to
Cher <i>à</i> , dear to	Odieux <i>à</i> , odious to
Conforme <i>à</i> , similar to	Postérieur <i>à</i> , posterior to
Contrainte <i>à</i> , contrary to	Préférable <i>à</i> , preferable to
Cruel <i>à</i> , cruel towards	Propice <i>à</i> , propitious to
Difficile <i>à</i> , difficult to	Propre <i>à</i> , fit for
Enclin <i>à</i> , prone to	Rebelle <i>à</i> , rebellious towards
Étranger <i>à</i> , a stranger to	Redoutable <i>à</i> , formidable to
Exact <i>à</i> , exact in	Semblable <i>à</i> , similar to
Facile <i>à</i> , easy to	Sujet <i>à</i> , subject to
Favorable <i>à</i> , favorable to	

L'ignorance toujours, est prête à s'admirer. BOILEAU.
Insensible à la vie, insensible à la mort.
Il ne sait quand il veille, il ne sait quand il dort. RACINE.
Ignorance is always ready to admire itself.
Insensible to life, insensible to death, he does not know when he is awake, or when he sleeps.

§ 90.—ADJECTIVES REQUIRING A DIFFERENT PREPOSITION IN FRENCH AND IN ENGLISH, NOT INCLUDED IN THE ABOVE LIST, WITH THE FOLLOWING SIGNIFICATION.

Bon pour, kind towards, devoted to	Ignorant en, not versed in
Célèbre pour, par, celebrated for	Indulgent pour, indulgent towards
Civil envers, polite to	Insolent avec, insolent to
Quand on est bon pour tout le monde, ou ne l'est pour personne. C. DELAVIGNE.	Poli envers, polite to
Il fut célèbre par sa doctrine, autant que par sa naissance. BOSSUET.	What one is devoted to every body, one is so towards nobody.
	He was celebrated for his doctrine, as well as for his birth.

§ 91.—REMARK.

It must not be forgotten, that when the verb *être* is used unipersonally before the adjectives contained in the two preceding sections, these adjectives become subject to rule (4.)

§ 87.
Il est indispensable d'étudier. It is indispensable to study much.
Beaucoup pour devenir savant. to become learned.

§ 92.—IMPORTANT RULES.

(1.) A noun may be followed by two or more adjectives, having one and the same regimen, provided those adjectives require the same prepositions after them; thus we may say :—

Ce père est utile et cher à sa famille. That father is useful, and dear to his family.
GINNET DUMÉVIER.
La religion est nécessaire et naturelle à l'homme. ANTOINE.
Religion is necessary and natural to man.

These two sentences are correct, because the adjectives, *utile*, and *cher*, in the first, and *nécessaire* and *naturel*, in the second, require the same preposition, *à*.

(2.) We could not in the first of these two sentences, substitute the adjective *cher* (beloved) for the word *cher*, and say as in English, *That father is useful to, and beloved by his family*. Such a construction in French is never admissible. We must say, *That father is useful to his family, and is beloved by them*; because the adjective *cher* requires the preposition *de*, or its substitute, the relative pronoun *qui* (§ 39, (17.)).* Ce père est utile à sa famille et en est cher, i. e. est cher à elle.

§ 93.—DETERMINING ADJECTIVES.—DEMONSTRATIVE ADJECTIVES.

The demonstrative adjective, which must not be confounded with the demonstrative pronoun (§ 35.), always precedes the noun, and must be repeated before every substantive. It assumes the gender and number of the word which it determines (§ 20, (1.)).

Cet air pur, ces gazons, cette vallée. That pure air, that turf, that meadow.
Tout plat au cœur, tout en passion le cœur nous charme le chante les yeux. CANTU. Every thing, every person the heart and charms the eye.

§ 94.—AGREEMENT, REPETITION, AND PLACE OF THE POSSESSIVE ADJECTIVE.

We have said (§ 21, (2.)) that the possessive adjective assumes the gender and number of the object possessed, and (4.) that it must be repeated before every noun. The place of the possessive adjective is the same in French as in English, that is, before the noun. These adjectives must not be confounded with the possessive pronouns (§ 24, (2.)) :—

Mon père, ma mère et mes sœurs. My father, mother, and sisters are arrived.

§ 95.—REMARKS.

(1.) It has been said (§ 77, (2.)) that the French use the article instead of the possessive adjective, when alluding to the parts of the body. This, however, must only take place where the possession is otherwise sufficiently explained. We must say, for instance :—

* The rule with regard to the regimen of verbs is equally imperative. We could not say in French, as in English, *Every week I write letters to, and receive letters from, my brother*. We must say, *Every week I write letters to my brother, and receive some from him*. *Twice per session I write letters to mon frère, et j'en reçois de lui*.

J'ai mal à la tête.

Charles s'est cassé le bras.

because the possession is sufficiently explained by the pronouns *je* in the first instance, and *se* in the second. But, we must say,

Je vois que mon bras s'enfle, I see that my arm swells.
because without the *mon*, the possession of the arm would not be indicated.

(2.) The English expressions, *a brother of mine*, *a cousin of his*, cannot be translated literally into French. We must say *un de mes amis*, *one of my friends*; *un de ses cousins*, *one of his cousins*.

Chama et Carbon, au des bords du Rhin, se campèrent sur les bords du Rhin. VERVOER.
Chama and Carbon, a lieutenant of ants, encamped on the banks of the Rhine.

(3.) In familiar or jocular style, we sometimes use the possessive pronoun, *mon*, *ton*, *sien*, without the article, to express the same relation :—

A travers d'un sien pré certain. Through a meadow of mine a young one passed.
RACINE.
Un sien cousin est juge et mayor. A cousin of mine is judge and mayor.
LA FONTAINE.

(4.) When the possessor is an inanimate object, the adjectives *son*, *sa*, *ses*, *leurs*, can be placed before the object possessed, only when the possessor is the subject of the same proposition :—

La campagne a ses agréments. The country has its pleasures.
Les langues ont leurs beautés. Those languages have their beauties.

(5.) When the (subordinate) possessor is not the subject of the proposition, in which the possession is expressed, but of a preceding one, the article and the relative pronoun *en* are used (§ 39, (17.)) :—

Ce livre est bien imprimé, le papier en est excellent. That book is well printed, its paper (the paper of it) is excellent.
J'habite la campagne; les agréments en sont sans nombre. I inhabit the country; its pleasures (the pleasures of it) are without number.

Ces langues sont riches, j'en admire les beautés. Those languages are rich, I admire their beauties (the beauties of them).
NOTA.

(6.) Exception. The possession may be expressed by *mon*, *sa*, *ses*, *leurs*, although the possessor be not the nominative of the same proposition, when the object possessed is the regimen of a proposition :—

Paris est une ville remarquable; les étrangers admirent la beauté de ses édifices. Paris is a remarkable city, foreigners admire the beauty of its edifices.
NOTA.

CORRESPONDENCE.

UTILITY OF OUR JOURNAL TO THE THINKING POPULATION.

SIR,—It was my misfortune to have but very little schooling. I was apprenticed at the age of fourteen. While at school, I believe I was not accounted a blackhead; but when I left school, I had no thought of paying attention to the culture of my intellect any longer: in fact, I think I should never have thought of better educating myself, had not a gentleman given me a little advice upon the subject, and what was more important (for the advice, as is generally the case, would soon have been forgotten), kindly put into my hand the first part of the "Popular Educator." I have continued your excellent paper from that time, and I must say it has proved a wonderful boon to me. I think I am not exaggerating, when I say that it has entirely reformed my state of existence. From all the lessons I have derived great benefit, with the exception of the lessons in French and German, to which I have not yet turned my attention. I particularly admire Dr. Bead's lessons. The great care he has evidently taken to simplify and elaborately to explain his subjects (English, Latin, and now Greek, which I am glad to see), cannot fail, I should think, to make them intelligible to any ordinary capacity. I would admonish all to attend strictly to everything Dr. Bead advises them to do; if they do this, I am confident they will reap abundant reward. At the same time, they must remember that perseverance is the great thing. All the teachers in the world would do but little good, if that is wanting. The study of a language, I have found, requires

great mental exertion. If the learner resolves in a manly way to exert himself, he will have no difficulty in mastering any of the lessons in the "P. E." I am right glad to see that Mr. Cassell has begun to publish a "Classical Library." I shall anxiously look forward to the appearance of some Latin authors in separate volumes, as I doubt not is intended when the "Reader" is completed. If the grammatical difficulties and idioms are explained (as it is said they are to be) in a simple and intelligible manner, nothing further will be required by the student who has read the "Lessons in Latin" in the "P. E." and I venture to predict that their cheapness will ensure an extensive sale. Thousands of students will bless the enterprising spirit of Mr. Cassell, who is known all over the kingdom as a great friend to education, and will, I make bold to say, be long remembered as such.

Feeling the amount of good the "P. E." has done to me, I cannot but be anxious for its welfare. I have endeavoured to make young people perceive its beneficial effects, by showing them that there never was so much learning to be had at such a cheap rate. Being myself slightly connected with a school, I have now and then given a number to the well-behaved scholars, which I find they like better than the paltry trash usually devoted to this purpose; and I have often found that it has induced them to continue the numbers at their own expense. Of course this has only been done with the higher scholars, but it is easily seen that a good deal, if done in the right direction, will tell upon the masses. I recommend this plan to schoolmasters. A volume of the "P. E." would be a useful prize to a deserving boy in a National School.

I have reason to believe that a vast deal of good would arise from the introduction of the "P. E." among domestic servants by their employers. I know two masters having each a housemaid and nursemaid who used to send into the kitchen every week, the "Family Herald," the "London Journal," and other such papers for the servants' recreation when at leisure; I asked them to try the "P. E.," they have done so, and find that the numbers are made good use of. Could not the same be done elsewhere? I would recommend it. Servants have generally a few hours a day to themselves, and how can they employ that time better than by a little useful reading. Excuse my presumption in suggesting that something could be introduced into the "P. E." expressly adapted for girls, say Domestic Economy or something to the purpose of their domestic life. I am convinced that it would have a great influence in increasing its circulation among females, which is at present nothing compared with that among the males.

As I am truly thankful for the service your paper has done to me, and am therefore anxious to see it going vigorously, I should feel, I must say, some satisfaction, if it were said should be deemed fit to be made public, so as to show young men the excellent advantage they have of improving themselves by standing through the instructive pages of the "Popular Educator."

I remain Sir, a sincere friend of the "Popular Educator,"
ABERCHOMBIE HYATT,
A Sunday School Teacher.

London, Aug. 3rd, 1853.

ANSWERS TO CORRESPONDENTS.

T. FOWLER (Woolwich): A ship is reckoned *feminine*, because the noun for a ship is feminine in Hebrew, Greek, and Latin.—REGULAR SUBJUNCTIVE.—Rochdale: We know not the author of the lines; but we do not admire them. As an answer to them, we would strongly recommend him to peruse seriously and attentively, "Young's Night Thoughts," Nights vi. and vii., entitled "The Infidel reclaimed," but especially Night vii., from which we extract the following lines, applicable to the case in hand:—

"Eternal life is Nature's ardent wish;
What ardently we wish, we soon believe;
Thy tardy faith declares that wish destroyed.
What has destroyed it? shall I tell thee what?
When fear'd, the future is no longer wish'd;
And when unwish'd, we strive to disbelieve;
Thus infidelity our guilt betrays.
The future fear'd! An infidel and fear!
Fear what? a dream! a fable! How thy fear,
Unwilling evidence, and therefore strong,
Affords my cause an undesig'd support!
How disbelief affirms what it denies!
It unawares asserts immortal life.
Surprising! infidelity turns out
A creed, and a confession of our sins:
Apostates, thus, are orthodox divines.
From purer reasoners to sublimed faith,
Is nature's unavoidable ascent.
An honest Deist, where the Gospel shines,
Matur'd to nobler, in the Christian ends."

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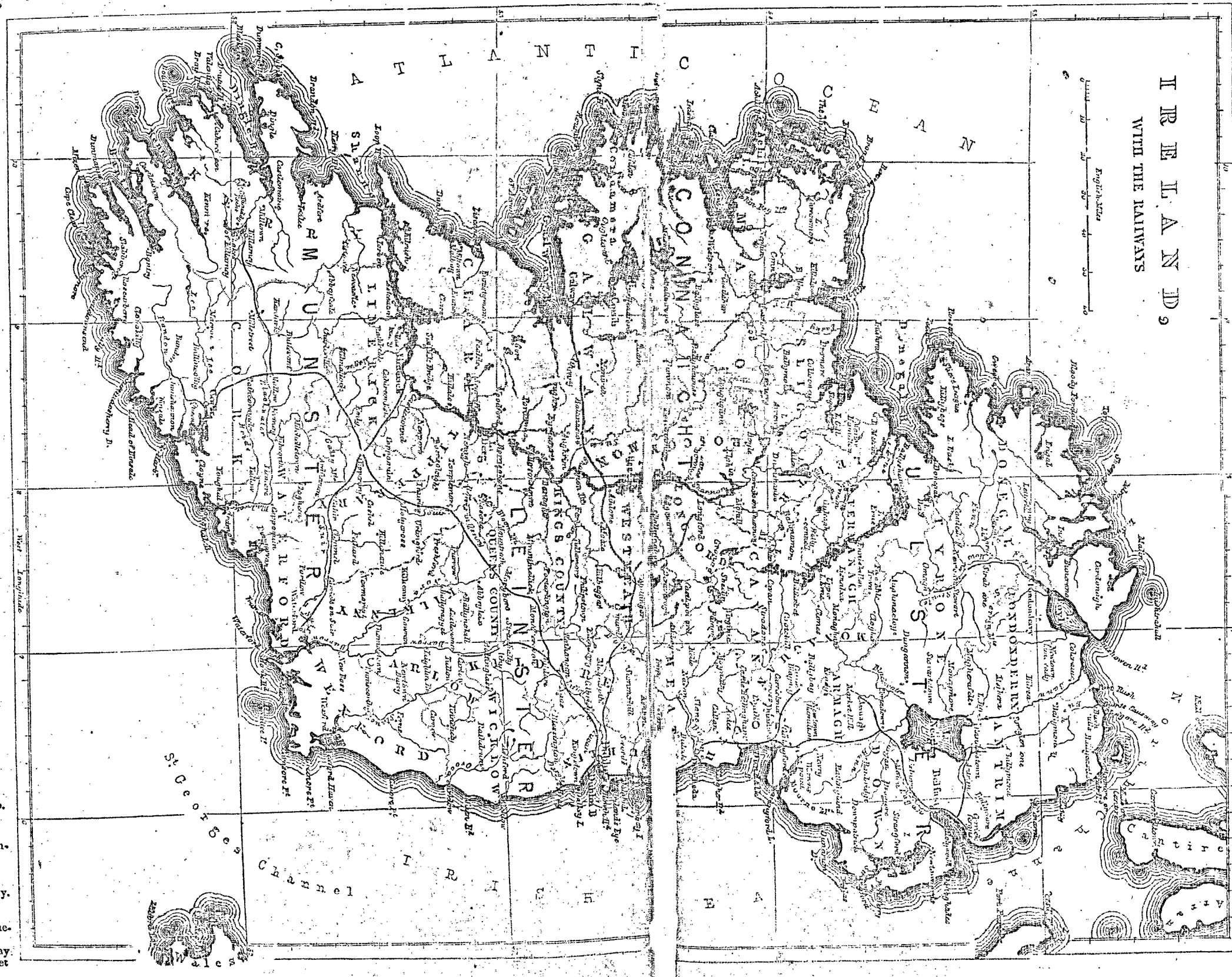
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Inch,	Lough Swilly.
Tory,	N. W. of Donegal.
Aran,	W. of Donegal.
Inishmurray,	Donegal Bay.
Eagle Group,	W. of Mullet



IRELAND.

ISLANDS.

Achill,	W. of Mayo.
Clare,	Clew Bay.
Inishurk,	S. of Clare Is.
Inishark,	S. of Inishurk.
Arran Group,	Galway Bay.
Rockets,	S. W. of Dunmore Head.
Valentia,	Dingle Bay.
Cape Clear,	S. of Cork.
Saltee Group,	S. of Wexford.
Dalkey,	Dublin Bay.
Ireland's Eye,	Near Howth Head.
Lambay,	N. of Ireland's Eye

PENINSULAS.

The Mullet,	Mayo.
Connemara,	Galway.

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Inishowen Head,	Donegal.
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Hook Head,	Wexford.
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LESSONS ON PHYSICAL EDUCATION.—No. VII.

(Continued from page 319.)

SWIMMING.

EXERCISE 1. Swimming with extended arms. This exercise is sometimes called *Frog Swimming*, because it is performed in exact imitation of the motions of the animal in water, from which it has received the name. Having selected a place in a river, or a bath constructed for the purpose, where the bank or the tank slopes downward in a gradual manner, the learner walks into the water until it reaches his shoulders, and turns round with his face to the commencement of the slope. He then raises his hands up to his chest, and places the palms of his hands and the fingers against each other, with the thumbs

Fig. 31.



upwards. Next, he leans gently forward in the water, keeping his head upright, and suddenly lifting his feet from the ground, with the heels close together, as high as he possibly can, by a simultaneous and powerful motion, he separates his hands and feet, striking the former out before him, and the latter behind him. The hands in making the stroke, as it is called, must be raised as high as the shoulders. The next stroke is made thus: the palms of the hands, which have been separated, are turned downwards and backwards in a curved direction, and restored to their original position in the shortest way possible; at the same time, the feet are brought together and lifted up as before; then the stroke is repeated, as above described, at the instant that the body begins to sink; but the learner must avoid the common error of repeating the stroke in a hurried manner, or diminishing the interval of time, by throwing out either the upper or lower extremities too soon. He must *hasten slowly*. Fig. 32.

EXERCISE 2. Swimming upon the back. This exercise is very useful, and comparatively easy after the learner has acquired confidence in the watery element. It enables the swimmer to rest himself as it were in the water, when tired of rapid progressive motion as in the former exercise, and it is usefully employed, as a means of preventing his feet and legs from becoming entangled in sea-weeds or water-plants.

Fig. 33.



The learner being immersed in water to the shoulders as before, lays himself gently on his back in the water, then striking with his legs and feet, he brings himself to the surface of the water, so that the body and the legs are in a straight line parallel to that surface, and the face, the chest, and the toes are above it, the arms being close to the sides. Locomotion is effected by using the arms as oars, and the feet as has been described in the preceding lesson. Fig. 35.

EXERCISE 3. Cut-water swimming. It requires very considerable practice to perform this exercise; but when once learned the swimmer can cut through the water with the greatest rapidity, and thus escape the dangerous effects of eddies and currents.

The learner having immersed himself to the shoulders as

before, lays himself upon his chest and stomach in the water, throwing his right arm forwards out of the water, and bending his fingers so as to form a hollow like the hand like a cup, he dips it into the water and draws it quickly towards his chest in a straight line, allowing it then to fall behind his body; at the same time he performs with his feet the same stroke as he did in the first exercise. But as soon as the body begins to sink, he instantly performs the same operation with the left hand which he did with the right; and so on alternately. During the progressive motion thus obtained, the body floats upon the right side, while the right arm is in motion, and on the left side when the left arm is in motion; the ears are occasionally wetted during the alternate operation of the arms. Fig. 36.

EXERCISE 4. Swimming like a dog is the most natural to the human being, and is accomplished by simply imitating the motions of that animal in the water, that is, by raising the hands and feet and striking them out simultaneously and alternately, the left leg moving with the right arm, and the right leg with the left arm.

Fig. 36.



EXERCISE 5. Diving is a part of aquatic exercise essential to the swimmer; he should be able to plunge fearlessly into or under the water; for unless he can do so, almost all the advantages of learning to swim are lost both to himself and others. Indeed many a good swimmer, for want of practice in this exercise, and influenced by fear, has lost both his own life and that of another whom he has attempted to rescue from a watery grave. If the art of swimming was only required as an amusement or a means of preserving health, it would not be quite so necessary to know how to dive; but the end proposed by your learning to swim is to be able under any circumstances to save human life, your own or that of others; and therefore, the habit of plunging into water and diving to the bottom without fear or confusion, is well worthy of your acquisition. You could then, if you happened to fall into a river or over a ship's side, or were wickedly precipitated into water by design, make your escape with the greatest ease; and if you were pursued for your life or liberty, or wished to save any one in danger of drowning, from whatever cause, you could equally accomplish your own safety or that of another.

The art of diving may be learned with the assistance of another person in performing the first lessons. Choose a place in the river where the water reaches only to the knees, sit down and hold the person by the hands, while he is standing face to face with you; hold your breath and lean backwards under the water; as soon as the water has covered your face, let him raise you again to the sitting posture, until you can breathe freely. Repeat this exercise, until you are able to remain a minute or two under water, and until you can lean backwards in the same manner under the water, and raise yourself again, without the assistance of his hands. This is generally accomplished in the first lesson.

To learn to dive without the assistance of another person, go into the water up to the middle, and inhale as much air as you can, sit down, and holding your breath, remain a few seconds under water. Then rise up, and having taken breath, repeat the same exercise. A little water will enter the ears and the nostrils, but this inconvenience will soon be overcome; the slight deafness and buzz in the ears arising from the water, need occasion no disquietude; for it will go out imperceptibly, and the hearing will become the same as before. When you wish to accustom yourself to retain your breath and to plunge your

head into the water, seek for a place of much greater depth. After swimming for some moments on the surface, plunge head foremost, suddenly bending the body and raising the feet upwards, and extending the arms downwards, keeping the inverted vertical position till you reach the bottom. To rise again to the surface, turn round with your head upwards and strike with your feet downwards alternately, as if you were ascending a ladder, making the same movement with your hands, having the palms downwards, and imitating the action of swimming like a frog as before described.

If you open your eyes in sandy water, you will experience a slight smarting pain when they come into the air; but not if the water be pure and free from mechanical mixture. In all cases it is better to shut your eyes in the water, and open them only in the air, in order to prevent the space between the eyelids and the pupil from being filled with gritty matter, a circumstance sufficient of itself to deter a beginner from practising the exercise. In diving and swimming under water, it is best to assume the horizontal position, and to swim like a frog as if you were at the surface.

EXERCISE 6. Swimming with the clothes on. In case of accidents, every one who has had opportunity should be able to swim in this manner; and it may be learned gradually. When the swimmer can perform the first exercise well, he may begin by attempting to swim with boots on, then with trousers in addition to these, and so on, until he has by degrees learned to do it clothed in his every-day dress. Of course, economy will suggest that an old dress will do as well as a new one.

There are various other exercises besides these, practised by expert swimmers, but as we have given an account of the most important exercises in this department of physical education, we may be spared the necessity of further details.

Most swimmers have experienced in some degree that painful contraction of the muscles in water, denominated *cramp*. An attack of this kind generally renders the limb affected useless for the time, and retards, if it does not wholly prevent the swimmer from making progress in the water. The swimmer, however, should never be alarmed by the cramp, nor lose his presence of mind for a moment; if he does so he is almost sure of losing his life. As soon as the swimmer is seized with the cramp, he should turn on his back, and keep himself afloat in this position until the attack has ceased, or the pain is quite gone. It would be still better, if possible, if he could perform the exercise of swimming on the back, as above described, or at least keep himself in this position, moving towards a place of safety. We conclude by giving some rules to be observed in attempting to save a drowning person.

First examine well the position in which you ought to approach him; unless you do so he will be sure to grasp you by the arms, the body or the leg, and unless you have the fabled strength of Hercules, you will not be able to relieve yourself from his grasp; a tremendous wrestling, impelled on his part by despair, will ensue, and you will be sure to lose your life along with him in the watery contest. Take care that he does not observe your approach, and pass behind him, seizing him under the arms, and pushing him towards the shore or boat, swimming with your feet. If he has become senseless, he may be seized by the hair of the head, and dragged through the water to a place of safety. When asphyxia (stoppage of the pulsation) has occurred through his immersion in the water, adopt the following rules. 1st. Send immediately for the nearest doctor. 2nd. Never suspend the body by the feet; this would be certain death. 3rd. Strip it, dry it in a blanket, and lay it upon a bed or mattress with the head and chest raised above the rest of the body. 4th. Free the chest from the gases and mucous filth which may obstruct its functions, either by gentle inspiration, by the air-pump, or by a syringe directed into the air passages of the body; but this must be done by a professional man. 5th. Press alternately and gently the stomach and the chest, in order to produce motions analogous to those of breathing. 6th. Rub the chest, back, thighs, legs, and arms with warm flannels or a soft brush. 7th. Warm the body by placing it before a clear fire. This must be done, however, with great precaution. 8th. When the breathing and circulation appear to have recommenced, give the patient about a spoonful of brandy in two spoonfuls of hot water sweetened with sugar, and administer an injection of warm water with a spoonful of salt dissolved in it. 9th. If the

patient sleeps and the face becomes red, apply, without waking him, some mustard plasters to his feet and the calves of his legs. 10th. Never give over your attempts at resuscitation until a medical man shall have pronounced the patient to be dead; remembering that there have been cases in which persons supposed to have been drowned, never gave any sign of life for six hours, and were nevertheless brought back to life by careful attention and perseverance.

LESSONS IN ENGLISH.—No. LXIII.

By JOHN R. BEARD, D.D.

ADVERBS.

ADVERBS qualify the action of verbs, and so stand in the relation to verbs which is borne by the adjective toward the noun. Now an action may be viewed either as to the place where it was done, the time when it was done, and the manner in which it was done; e. g. The theft was *adroitly* committed here yesterday.

In this instance the place is indicated by *here*, the time is indicated by *yesterday*, the manner is indicated by *adroitly*.

But manner is a quality which admits of variation; one theft may be committed *more or less adroitly* than another; a theft may be committed *most adroitly*.

We thus obtain four classes of adverbs, 1. *Adverbs of place*, 2. *Adverbs of time*, 3. *Adverbs of manner*, 4. *Adverbs of degree*.

Adverbs may be regarded also in reference to their component parts, and may so be divided into, 1. *the primitive*, 2. *the derivative*, 3. *the compound*. Of primitive adverbs take as instances *when*, *then*, *here*, *there*; of derivative adverbs take as instances *justly* (from *just*), *yearly*, *surprisingly*. Of compound adverbs take as instances *sometimes*, *nowhere*, *to-morrow*.

I will first say a few words on the formation of adverbs and then present a number of adverbs arranged in classes, ending this chapter with some remarks on certain adverbs which may require elucidation.

The manner in which compound adverbs are formed from simpler forms is very obvious. *Sometimes* is made up of the adjective *some* and the noun *times*, *oftentimes* consists of the adverb *often* and the noun *times*.

Adverbs are ordinarily formed by the addition of the ending *ly* to a noun, an adjective, or a participle; as *man*, *manly*, *wise*, *wisely*, *loving*, *lovingly*. The termination *ly* is an adjective as well as an adverb termination, being from the German *lich*, as in *mannlich* (Anglo-Saxon *lic*) *manly*; but in *early*, *dearly*, &c. it has an adverbial force.

When an adjective terminates in *ly*, the adverbial suffix *ly* is not added; the second *ly* being omitted for the sake of sound, since such forms as *godlyly*, *heavenlyly*, *friendlyly* would be very unpleasant; accordingly we say "he was received" not *friendlyly* but *amicably*, or "in a friendly manner."

If the adjective ends in *le*, the termination is changed into *ly*; as *noble*, *nobly*, for *noblely*; so *idle*, *idly*. In whole, the *l* is doubled, as whole, *wholly*.

Adjectives of more than one syllable ending in *y* change the *y* into *i* before *ly*, as *easy*, *easily*; *angry*, *angrily*; *heartily*, *heartily*.

Monosyllables ending in *y* either retain the *y* or change it into *i*; as *dry*, *dryly*, *day*, *daily*.

If the adjective ends in a double *l*, *y* simply is added; as *full*, *fully*; but *manful*, *manfully*; *cheerful*, *cheerfully*.

The degree is marked in adverbs of degree by *more* and *most*, *less* and *least*; as *wisely*, *more wisely*, *most wisely*; *actively*, *less actively*, *least actively*.

But inflection properly so called belongs to some few adverbs; as *late*, *later*, *latest*; *near*, *nearer*, *nearest*; *often*, *oftener*, *oftenest*; *soon*, *sooner*, *soonest*. Hence we find in adverbs the forms *er* and *est* used in forming the degrees of comparison in adjectives.

There also occur adverbs which are irregularly formed; as *ill*, *worse*, *worst*; *well*, *better*, *best*; *much*, *more*, *most*; *late*, *latterly*, *lastly*. *Worse* and *worst* are, however, from a root different to that from which *ill* comes; so is it with *well*, *better*, *best*.

Adverbs of place may be subdivided into those which answer to the question *where*? those which answer to the question *whither*? those which answer to the question *whence*? and those which denote *order*.

1. *Adverbs of place* at, or in, which are—where, here, there,

yonder, above, below, about, around, somewhere, anywhere, elsewhere, everywhere, nowhere, wherever, wheresoever, within, without, whereabouts, herabout, thereabout. The "preference for a long-drawn sound at the end of a word has added an *s* to these three words, making them *hereabouts*, *thereabouts*, *whereabouts*; the same regard to sound has converted the preposition toward into towards. The retention of the *s* is a matter of doubtful propriety.

2. Adverbs which denote *motion to a certain place* are—whither, hither, thither, up, down, back, forth, aside, ashore, abroad, aloft, home, homeward, inward, upward, downward, backward, forward. Some of the adverbs ending in *ward* are also used as adjectives; e. g. a forward (froward) child, a backward scholar; when used with an adverbial force they are often found terminating in *s*, as backwards, outwards. *Up* and *down* may have the construction of prepositions; as,

Up the side of the house ran the flames.

The bucket went down the side of the well.

In order to know whether these and other words are adverbs or prepositions, you must study their construction. If, as here, nouns are dependent on them, they are prepositions; but if they go in immediate union with verbs, they are adverbs.

3. The third subdivision embraces adverbs which denote *motion from, or to a place*; as thence, whence, hence; sometimes pleonastically given, as from hence, &c.; the word pleonastically (from the Greek) is employed to signify that more is said than is necessary to convey the sense according to the laws of grammar.

4. Besides, there are adverbs which indicate the *order of place*; as first, secondly, thirdly, fourthly, &c.; thus secondly means in the second place in a series of heads or topics constituting a discourse, a speech, a chapter in a book.

Adverbs of time may be arranged in the following classes.

1. *Adverbs of time present*; now, to-day, now-a-days, yet, instantly, immediately, straightway, directly, forthwith. It is curious that presently, though from present, has ceased to refer to the present, and now refers to time shortly to come.

2. *Adverbs of time past*; already, just now, lately, recently, yesterday, formerly, anciently, once, heretofore, hitherto, since, till now, long ago.

3. *Adverbs of time to come*; to-morrow, hereafter, henceforth, henceforward, by-and-by, soon, ere long, shortly.

4. *Adverbs of time relative*; when, then, first, before, just now, after, while, meanwhile, seasonably, betimes, early, late, whenever, afterward.

5. *Adverbs of time absolute*; always, ever, aye, never, eternally, for ever, evermore, endlessly, everlastingly.

6. *Adverbs of time repeated*; oft, often, again, occasionally, frequently, sometimes, seldom, rarely, daily, weekly, monthly, yearly, annually, once, twice, thrice, three times.

Adverbs of manner may be placed in these categories; namely:

1. *Manner from quality*; well, ill, wisely, foolishly, justly, wickedly.

2. *Affirmation or negation*; yea, nay, yes, no, not, nowise, nohow, verily, truly, indeed, surely, certainly, doubtless, undoubtedly, assuredly, forsooth, that is, for truth, equal to "indeed!" (used ironically) amen.

3. *Doubt or uncertainty*, haply (by hap, that is by chance) perhaps, possibly, perchance, peradventure, may be.

4. *Manner generally taken*; thus, so, how, somehow, nohow, anyhow, however, howsoever, else, otherwise, across, together, apart, asunder, namely, particularly, necessarily, extempore (off-hand, without the aid of a manuscript), headlong, lengthwise.

There are many *adverbial phrases*, such as, not at all, in no way, by no means, in fine, &c. These may be considered as forming adverbial compounds. Indeed compound adverbs might be termed adverbial phrases. The following may also be conveniently ranked among adverbial phrases; not a rush ("I care not a rush") not a groat, post (he travels post).

Adverbs are occasionally employed with the force of nouns; e. g.

"Shall I tell you why? Aye, Sir, and wherefore, for they say every body hath a wherefore."—*Shakspeare*.

Adverbs are found where adjectives would be used, if adjectives of the requisite kind existed. Thus we say "the present bishop of London," also a former bishop, and a future bishop, but we have no adjective to characterize a bishop as being a bishop at a particular point of time past, and so we say "the then bishop;" the licence may be considerable, but it prevents an awkward circumlocution; e. g.

"The then bishop of London, Dr. Laud, attended on his Majesty."—*Clarendon*.

Adverbs are sometimes superseded by adjectives; thus we say, speak *low*, look *sweet*, drink *deep*, run *quick*, rise *early*, go to bed *late*, cut *short*, look *clean*, deal *hard*, scarce *seven*. In some instances, however, the adjective retains its own power, and expresses a meaning different from that which would ensue from the corresponding adverb. Thus,

Adjective.	"She looks sweet."
Adverb.	"She looks sweetly."

These two forms vary in meaning; the first signifies that she is not only sweet, but looks so; the second means that whether she is sweet or not, she throws out a sweet look.

THE CONJUNCTION: THE INTERJECTION.

Conjunctions (from cum *with* and jungo *I join*) are words whose office is to connect words together. They are closely allied to adverbs. It is sometimes not easy to determine whether a word is a conjunction or an adverb. *Therefore* and *wherefore*, for instance, have been called conjunctions, they have also been placed among the adverbs. If, however, we adhere to our definitions we should declare *therefore* and *wherefore* as conjunctions, since they connect words rather than qualify a verb.

Conjunctions also connect sentences. These sentences may be complete or incomplete.

While conjunctions connect words they may disconnect ideas; e. g.

The man or the woman was drowned.

The *or* connects together man and woman, but so as to leave it doubtful of which of the two the assertion in the verb is to be made. This view removes the apparent absurdity of what are called disjunctive conjunctions, that is, in plain Saxon, not-joining joiners. But a word may join in one way and disjoin in another.

Conjunctions may be divided into the *copulative*, the *disjunctive*, and the *corresponsive*.

The *copulative* are those which simply join words, as and.

The *disjunctive* are those which while joining words disjoin affirmations; as *or*; e. g.

The man or the woman died.

Here *man* and *woman* are connected in form by the disjunctive conjunction *or*, and by the same particle they are disjoined in regard to the declaration made in the verb. One of the two died, but which of the two died, the reporter does not know.

The *corresponsive* are such conjunctions as introduce corresponding sentences or members of a sentence, forming in each case a pair of corresponding or contrasted objects; as *if*, *then*; *whether*, *or*.

Copulative Conjunctions.

And, as, both, because, even, for, if, that, then, since, seeing, so, whereas, that.

Disjunctive Conjunctions.

Or, nor, either, neither, than, though, although, yet, but, except, whether, lest, unless.

Corresponsive Conjunctions.

Both—and; as—as; as—so; if—then; either—or; neither—nor; whether—or; though—yet.

This division proceeds on the ground of the functions which conjunctions discharge. If we contemplate conjunctions in regard to their import also, we may divide them into these classes:—

1. *Copulative*, and, also, both.
2. *Disjunctive*, either, or, neither, nor.
3. *Concessive*, though, although, albeit.
4. *Adversative*, but, yet, notwithstanding, nevertheless.
5. *Causal*, for, that, because.
6. *Inferential*, therefore, wherefore, seeing, since, forasmuch.
7. *Final*, that, in order that, to the end that.
8. *Conditional*, but, if.
9. *Exceptive*, unless, save, except.
10. *Diminutive*, at least.
11. *Dubitative*, whether or not.
12. *Expletive*, now, truly, indeed.
13. *Ordinative*, thereafter, finally, moreover, however.
14. *Declarative*, namely, to wit.

The *concessive* are such as denote a concession or yielding. The *adversative* are such as denote opposition or contrast. The *causal* are such as denote a cause, occasion, reason, or ground. The

ἐπειτα κινδυνος. Μισγεται εσθλα καικος. Ο κακος τοις θεοις και τοις ανθρωποις εχθρος εστιν. Οι ανθρωποι τοις εσθλοις χαρισονται. Παρεχ, ω θεος, τοις φιλοις ευτυχιαν. [Φερ, ω θεος, τον ονον τον νεανιαν. Ο ονος ου λυει αλλα τικτει τας μεμετας. Χαλιερω εργη δευ επειτα.

ENGLISH-GREEK.

Good men obey God. Bad men obey not God. O good youths, obey your teacher; bad men are hostile to the good (the bad—the good). Abstain from bad men. Good men take care of their (the) children. Trust not the word of a liar. O dear boy. Danger follows many words. Good youths honour their (the) teachers.

Remarks.—The Greeks are fond of such an arrangement of words as is found in the phrase *τοις του διδασκαλου λογους*, given above. Literally and in the Greek order, the words run—the of the teacher words; that is, *the words of the teacher*. Imitate this construction. In general, the Greek order of words approaches more nearly to the English than does the Latin. The sense, however, logically considered, prevails over other considerations in the Greek collocation of words. The chief place of emphasis is the commencement of a sentence, the next is the end. Not by any mere rule can the tyro acquire the tact of placing the Greek words in their idiomatic order. Of course, he will study to do his best, and from attention to the sentences given in the exercises, and making them, as far as possible, models, he may learn much and make an approach to correctness; after all, nothing but a long and careful study of the words of the classics themselves can give him complete skill. The student need not, however, be very anxious about arrangement in these exercises, the principal object of which is to help him to gain a facility in reading the language.

VOCABULARY.

Αργυρος, ου, ο, silver.	Μυριοι, ου, ο, innumerable.
Χρυσος, ου, ο, gold.	Νεος, α, ου, young; ο νεος, α, young man.
Βιος, ου, ο, life.	Βουλη, ης, η, a counsel.
Θανατος, ου, ο, death.	Διχοστασια, ας, η, division.
Θιμος, ου, ο, mind, courage, spirit.	Σιγη, ης, η, silence.
Μοχλος, ου, ο, a bolt.	Θυρα, ας, η, a door.
Νεκος, ου, ο, sickness.	Απολυω, (genit. of the thing), I free from.
Πορος, ου, ο, labour.	Ευφραινω, I make joyful.
Χρονος, ου, ο, time.	Κλειω, I shut.
Μετρον, ου, το, a measure.	Ουχ (ουχ comes before an aspirate vowel, instead of ουκ and ου), not.
Αξιος, α, ου, (gen.) worthy.	
Θεος, ου, ο, divine, so θεον, the Divinity.	

EXERCISES.—GREEK-ENGLISH.

Το καλον εστι μετρον του βιου, ουχ ο χρονος. Ο θανατος τους ανθρωπους απολυει πονων και κακων. Ο ονος ευφραίνει τους των ανθρωπων θιδους. Σον μυριοις πονοις τα καλα γιγνεται. Το θιον τους κακους αγει προς την δικην. Πιστος φιλος χρυσου και αργιρου αξιος εστιν εν χαλιερω διχοστασια. Πολλαι νοσοι εν ανθρωποις ειναι. Βουλη εις αγαθον αγει. Σιγη νεω τιμην φερει. Η θυρα μοχλοις κλειεται. Η τεχη του ανθρωπου τρεφει. Ο φιλος μαθηται, της σοφιας και της αρετης αρεμισθε.

ENGLISH-GREEK.

By death (dat.) men are set free from labours. Many labours follow life. The wisdom of the Divinity leads good men to happiness. Follow the words of the judge. The words of the youth are bad. The lyre dissipates (λυω) the cares of the mind. Silence becomes a boy. Art nourishes good men. The bolt shuts the door.

Instead of *εγ* and *ου* some nouns and adjectives have the terminations *ος* (m. and f.) and *ων* (n.) the *ω* is retained through all the cases; the vocative is the same as the nominative. Though this form occurs in Ionic writers, as Herodotus, yet it bears the same of

The poetic Dialect.

S. N.	the people	the voice	the character	merciful.
G.	λεω	καλω	ανωγειν	λεω
D.	λεω	καλω	ανωγειν	λεω
A.	λεω	καλω	ανωγειν	λεω
V.	λεω	καλω	ανωγειν	λεω
P. N.	λεω	καλω	ανωγειν	λεω
G.	λεω	καλω	ανωγειν	λεω
D.	λεω	καλω	ανωγειν	λεω
A.	λεω	καλω	ανωγειν	λεω
V.	λεω	καλω	ανωγειν	λεω
D. N. A. V.	λεω	καλω	ανωγειν	λεω
G. D.	λεω	καλω	ανωγειν	λεω

Some words of both the masculine and feminine gender often drop the *υ* of the accusative case, as *ο λαγος*, the hare, τον λαγος ο Αθως, Mount Athos. τον Αθω; η δαυη, the dawn, always has την δαυη.

VOCABULARY.

Ανδροεις, ου, ο, Androgeus (a proper name).	Πτερον, ου, το, a feather, wing.
Μενελαος, ου, ο, Menelaus (a proper name).	Αιχμαλωτος, ου, ο, a prisoner.
Μινως, ου, ο, Minos (a proper name).	Ανδριος, α, ου, manly, brave.
Νεως, ου, ο, a temple.	Πλυστος, η, ου, must, very many.
Ταως, ου, ο, a peacock.	Ραδιος, α, ου, easy.
Αγηρος, ου, ο, not growing old, deathless (and not γηρος, old age).	Απαγω, I lead away.
Ηρα, ας, η, Hera (called by the Latins, Juno).	Βαινω, I walk, go.
Αετος, ου, ο, an eagle.	Ενδερνω, I lie in wait, capture.
Ελαιος, ου, ο, praise.	Βεχωμαι, I pray (with dat.).
Τιος, ου, ο, a son.	Θηρευω, I hunt, catch.
Σαμιος, ου, ο, a Samian.	Θηρευτης, ου, ο, a huntsman.
	Κτιζω, I found, build.
	Λαμβανω, I take.
	Σεβωμαι, I venerate, worship.
	Ωσπερ, as.

EXERCISES.—GREEK-ENGLISH.

Τους θεους νεω κτιζονται. Ον ραδιον εστιν επι καλων βαβαιν. Διωκουν τους λαγους. Ανδροεις ην ο Μινω νιος. Οι λαγω θηριονται οτο των θηρευτων. Εχου τον Αθω θεω. Οι αιτοι τους λαγους ενδερνονται. Σεβασθε τους Αθω θεους. Οι ανδριοι αγηρων ελαιων λαμβανουσιν. Εχου τον Θεον Αθω εχιν. Οι θιοι τους αγαθους Αθω ειναι. Αι ηδοναι απαγουσι τον πλυστον Αθω ωσπερ αιχμαλωτον. Οι Σαμιοι Ηρα καλους τας ηερουσιν. Τω τω, καλα πτερα εστιν.

You build temples to the gods. Temples are built to the gods. I build a temple to God. They walk on ropes. We hunt hares. Hares are hunted. The Samians worship beautiful peacocks. They worship the merciful God. God is merciful (gracious) to good men. Huntsmen hunt hares. Menelaus obtains deathless praise.

VOCABULARY.

Γαμετη, ης, η, a wife.	Δειλος, η, ου, cowardly, timid.
Βαβυλωνια, ας, η, Babylon.	Αροητος, ου, senseless.
Ελενη, ης, η, Helen.	Ιερος, α, ου (g.) sacred, holy.
Στηλη, ης, η, a pillar.	Επικινδυνος, ου, dangerous.
Ποιητης, ου, ο, a poet.	Ροδουκατυλος, ου, rose-fingered.
Θηριον, ου, το, a wild beast.	Απαγομενω, I name.
Βασιλειος, α, ου, kingly, royal.	Αρεσκω, I please.
τα βασιλεια, the kingly buildings, i. e. the palace.	Εκφερω, I bring out, produce.
Πλοος (πλοος), ου, ο, a voyage.	Επι (d.) on account of.

EXERCISES.—GREEK-ENGLISH.

Οι τω Ηρα ηρω ησαν. Θαιραλουν Μενελαων επι τη αρετη. Οι ποιηται την Εω ροδουκατυλον απαγομενουσι. Ραληθια πολλαι ουκ αρεσκει τω λεω. Ελενη ην η Μενελεω γαμετη. Η βαβυλωνια κειται πολλους τας. Εν τω τω θεω νεω πολλαι στήλαι ειναι. Οι λαγω δειλα θηρια ειναι. Ο πτερον Αθω πτερος ην ενδυνος. Τα βασιλεια καλα ανωγειν εχιν.

ENGLISH-GREEK.

Menelaus is admired on account of his bravery. We admire the rose-fingered dawn. Many peacocks are produced in Babylon. In the temple of Hera is a beautiful peacock. Huntsmen catch peacocks. Peacocks are caught by huntsmen. Good citizens avoid the senseless people.

LESSONS IN BOOKKEEPING.—No. VI.

(Continued from page 294.)

In keeping Books by Double Entry, the various accounts which are opened in the Ledger, correspond, of course, exactly to the nature of the transactions which occur in the business. In general, however, their object is threefold, as formerly stated in our third Lesson, viz.: The Property Accounts, the Personal Accounts, and the Profit and Loss Accounts. In the same Lesson rules were given for finding the Debtor and Creditor, and making the proper entry in every variety of transaction. As a general rule in opening these accounts in the Ledger, it is both usual and proper first to open those accounts which are called Property Accounts, such as Stock Account, which represents the capital employed in a Merchant's business, and Private Account, which represents the Merchant himself, and contains all the money abstracted from the business on his own personal account, and which, in the old Italian system, used to be entitled Household Expenses.

The Property Accounts which follow these, are generally Cash Account and Petty Cash Account, the names of which sufficiently indicate their nature, and the transactions which must be ranged under these heads. Then, follow the Accounts of Bills Receivable and Bills Payable; and here it may be useful to observe that, in order to prevent mistakes, these should be put in different folios of the Ledger. Next, may follow

Goods Accounts of various kinds, such as Cotton Account, Three per Cent. Account, &c., or the account of any other article in which the Merchant happens to deal.

After the Property Accounts are opened in the Ledger, then follow the Personal Accounts, or the names of those persons with whom a Merchant deals, whether in buying or selling Goods, Lending or Borrowing Money, and acting as Agent or otherwise. Lastly, are opened the Profit and Loss Accounts, or those in which the Loss or Gain by certain transactions are at once rendered manifest from their nature; such as Interest (including Discount), Charges, Commission, &c. Besides these, is also opened the general Profit and Loss Account itself, as a receptacle for a proper statement of all the Losses and Gains in business not classified under particular heads, and as a proper account for exhibiting at the end of any given period the actual state of a Merchant's business in respect of his real Gains and Losses on all the other accounts which have been opened in the Ledger.

In posting the entries from the Journal into the Ledger, it is plain that whatever the Journal says in any entry, the Ledger must say the same thing, sometimes in the same form, sometimes in a different form; but in Double Entry, this same thing must always be said twice, namely, once on the Dr. side of the Debtor's Account, and once on the Cr. side of the Creditor's Account. Let us illustrate this principle by some examples: First, suppose that the following entry occurred in a Merchant's Journal, and in the following form:—

Date.	Fol.	March, 1853.	Dr.	Cr.
3		Richard Watson, Dr. ...	100 6 8	
		To Cotton Account ...		100 6 8

This Entry, single in the Journal, must be entered twice in the Ledger, viz. once on the Dr. side of Richard Watson's Account, and once on the Cr. side of Cotton Account; here, the word Dr. clearly points out the Debtor, and the word To points out the Creditor. These entries in the Ledger would be as follows:—

Dr.	RICHARD WATSON.	Cr.
1853. March 3	To Cotton Account ...	100 6 8
Dr.	COTTON ACCOUNT.	Cr.
1853. March 3	By Richard Watson ...	100 6 8

These accounts, although brought together here for the sake of illustration, may be in very different parts or folios of the Ledger. Here also it may be remarked that as To is the word which points out the Creditor, so By is the word which points out the Debtor. The column alongside the pounds column (which is always denoted by a double stroke) is the column for inserting the number of the page of the Journal from which any entry is taken; and this number should always be inserted in its proper column, at the same time that the money is inserted in the money columns. As to the importance of inserting the date of the entry in its proper column at the same

time, this is so obvious to every one, that we might have spared ourselves the trouble of making the remark. In the Journal, you will see a column placed alongside the Date column; this is the column for inserting the folio of the Ledger where the accounts occur; and it should be inserted as soon as the entry is made in the Ledger; thus there would be one folio figure placed in the Journal, against the name of the Debtor Richard Watson, and another folio figure placed against the name of Creditor Cotton Account.

Second, suppose that an entry similar to the following occurred in a Merchant's Journal:—

(Page 5.)

Date.	Fol.	March, 1853.	Dr.	Cr.
31	3	Cash Account, Dr. ...	273 17 9	
		To Sundries, as per C.B., fol. 1. ...		100 6 8
17	5	To Richard Watson ...		75 3 4
25	6	To Alexander Brown ...		98 7 9
31	7	To Thomas Smith ...		

VOCABULARY

Sagt, f. eat	chands, honest, ly
Maus, f. mouse	Gehr, f. honour
gut sein, to be fond of	Gelicht, n. face
gar, entirely	Narr, m. fool
zu, too	helfen, to help
rufen, to advise	würgen, to choke, throttle
da, Dat. to thee	garstig, ugly, horrid
famm, to do come	spät, late
sch, an explet. like <i>da</i> is do	Gelut, n. fortune, luck
come	schon, already
rich, thee	betroffen, to befall
rein, thine	treffen, to hit, meet
Brot, n. bread	helfe, f. help
Sagt, f. thing	

LESSONS IN GERMAN.—No. LXIV.

§ 73. AUXILIARIES OF THE SECOND CLASS.

(1) The second Class of auxiliaries embraces the following:
 Ich mag, I am allowed; (*may*) Ich darf, I am permitted; I dare.
 Ich will, I will; (*purpose*) Ich muss, I am obliged; (*must*)
 Ich soll, I am obliged; (*shall*) Ich lasse, I let.
 Ich kann, I am able; (*can*)

(2) These verbs are, for the most part, very irregular in conjugation, and serve simply the purpose of modifying other verbs with the ideas of *liberty, possibility, or necessity*, and the verbs thus modified are required to be in the infinitive mood; thus er mag lachen, he *may* (has permission to) laugh; ich kann schreiben, I *can* (am able to) write; where lachen and schreiben are both in the infinitive, governed respectively by mag and kann.

(3) In the perfect and pluperfect tenses, however, the past participle of these verbs is used only when the principal verb is not expressed. Its place is supplied, in such cases, by the infinitive, the translation of course being the same in either case, as:

Ich habe ihn sehen können (instead of *gesehen*)
 I have been able to see him

Er hat warten müssen (instead of *gewartet*)
 he was obliged to wait.

Man hätte über ihn lachen dürfen (instead of *gelacht*)
 one might have laughed at him.

Er hat dem Befehl nicht gehorchen wollen (instead of *gehört*)
 he has not been willing to obey the command.

Ich habe sein Geheimnis wissen dürfen (instead of *gesehen*)
 I have been allowed to know his secret.

Sie hätten es thun sollen (instead of *gesollt*)
 she ought to have done it.

Sie haben ihn gehen lassen (instead of *gelassen*)
 they have suffered him to go.

For a full display of the forms of the verbs and for further remarks on their uses, see the Section on the *Mixed Conjugation* § 83.

The verb *lassen* (to let) does not belong to the Mixed conjugation. This verb is used either in *permitting or commanding*, as, ich habe ihn gehen lassen, I have allowed him to go; ich habe ihn kommen lassen, I have ordered him to come; which two meanings are near akin. When used with a reciprocal pronoun, it has its equivalent in such phrases as, *is to, ought to, may*; as, das ist nicht thun, that is not to be done; literally, *does not allow itself to be done*. The infinitive active after *lassen*, must often be translated passively.

§ 74. CONJUGATION OF VERBS.

(1) There are two conjugations of verbs: the *Old* and the *New*. The difference between them lies mainly in the mode of forming the Imperfect Tense and the Perfect Participle.

(2) The verbs of the *Old* form are commonly denominated "*Irregular Verbs*." But, as nearly all the primitive verbs in the language are conjugated in this way, and few, except the derivative verbs (now the larger class), ever assume the other form, it is the custom of the best German grammarians to adopt the classification which we have given. This will occasion no confusion or inconvenience to those who prefer the common clas-

sification: since it is only necessary to remember that the *things* are the same, though the *names* have been changed.

(3) In order to afford the ready means of comparing the *terminational* differences between the *Old* and *New* forms of conjugation, we subjoin the following tabular view of the *simple tenses and participles*, in which alone differences of this kind can exist.

(4) In the compound tenses, the *auxiliary* alone being subjected to terminational variation, the mode of inflecting these tenses becomes of course perfectly uniform in all classes of verbs. Hence to secure a complete acquaintance with the forms of the compound tenses, little more is necessary than a bare inspection of the paradigms.

§ 75. TERMINATIONS OF THE SIMPLE TENSES.

Old Conjugation.				New Conjugation.			
INDICATIVE.		SUBJUNCT.		INDICATIVE.		SUBJUNCTIVE.	
PERSONS.	TENSE-SIGN.	PERSONS.	TENSE-SIGN.	PERSONS.	TENSE-SIGN.	PERSONS.	TENSE-SIGN.
ROOT.	TERM. ENDING.	ROOT.	TERM. ENDING.	ROOT.	TERM. ENDING.	ROOT.	TERM. ENDING.
PRESENT.				PRESENT.			
PLUR. SING.		PLUR. SING.		PLUR. SING.		PLUR. SING.	
1	—	1	—	1	—	1	—
2	—	2	—	2	—	2	—
3	—	3	—	3	—	3	—
wanting.		wanting.		wanting.		wanting.	
ct, t		ct, t		ct, t		ct, t	
en		en		en		en	
IMPERFECT.				IMPERFECT.			
PLUR. SING.		PLUR. SING.		PLUR. SING.		PLUR. SING.	
1	—	1	—	1	—	1	—
2	—	2	—	2	—	2	—
3	—	3	—	3	—	3	—
wanting.		wanting.		wanting.		wanting.	
ct, t		ct, t		ct, t		ct, t	
en		en		en		en	
IMPERATIVE.		INFINIT.		IMPERATIVE.		INFINITIVE.	
PERSONS.	TENSE-SIGN.	PERSONS.	TENSE-SIGN.	PERSONS.	TENSE-SIGN.	PERSONS.	TENSE-SIGN.
ROOT.	TERM. ENDING.	ROOT.	TERM. ENDING.	ROOT.	TERM. ENDING.	ROOT.	TERM. ENDING.
PRESENT.				PRESENT.			
PLUR. SING.		PLUR. SING.		PLUR. SING.		PLUR. SING.	
1	—	1	—	1	—	1	—
2	—	2	—	2	—	2	—
3	—	3	—	3	—	3	—
wanting.		wanting.		wanting.		wanting.	
ct, t		ct, t		ct, t		ct, t	
en		en		en		en	
IMPERATIVE.		INFINIT.		IMPERATIVE.		INFINITIVE.	
PERSONS.	TENSE-SIGN.	PERSONS.	TENSE-SIGN.	PERSONS.	TENSE-SIGN.	PERSONS.	TENSE-SIGN.
ROOT.	TERM. ENDING.	ROOT.	TERM. ENDING.	ROOT.	TERM. ENDING.	ROOT.	TERM. ENDING.
PLUR. SING.		PLUR. SING.		PLUR. SING.		PLUR. SING.	
1	—	1	—	1	—	1	—
2	—	2	—	2	—	2	—
3	—	3	—	3	—	3	—
wanting.		wanting.		wanting.		wanting.	
ct, t		ct, t		ct, t		ct, t	
en		en		en		en	
IMPERATIVE.		INFINIT.		IMPERATIVE.		INFINITIVE.	
PERSONS.	TENSE-SIGN.	PERSONS.	TENSE-SIGN.	PERSONS.	TENSE-SIGN.	PERSONS.	TENSE-SIGN.
ROOT.	TERM. ENDING.	ROOT.	TERM. ENDING.	ROOT.	TERM. ENDING.	ROOT.	TERM. ENDING.
PLUR. SING.		PLUR. SING.		PLUR. SING.		PLUR. SING.	
1	—	1	—	1	—	1	—
2	—	2	—	2	—	2	—
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Rach had his sphere, and each revolved in his orbit with matchless brilliance. We remember the man in the affluence of times, who was regarded by his tutors as incapable of making any progress in learning, but when shown geometry, he felt to be a congenial study, and soon distanced all his competitors in Mathematics. The principle is capable of universal application. He who would not rise to mediocrity as an arithmetician, might excel in oratory, painting, or poetry; and conversely, he who would not acquit himself respectably in the latter, might rise to eminence in the former. "Every man in his own order." "One star differeth from another star in glory." "We make no invidious comparisons between men. Let the poet sing and the orator declaim, let the logician argue and the chemist analyse, let the historian ponder the annals of the world, and the painter embody the creations of his genius on the canvass, all speak one voice: they set forth the dignity and grandeur of the human mind; they prove that mind in all its multifarious developments, is the same living, immortal, and accountable existence; such differences in preference and action, are but so many radii commencing in one centre, so many beams from one refulgent orb, or so many parts in one grand anthem proclaiming in sweetness and power—"the hand that made us is divine."

(To be continued.)

ANSWERS TO CORRESPONDENTS.

PERIL TEACHER (South Durham): The answers to all the questions in "Casell's Exercises of Arithmetic" are given in that work; so that there will be no need for a Key.—W. E. P. (P. 11): His idea is very good, but liable to very serious objections, especially as to the communication of erroneous information; inasmuch as the Editor could not possibly be supposed to be practically acquainted with every branch of machinery, unless he were as old as Methuselah and had spent the greater part of 999 years in the various workshops of England; but what can be done, will be done in the P. E. He is right as to the correction he proposes it has been done.—NOVA (Bayswater): Will find the "History of the Church of Christ," in 6 vols. cloth, 21s. published by the Religious Tract Society, 45, St. Paul's Churchyard (chiefly taken from Milner's Church History), a most beautiful and interesting work; we strongly recommend it to all our readers who have any taste for the religion of Jesus Christ. God's best and greatest gift to man.—GEO. S. N. (Lambeth): His choice of studies from the P. E. is admirable; we only hope he will carry it out; much depends on the time he has to spare. We regret that we cannot assist him in his musical difficulties.—W. BARN (Euston Square): Mary Queen of Scots was beheaded on the 7th Feb. 1587, as to the dates of the discovery of America, see our P. E. vol. I., p. 258.—ROBERT N. (Machent): The second of the extracts from the speech of Lord John Russell, as quoted by you, is quite an error, and it should not be there.—CHAS. P. (P. 11): We have answered questions about gynecological matters before; but we would advise nothing of the kind to be used without the advice of a regular physician.—W. H. C. (P. 11): We cannot answer his first question on the spur of the moment; but we will keep it in view; the second has been answered in the negative before.—A. ORODIDACTOS (Knottings), proposes the following question:

A wolfence came down on the fold, from his lair,
And seizing a sheep, the rest fled in despair;
Says he to himself, "now, I'm off to the plains,
Alone with my prey, the reward of my pains;
A jolly good meal too, I'm sure to devour;
This mutton will take me, exactly an hour."
He leisurely sat, and thought over the past,
And wonder'd how long, and on what he dined last;
Quite alone for ten minutes, he sates his old maw,
And vows not a creature shall touch with a paw.
A tiger, at length, on a share of it bent,
Walks into the feast, after keeping of Lent,
Remarking, with Pook, "as the dinner is small,
Give me twenty minutes, I'd eat it up all."
Not liking to be either rude or too nice,
He takes his position, and waits not a trice;
So tiger and wolf, with their might and their main,
For ten minutes jointly, fall to it again.
At last comes the lion, of beasts call'd the king,
To help them to finish the rest at a spring.
Thiff done, he declares "on his word and his power,
The sheep would have served him alone half-an-hour."
From what has been said, in the preceding rhyme,
I wish you to tell me, exactly the time,
That the animals took, with their forces combined,
To eat the whole sheep, and leave none behind.
I wish you to state, too, as well as you can,
What part of the whole was devoured by each one.
This question is put to the readers, you see,
Of this favourite work, the popular P. E.
By one quite as self-taught as brought up in Patmos,
And therefore he signs himself—A. ORODIDACTOS.

ROBERT DENNIS (Croydon, Pickering, Yorkshire): Many thanks for his kind recommendation of the P. E. We would have inserted his letter, but it is too flattering to ourselves. An English Dictionary is much in demand.—J. C. L. (Montrose): Will find a very full and interesting account of the *Archeological Marbles*, in "Russell's Connection of Sacred and Profane History," vol. II., pp. 369-400.—A. ORODIDACTOS (Knottings): Thanks for

the Greek corrections; *χαρπυ, ἑρπυς*, should have been inserted in the Vocabulary; and *παλαστήριον* should be *παλαστήριον*. Thanks also for his good opinion of us, and kind forbearance towards us. As to the monogram placed on Valpy's classical works, he should ask the publishers of them, who are generally consulted in this matter. Back numbers of the P. E. may be had to any extent, through any of Mr. Cassell's agents. Will he himself furnish us with a Biographical account of Dr. Carey?—W. H. Pook (Birmingham): If he wishes to liberate Dawson, Esq. Bathgate Institution, he will learn all about his system of phonography based upon Taylor's.—W. B. (Barnes): Does he think that we are to derivate ourselves in order to be able to tell him the weight of a man's head? Ask the Autocrat of Russia, who deals in such matters.—A. M. K. (Aberdeen): Now really, Mr. Robertson, we don't know what a *mass* *pus* is represented as saying.

W. H. P. (Barnes): His ideas are certainly very noble; but there is a want of smoothness in the rhythm which prevents us from doing more than to acknowledge the receipt of his poetry.—H. L. (Barnes on Trent): The German Reader, will be ready September 1st.—W. W. (Southport): Will find the description and use of Hadley's Quadrant, with rules for its adjustment, in *Practical Navigation*, pp. 173 to 179; he will then find rules for finding the latitude by single and double altitudes, at pp. 189-205 of the same work; and lastly, he will find the rule for finding the time of the day from the altitude of the sun, at pp. 230-241.—W. E. (Golden's Green, Hendon): Will find remarks on the trisection of an angle in Cassell's Euclid, p. 13; on the division of a circle into any number of equal parts, Thomson's Euclid, Appendix, Book I. Prop. XLII., and on the quadrature of the circle in vol. II. of the P. E., at p. 74.—J. E. (Barnes): Answered before. 2. We shall take an early opportunity of submitting the examination papers of the L. U. 3. Nothing will obviate the necessity of Matriculation. 4. Marriage will not hinder the taking of degrees in the L. U., but we think, with the rest of the world, the degrees should be taken before a wife.—B. (Edenbridge): The pronunciation of the Greek is the same as that of the Latin or English, where the same letters, vowels, or diphthongs are employed. The *iota subscript* is not pronounced; *xi* is pronounced like *chi* in either; and *gamma* is always pronounced hard, except in the cases Dr. B. has mentioned.—A. ORODIDACTOS (Aberdeen): Stick into our Greek Exercises, and do all the rest too, unless you be *Senex* instead of *Adolescens*; the Greek is not "a confused sort of language compounded of the Latin, or with any other; it is the most beautiful in the world."
JOHN (Walworth): Mere misprints.—G. H. (Barnes): suggestion, for which we beg to return our acknowledgments, shall not be lost sight of.—M. N. E. The inscriptions are too imperfectly copied to be fully explained.

ERRATA IN THE LATIN.

Page 275, vol. I., lines 55 and 56 from the top, for *perfect* read *periphrastic* (or compound) *future passive*.—Page 325, vol. I., col. 2, line 1, for *inf. part.* read *inf. fut.*—Page 357, vol. I., col. 1, line 21, from bottom, for *lectum* read *lectus*.—Page 385, col. 2, line 1, for *audium* (perf. part.) read *auditus*.—Page 9, vol. II., col. 2, supply the *perfect infinitive*, *horitatus esse*.—Page 37, vol. II., col. 2, supply the *perfect infinitive*, *lectatus esse*.—Page 54, vol. II., col. 2, supply the *perfect infinitive*, *mandatum esse*.

LITERARY NOTICES.

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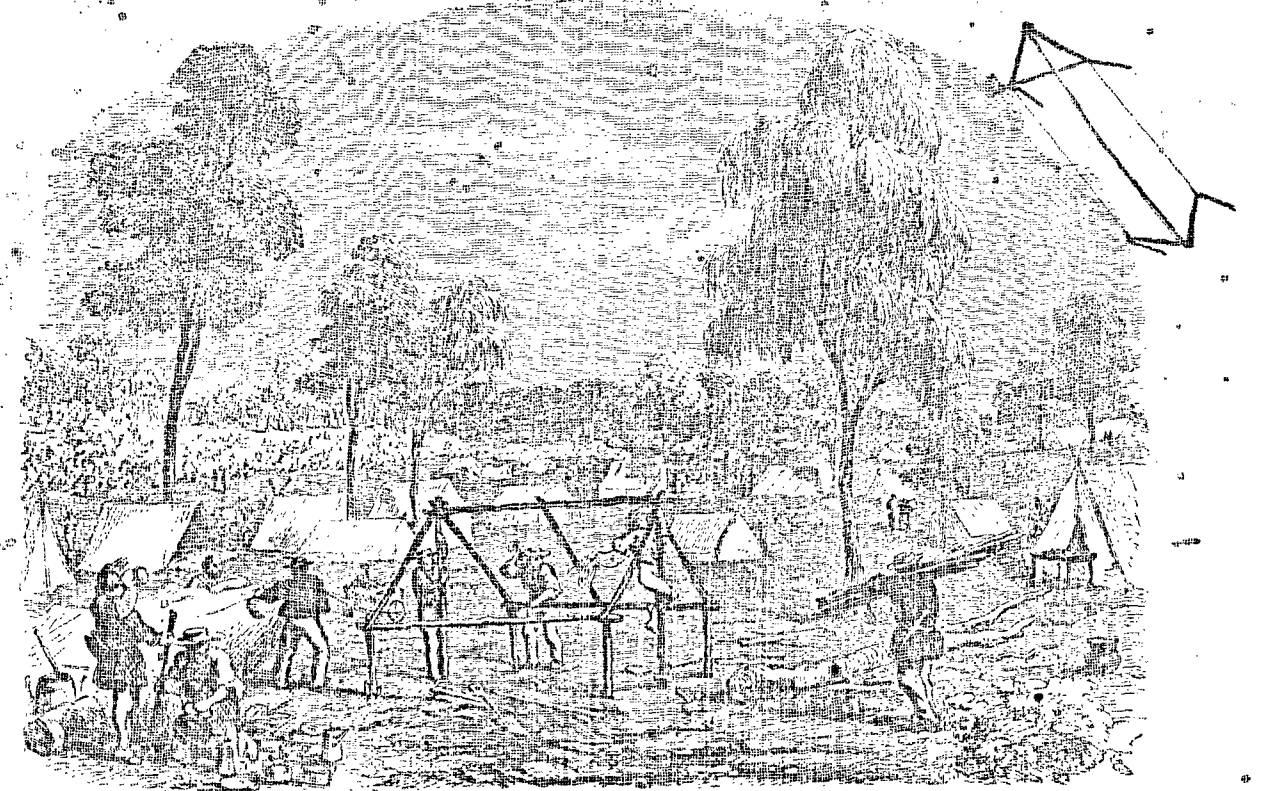
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LESSONS IN GEOGRAPHY—No. XXIX.

MAP OF AUSTRALASIA.

THE term *Australasia* plainly means *Southern Asia*, and includes the large island, or rather insulated continent, now called *Australia* (but formerly *New Holland*), with a number of smaller islands lying at various distances around it, which have been variously grouped by different geographical writers. Mr. Barrow included under the term *Australasia* the following:—1. New Holland, or Australia; 2. Van Diemen's Land; 3. New Zealand; 4. Papua, or New Guinea; 5. New Britain and New Ireland; 6. Solomon's Islands; 7. New Hebrides; 8. New Caledonia. Later writers, especially the compilers of books on geography, have narrowed this list; and New Zealand is generally excluded, with two or three of the smaller groups; these being referred to the list comprehended under the name of *Polynezia*.

Lat. 28° 38' S. and Long. 153° 37' E., and the most western point is Steep Point, in Lat. 26° 5' S. and Long. 112° 50' E. From these data, it is plain that the greatest breadth of Australia from north to south, is about 2,000 miles, and its greatest length from east to west is about 2,500 miles. As the average length and breadth of this continent are considerably less than these extreme measurements, the area or surface of Australia is reckoned about 3,000,000 of square miles, or about 2,000,000,000 of imperial acres of land; so that here, surely, there is room enough for the surplus population of the United Kingdom to expand, to vegetate, and to fulfil their duties as human beings and worshippers of the true God, without distressing themselves, and overburdening the country which gave them birth. Besides, there is gold here in abundance, and means for procuring food; all that is wanted is a



Golden Point, Mount Alexander.

The most important part of Australasia, is the continent of Australia, or, the great island of New Holland, so called because it was discovered by the Dutch. It is bounded on the north by the Oriental Archipelago, the Gulf of Carpentaria, and Torres Strait; on the south, by the South Pacific Ocean and Bass's Strait; on the east, by the South Pacific Ocean; and on the west, by the Indian Ocean. The most northern point of Australia is Cape York, in Lat. 10° 43' S. and Long. 142° 29' E., and the most southern point is Wilson's Promontory, in Lat. 39° 11' S. and Long. 146° 25' E. The most eastern point is Cape Byron, in

stern government dependent on the mother-country. Instead of *New Holland* or *Australia*, it should at once be called *Southern Britain*, and be filled with the surplus of our teeming population.

Looking at the extent of Australia, which is only about $\frac{1}{4}$ part less than Europe, or at the most, according to some, $\frac{1}{2}$ less, it follows that this continent is the most valuable appanage of the British crown. It is true that this continent is uncultivated and even unexplored; but we trust that speedy measures will be taken for removing both of these evils, and for rendering it an integral part of the empire,—a part where our present sickly, starving, and discontented population may soon become healthy, wealthy, and wise, and receive the full reward of their labour; while at the same

time, they shall enjoy the blessings of good government, and be permitted to worship God according to the dictates of conscience, not only without molestation, but while enjoying all the rights of honourable citizenship among men.

The continent of Australia is compact in form, approaching that of the section of a human head and neck, when viewed vertically from east to west; the peninsula which terminates in Cape York representing the nose, and the colony of Victoria, or Port Philip, the back of the head. There are few large inlets of the sea around its shores, so that the interior of this continent to a very large extent is wholly unknown. The only bay of considerable magnitude is called the Gulf of Carpentaria, which is situated on the north between Torres Strait, and the waters of the Oriental Archipelago. In this gulf are situated Groote Eylandt, Wellesley, and Pellew Islands. Westward of this gulf, are Arnheim's Bay, Van Diemen's Gulf, and others on the north coast, including Cambridge Gulf, Admiralty Gulf, &c. On the west coast, are Dampier's Archipelago, Ersmouth Gulf, Shark Bay, Geographe Channel, Naturaliste Channel, and Geographe Bay. On the south coast, are Tor Bay, King George's Sound, Esperance Bay, Recherche Archipelago, the Great Australian Bight with Nuyt's Archipelago and Anxious Bay, Spencer's Gulf, St. Vincent's Gulf, Encounter Bay, Discovery Bay, Portland Bay, Port Phillip, Western Port, Corner Inlet, and Bass's Strait. On the east coast, are Twofold Bay, Jervis Bay, Botany Bay, Port Stephens, Moreton Bay, Hervey Bay, Shoalwater Bay, Repulse Bay, Halifax Bay, Rockingham Bay, Trinity Bay, Princess Charlotte Bay, Temple Bay, and Shelbourne Bay. The Coral Sea contains the "Great Barrier Reef," extending along the northern part of the east coast for a distance of about 1,200 miles from Torres Strait to Hervey Bay, and separated from the coast by distances varying from fifteen to 100 miles, the average being about thirty miles. The navigation between this reef and the shore is reckoned tolerably safe, the anchorage for ships being in about twelve fathoms of water.

The *Capes* and *Headlands* in this continent are numerous, but few are of much importance. Besides those mentioned already, there are on the north coast, Cape Arnheim, Point Dale, and Cape Londonderry; on the west coast, Cape Levesque, North West Cape, Cape Cuvier, Point Naturaliste, and Cape Leeuwin; on the south coast, Point d'Entrecasteaux, Cape Chatham, Point Hood, Cape le Grand, Cape Catastrophe, Cape Jervis, Cape Bernoulli, Cape Northumberland, Cape Bridgewater, and Cape Otway; and on the east coast, are Cape Howe, Sandy Cape, Cape Capricorn, Cape Palmerston, Cape Upstart, Cape Plattery, and Cape Grenville.

The *Peninsulas* are, Cape York Peninsula, bounded on the west by the Gulf of Carpentaria; Coburg Peninsula, bounded on the south by Van Diemen's Gulf; Eyre Land, bounded on the east by Spencer's Gulf; and York Peninsula, bounded on the west by Spencer's Gulf. The *Islands*, which are generally small, and in groups, with the exception of Melville and Bathurst Islands on the north west, and Kangaroo Island on the south, are the Prince of Wales and Sir R. Bourke groups in Torres Strait; the Wessel and Goulburn groups on the north; the Buccaneer, and the Dampier groups, with Dirk Hartog's Island, on the west; the Recherche and Nuyt's Islands on each side of the Great Australian Bight; The Investigator Islands, and those at the entrance to Spencer's Gulf; King's Island, Flinder's Island, and others in Bass's Strait; the Moreton group, Sandy Islands, with the Northumberland and Cumberland group, on the east coast. Before proceeding to state any further particulars relating to this continent as well as to the surrounding islands, we may first give a general view of its great divisions hitherto explored, which constitute the most valuable colonies of Great Britain; notice the innermost point of the vast unexplored region yet reached; and state the Latitudes and Longitudes of some points of places on those islands where as yet no settlement has been made.

COUNTRIES, COLONIES, AND SETTLEMENTS IN AUSTRALASIA.

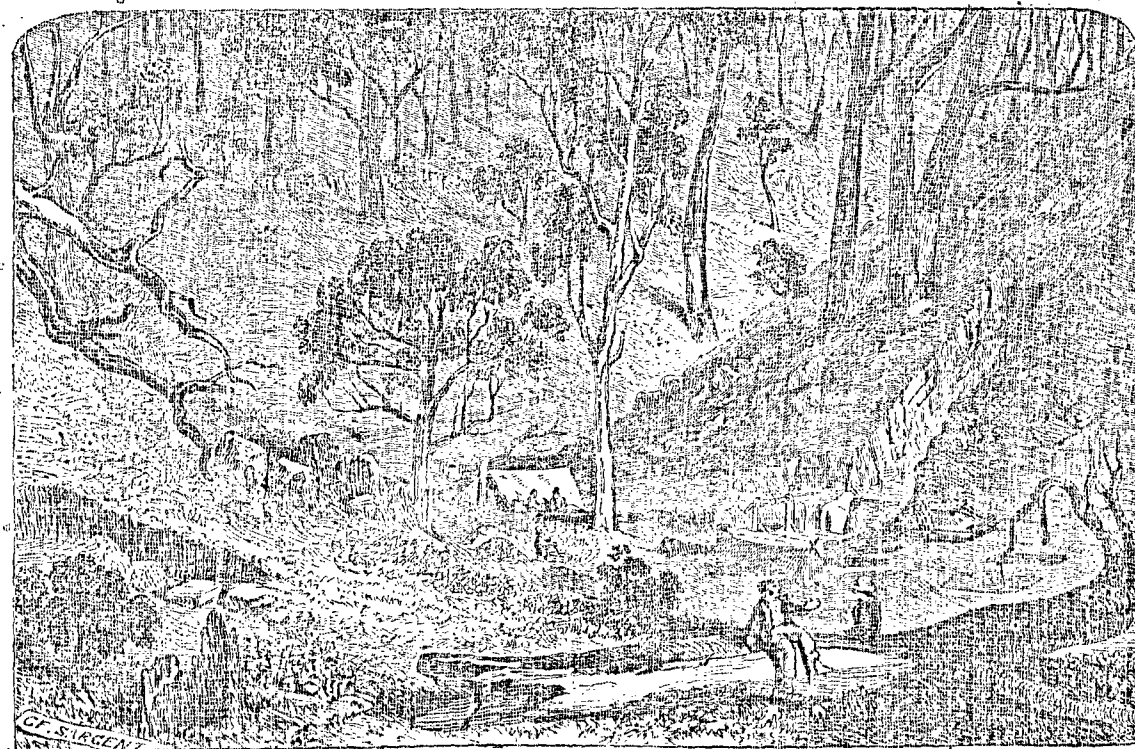
Countries.	Capitals or Chief Towns.	Latitudes.	Longitudes.	Present Ruler.	Form of Government.
AUSTRALIAN COLONIES.					
NEW SOUTH WALES, or EASTERN AUSTRALIA	Sydney	33° 51' S	151° 14' E	Victoria I.	Limited Monarchy.
VICTORIA, or PORT PHILIP	Melbourne	37 28	145 0		
SOUTH AUSTRALIA, or SPENCER'S GULF	Adelaide	34 53	133 10		
WESTERN AUSTRALIA, or SWAN RIVER	Perth	31 57	115 40		
NORTH AUSTRALIA	Port Essington	11 20	132 30		
UNEXPLORED INTERIOR	Captain Sturt's Point	24 20	138 4		
AUSTRALASIAN ISLANDS.					
VAN DIEMEN'S LAND, or TASMANIA	Hobart Town	42 54	147 28	Native Princes.	Absolute Monarchy.
Norfolk Island	Sydney Bay	29 2	168 2		
New Guinea	Cape of Good Hope	0 29	152 31		
Louisiade Islands	Roussel I.	11 21	154 26		
New Britain	Port Montague	6 6	150 30		
New Ireland	Port Gower	4 48	152 45		
Solomon's Islands	Bougainville I.	5 32	154 55		
Queen Charlotte's Islands	Santa Cruz I.	10 41	166 6		
New Hebrides	Esperito Santo I.	14 53	167 14		
New Caledonia	Port St. Vincent	22 0	165 55		
Loyalty Islands		21 0	167 0		
Island of Pines		22 38	167 20		

Of the *Mountains* of Australia little is known, excepting those which border the east. In the colony of Victoria are situated what are called the Warragong Mountains, or Australian Alps, of which the highest peak, named Mount Kosciusko, is about 6,500 feet above the level of the sea. The summits of the highest parts of these mountains are covered with perpetual snow. Along the eastern coast, particularly in the colony of New South Wales, there are other ranges of mountains at moderate distances from the sea, which have only been partially explored; the Blue Mountains, which lie to the north of the Australian Alps, are of considerably less elevation, and are intersected by deep and precipitous ravines; their highest summit is called Mount York, and is 3,292 feet high,

their average elevation being upwards of 2,000 feet. Westward of this is another peak, among isolated mountains and detached groups, called Canoboles, which is 4,331 feet high. The Liverpool chain of mountains lies northward of the Blue Mountains and is of greater elevation, varying from 2,000 feet to 4,000 feet, Mount Lindesay, the highest peak, being about 5,700 feet above the level of the sea. Between these ranges are undulating and watered regions, and on their western sides are high upland downs varying from 900 feet to 2,000 feet in height, such as the Liverpool Plains, the Brisbane Plains, the Darling Downs, &c. West and south-west of the Australian Alps, and within the colony of Victoria, is a hilly and watered country, reckoned more diversified than

any part of Australia yet explored. Here are the Australian Pyrenees and Grampians, the surmount of Mount William in the latter range being about 4,700 feet above the level of the sea. Flinder's range extends from the eastern coast of St. Vincent's Gulf into the interior. The Darling range is parallel to the western shores of Western Australia, some peaks being about 3,000 feet high. The coast of the Great Australian Bight, which lies between Spencer's Gulf and King George's Sound, is low and sandy; whence it is called the desert coast. By far the greater part, however, of this continent is yet unexplored, and from the report of late explorers, the interior is deemed as sterile as the desert of Sahara in Africa. This report indeed must be deemed partial and unsatisfactory; because the interior was approached only from the south, and in one particular direction. It is evident, therefore, that until it has been approached from the north, east, and west, and in various directions, the report of the sterility of the interior cannot be confirmed. It is true that, as the tropic of Capricorn passes across the interior of Australia, so the tropic of Cancer passes over the interior of Africa; but it would be absurd, without sufficient investigation and exploration, to suppose, that because the latter crosses the Great Desert of Sahara, therefore the former

and the Darling; at its junction with the former it is 350 feet broad, and has a depth varying from 12 to 20 feet. Lower down, at its junction with the Darling, it increases in breadth, and from this point to its entrance into Lake Victoria, its breadth varies from 100 to 250 yards, and its depth from 12 to 40 feet. This river is said to drain a surface of more than 200,000 square miles, thus carrying to the sea, the waters from a surface more than double that of Great Britain, and equal in magnitude to that of the whole of France. Numerous rivers, whose courses are generally short, flow from the mountains on the east coast into the sea; the names of the principal of these are Shoalhaven, Hawkesbury, Hunter, Hastings, McLeay, Clarence, Richmond, and Brisbane; the largest of these again, the Hawkesbury and the Hunter, have each a course of about 200 miles; the latter is navigable for 50 miles inland, and the Richmond for 70 miles. The chief river on the west coast is Swan River having a course of about 180 miles. Of the rivers which flow into the sea on the north coast, little is yet known. There are as yet considered to be no lakes of any extent in this continent; such as it has, are formed chiefly by the rains, becoming afterwards marshes, or drying up altogether. The name of Lake Torrens has been given to an immense salt swamp, lying northward,



Whitby's Gully, the spot where the Gold was first discovered: Forest Creek Ranges, Mount Alexander.

must also cross a great desert in the interior of Australia. Moreover, as the tropic of Cancer passes over some of the finest provinces of India, Chin-India, and China; so we might just as well infer that it passes over some of the finest districts of the hitherto unexplored regions of Australia.

There are not known to be any very large *Rivers* on this continent; but on the supposition that the whole of its sea-coast has been completely explored, this circumstance alone would argue in favour of the fact that the interior was sterile; as it is to its rivers, in a great measure, that any country owes its fertility. The river Murray rises in the western side of the Australian Alps, flows in a westerly course, dividing the colony of Victoria from that of New South Wales, and then running in a southerly direction, after a course of about 1,200 miles, falls into the sea at Encounter Bay. The principal tributaries to this river are the Murrumbidgee,

of Spencer's Gulf. Lakes Alexandrina or Victoria, Albert and Coorong, are the delta of the Murray.

Van Diemen's Land, or Tasmania, so called from the name of the discoverer of this island, lies to the south of Australia, being separated from it by Bass's Strait. It is about 180 miles long from north to south, and about 160 miles broad from east to west, having an area of about 24,000 square miles, which is about 2,000 square miles less than the area of Scotland, or 1/4 of the whole. The coasts of this island are generally bold and elevated, presenting high promontories to the surrounding seas. The principal *capes* or *headlands* are Cape Grim, the north-west point; Circular Head, on the north; Cape Portland, the north-east point; St. Patrick's Head, Cape Lodi, and Cape Pillar, on the east coast; Tasman Head, the south-eastern extremity of Bruny Island, south-east of Tasmania; South Cape and South-west Cape; and Rockv

Point, Cape Sorel, and West Point, on the west coast. The chief inlets of the sea, are Storm Bay, at the mouth of the River Derwent, and further north, Oyster Bay, on the south-east; the mouth of the Tamar on the north; Macquarie Harbour on the west; and Port Davy on the south-west. The peninsulas are Tasman's, east of Storm Bay; Forestier's, connected with the former by an isthmus of half a mile's breadth; and Freycinet's, on the east side of Oyster Bay. The islands are Bruny, formerly mentioned, which is separated from Tasmania by D'Entrecasteaux Channel; Maria, north of Tasman's Peninsula; the Furneaux group, to the north-east; Hunter's group, to the north-west; and several others. The mountains are Wyld's Crag in the middle of Tasmania, which is 4,500 feet high; Table Mountain behind Hobart Town, 3,750 feet high, and for eight months of the year capped with snow; and Benlomond in the north-east, 4,200 feet high. The principal rivers are the Derwent and the Tamar; the former, 130 miles long, falls into Storm Bay, and the latter into Bass's Strait, admitting vessels of 500 tons at its mouth. The county divisions of Australia and Tasmania, with their chief towns, are given on the Map of Australasia itself. Norfolk Island, which is annexed to the government of Van Diemen's Land, and lies at the distance of 900 miles from the east coast of Australia, is a penal settlement; it contains an area of about fourteen square miles, and has an eminence called Mount Pitt, which rises to the height of 1,050 feet. As the other islands in our table of Australasia contain no settlements, or none of any importance, we need not enlarge on the Map of Australasia.

LESSONS IN ENGLISH.—No. LXIV.

By JOHN R. BEARD, D.D.

SYNTAX: SIMPLE SENTENCES.

AGREEMENT.

The preceding lessons have had for their object to make the student thoroughly familiar with the elements which enter into the composition of the English language. Our business now is to take them and put them together. And in so doing we must be guided by fact and by law; we must take lessons of wise master-builders; we must make their masterpieces our models.

The constructive process which I here contemplate bears in grammar the name of SYNTAX. The word is composed of two Greek roots, namely *syn* with and *taxis* (tag.) I arrange, and so denotes a systematic arrangement of words. Consequently syntax is to the grammarian what the science of architecture is to the builder; it teaches the art of construction.

Now art, of necessity, implies rules, and science is a systematic aggregate of principles. Syntax, then, is not an arbitrary thing; it is not a mere jumble of authoritative assertions. It is true, that in grammar the authority of great writers goes a long way. Yet is their authority, in the last issue, resolvable into fact and law, the facts of our nature as declared and systematised in the laws of thought or the rules of logic.

These facts lead to the conclusion that the only proper way to study grammar is to study it as the science of logical utterance. In order to study grammar as the science of logical utterance, we must trace an utterance to its simplest form, and consider the elements of which that form consists.

Take then this sentence and study it:—

The sick man drinks pure water copiously.

What I now wish you to ascertain is, whether the proposition is in its simplest form. In order to ascertain this, you must distinguish between what is essential and what is not essential in the sentence. Take then word after word and put the question, Is this essential? If not strike it out, and strike out every word until you have reduced the proposition to its simplest form, that is, the form a deviation from which would involve no sense.

The, is this essential? yes, because some particular man is intended.

Sick, is this essential? No. Erase the word; you modify but do not destroy the statement.

Man, is this essential? yes, because man is the very subject of the proposition.

Drinks, is this essential? yes, because drinks declares what "the man" does; he drinks and does not swim.

Pure, is this essential? no, for though pure tells us what sort of water the man drinks, yet the proposition is not destroyed by its omission.

Water, is this essential? yes, because water tells us what the man drinks; he drinks water, not wine.

Copiously, is this essential? no; copiously does indeed refer to the amount of water which the man drinks, but its omission by no means destroys the sentence.

Thus then we have the proposition reduced to this form:—

The man drinks water.

By a second process of a similar kind the proposition may be still more simplified.

Let us be supposed that you wish to have and contemplate the idea of water being drunk, in its most elementary form; then you do not need the article *the*; accordingly the proposition now assumes this form,

Man drinks water.

A third process of simplification brings the sentence to these two words,

Man drinks,

which set forth the simplest statement you can make on the subject. Remove the word *man*, you have no sense; remove the word *drinks*, you have no statement. Consequently the original proposition, when reduced to *Man drinks*, is in its simplest form.

Such then is the form to which all propositions or sentences may be reduced. What does the form involve? Here are two words. Those two words you recognise as a noun and a verb, the one denoting a being and the other an act: Being and doing are the great facts with which all science is concerned, and the relation of being to doing, so far as the utterance of that relation is concerned, is the affair of the grammarian. The simplest proposition consists of a noun and a verb so related that what the verb declares, is declared of the noun, which is the subject of the proposition.

Agreement.

This, the simplest form of a proposition, may undergo modifications. You may change the subject; for instance you may make the singular *man* into the plural *men*; but if you make this change, you must also change the verb, substituting *drink* for *drinks*. Here you see an instance of grammatical agreement. *Man drinks*, *men drink*; these pairs of words severally agree, but in *man drinks*, and *men drinks* the pairs do not agree. Hence you learn that a singular noun requires a singular verb, and a plural noun requires a plural verb.

Agreement then is the grammatical correspondence of two or more words one with another; this kind of agreement, however, is in English of less prevalence than another, which may be called logical. Grammatical agreement is an agreement in form; thus in the above example, the question is whether or not, and in which case the *s* should be added to the verb *drink*. But when I say *The sick man drinks*, and declare that there is an agreement between *sick* and *man*, do I mean an agreement of form? No, for *sick* remains unchanged whatever noun you append to it; thus we say *sick man*, *sick men*, *sick women*, *sick boy*, *sick girls*. The agreement then is not in form. Yet the two words "sick man" do agree; in what? In sense; theirs is a logical agreement.

Observe also that the grammatical includes the logical, but the logical does not include the grammatical. The last statement has just been illustrated. The former may be shown to be true, thus: when I say *the man drinks*, I make a statement in which the word *man* agrees in thought with the word *drinks*; that is, the two go together; the two are combined so as to make a proposition; the two agree in sense.

Instances of agreement.

1	2	3
The sick	man	drinks copiously.
adj. and noun	noun and verb	verb and adverb.
logical agr.	gram. agr.	log. agr.

Sentences may be either affirmative, negative, interrogative or interrogative negative; e. g.

Affirmative. I love my father.
Negative. I do not love my father.
Interrogative. Do I love my father?
Int. Neg. Do I not love my father?

Dependence or Government.

There is another relation which it is necessary to understand. It means the relation of dependence. When I say

The man drinks water,

I state a proposition in which a noun, or object, appears in a state of dependence; the noun *water* is dependent on the verb *drinks*.

This dependence is a logical dependence, a dependence in thought and not in form. This you may see if, changing the form of the sentence, you make *water* the subject of the proposition thus,

The water is drunk.

Water then remains the same, whether it is a subject or an object. Consequently the agreement is not in form, as there is no change of form to meet a change in sense.

In sense, however, *water* in the former sentence is dependent on *drinks*. It is in fact that on which the action of the verb falls.

Hence it is the thought you must consult to know whether a noun is or is not an object. This remark is necessary, because for want of inflexions ambiguity may arise, as in cases when the subject may become the object, and the object the subject; for instance,

Subject.	Object.
The man strikes the boy.	
Subject.	Object.
The boy strikes the man.	

These two statements are the reverse of each other, and observe that the reversal is made by a mere change of position; *man*, which in the first sentence is the subject, becomes in the second sentence the object, by being put after the verb. You thus learn how important a part position plays in English grammar.

In the instances here considered, the dependence is that of a noun on a verb. There is another kind of dependence; that of a noun on a preposition, as seen in the following sentence,

The water is drunk by the man.

Here *the man* is in sense dependent on the preposition *by*. Not only nouns but verbs also are dependent on prepositions; thus,

The physician orders the man to drink water.

where in sense, or logically, *drink* depends on *to*.

The sentence presents a third case of dependence, for you see that the verb *drink* is in sense dependent on the verb *orders*.

Position here, too, is of consequence, for the dependent verb *drink* comes after *orders*, and after *to*; in no way could *drink* precede *to*, and scarcely could *orders* follow *drink*. Instances of dependence may also be considered as instances of government.

One word is said to be governed by another when the former is dependent on the latter; as

The man drinks the water,

where *water* is governed by *drinks*, because *water* is dependent on *drinks*.

Under the heads of AGREEMENT and DEPENDENCE (or government) may all the facts and laws of grammar be arranged. You see the two set forth as they appear in this sentence.

a.	b.
The man	drinks water.
	d.

But here is an instance of agreement of which I have not spoken, namely that between the article and the noun *the man*; *the* and *man*, referring to the same object, agree in sense. I subjoin then

Instances of Agreement.	Instances of Government.
The article and the noun	The object and its verb
The adjective and the noun	The noun and the preposition
The noun and the verb.	A verb and a preposition
	A verb and a verb.

Verbs of different kinds.

The government of a noun by a verb takes place only when the verb is transitive. A transitive verb is a verb, the action of which passes from the subject to the object; thus in the sentence,

The man drinks water,

the act denoted by the word *drinking* passes directly from man to water. Verbs that have an object directly dependent on them are called transitive, that is, passing over (from Lat. *trans* over, and so *I go*).

Transitive verbs have for their opposite verbs intransitive, that is, verbs the action denoted by which does not extend to an object but remains confined to the subject. *Sleeps*, in the sentence,

The man sleeps,

is an intransitive verb.

Intransitive verbs may appear either with a personal subject, as in the last sentence, or without a personal subject, as in

It rains.

Transitive verbs may exist in two forms as

Active.	The man drinks the water
Passive.	The water is drunk by the man.

These two forms are commonly called voices; in the first the verb is said to be in the active voice; in the second the verb is said to be in the passive voice. A transitive verb is in the active voice when it has a subject and an object. A transitive verb is in the passive voice when it has only a subject. In the passive voice the object of the active verb has become the subject. Only transitive verbs can exist in the passive form.

I have endeavoured to show you that the form "man drinks" is the simplest sentence that can be constructed. A sentence equally simple can, however, exist in another shape; e. g.

The man is good.

In the analysis of this sentence, I have to introduce and explain a new term or two.

You already know that *the man* is the subject to the verb *is*, but what is *good*? The word *good* is an adjective, or it may be called an attributive, because it assigns the attribute or quality of the noun *man*. This attribute is connected with the subject *man* by means of the verb *is*. A verb so connecting an attribute with a subject is called a copula, or link. And that copula in union with the attribute is termed the predicate. This name is given to the united copula and attribute, because when so united the predicate and copula predicate or declare something of the subject. These facts may be exhibited thus:—

Subject.		Predicate.
	copula	attribute
1. The man	is	good.
	Verb.	Object.
2. The man	drinks	water.

In the second sentence you see *drinks water*, that is, a verb and its object, is the predicate, for it is they which there predicate or declare something of the subject.

In the case of intransitive verbs, the predicate has no attribute as,

Subject.	Predicate.
The boy	runs.

A yet more abstract form of a simple sentence is found in this

Subject.	Predicate.
The man	is.

where *is* is the predicate to the subject, *the man*. Here, however, observe that the word *is* is employed in the sense of *exists*, and so is seen to belong to the general class of intransitive verbs.

It may be added that the verb *is* is sometimes called a *substantive verb* because it denotes existence in its most abstract form.

I may subjoin here that intransitive verbs are also denominated *neuter* (neither) verbs, because they are properly neither active nor passive.

LESSONS IN FRENCH—No. LXXV.

By Professor Louis FASQUELLE, LL.D.

§ 99.—REPETITION AND OMISSION OF THE NOMINATIVE PRONOUN.

(1.) It is proper to repeat the personal pronouns *je, tu, il, nous, ils*, before every verb:—
Je lis, j'écris, je me promène. I read, write, and walk.

(2.) The omission of the pronouns *je, tu, il, nous, vous, ils*, before the second or third verb of a sentence, is a matter of choice, and subject to the following restrictions:—
 These pronouns must be repeated:—

1. When the verbs are not in the same tense:—
Je prétends et je prétendrai toujours. I maintain and will always maintain.

2. When the first verb is in the negative and the second in the affirmative:—
Je ne pleure pas et je romps. I do not weep and I break.

3. When the propositions are connected by conjunctions other than *et, and; ou, or; ni, nor; mais, but*:—
Nous détestons les méchants, parce que nous les craignons. We detest the wicked, because we fear them.

(3.) Although we would advise the student to follow the 1st rule of this section, particularly with regard to the pronouns *je, tu, nous, vous*, and thereby avoid all uncertainty, we give a few examples, where the pronouns after the first are—

Je veux qu'on dise un jour aux peuples effrayés, Il fut des Juifs, il fut une insolente race. I wish that they may one day say to the frightened nations, there were Jews, there was an insolent race. *RACINE.*

Il l'écoute, il se plaint, il s'admire, il s'aime. J. B. ROUSSEAU. He listens to himself, he pleases himself, he admires himself, he loves himself.

Nous avons dit, et nous allons prouver, qu'il n'y a pas de bonheur sans vertu. BEAUCOURT. We have said, and we are going to prove, that there is no happiness without virtue.

§ 100.—PLACE OF PERSONAL PRONOUNS USED AS THE REGIMEN OF VERBS.

(1.) The personal pronoun used as *régime direct*, (direct object or accusative) [§ 42, (4.)], and the pronoun used as *régime indirect*, (indirect object) with the preposition *à*, expressed or understood, in English, (dative of the Latin), [§ 42, (3.)] are in French placed before the verb:—

Direct Regimen.
Je vous vois, I see you.
Vous les voyez, you see them.
Madame, enfia le ciel près de vous me rappelle. *RACINE.*
Madam, at last heaven recalls me near you.
Pauvre science humaine!
Un fil ferré hélas, comme le moucheron.
Du bon Jean la Fontaine.
Poor human science, a web stops thee, like the gnat of the good Jean la Fontaine.

(2.) 1st Exception: When the verb is in the second person singular, or in the first or second person plural of the imperative used affirmatively, these pronouns must be placed after it:—

Voyez-les, see them.
Rendez-moi chrétienne et libre. *VOLTAIRE.*
Make me a Christian and free, I submit to everything.
Dépouillons-nous aussi d'un vain mérite. *BOILEAU.*
Strip us also of a vain pride.
Allez, conduisez-la dans la chambre prochaine. *RACINE.*
Go, conduct her into the next room.

(3.) Remark: But if the verb in these persons of the imperative be used negatively, the pronouns will be placed according to Rule (1.):—

Ne les voyez pas, do not see them.
Si l'on vous propose de faire une mauvaise action, ne la faites pas.
Dissipe tes douleurs.
Et ne me trouble pas par ces indignes pleurs. *BOILEAU.*
If they propose to you to commit a bad action, do it not.
Dissipate thy grief, and trouble me not by these unworthy tears.

(4.) 2nd Exception: With reflexive verbs, when the *régime indirect* is a person, the pronoun representing it must follow the verb. This must also be the case with the following verbs:—

Aller à, to go to, towards.
Accourir à, to run to, towards.
Courir à, to run to, towards.
Je m'adresse à lui, à eux.
Je vais à vous ou à eux.
Vous courez à lui ou à elle.
Elle vient à moi ou à vous.
Vous pensez à nous ou à lui.
Il songeait à eux et à vous.

(5.) The pronoun used as the indirect regimen of the French, which answers to the indirect object of the English prepared by a preposition other than *to*, and to the genitive and ablative cases of the Latin, is always, in French, placed after the verb, and preceded by one of the prepositions *de, of; pour, for; avec, with, &c.*

Je parle de lui et de vous. *I speak of him and of you.*
J'écris pour lui et pour elle. *I write for him and for her.*
Qui rit d'autrui. *He who laughs at others, must fear that in their turn they may also laugh at him.*

(6.) When two imperatives, used affirmatively, are joined together by the conjunction *et*, the pronoun regimen of the second may be placed before it, or after it, as in English:—

After the Verb.
Sortez et laissez-moi dormir.
Go out, and let me sleep.
Marche, et suis-nous du moins où l'honneur nous appelle. *LA HARPE.*
Leave me this chain, or deprive me of life.
Sortez et me laissez dormir.
Go out, and let me sleep.
Laissez-moi cette chaîne, ou m'arrachez le jour.
Leave me this chain, or deprive me of life.

§ 101.—RESPECTIVE PLACE OF THE PRONOUNS WHEN TWO OCCUR WITH ONE VERB.

(1.) When two pronouns occur, one *régime direct* (accusative) and the other *régime indirect* (dative), the pronoun *régime indirect*, if not in the third person singular or plural, must precede the pronoun *régime direct*:—

Il me le donnera. *He will give it to me.*
Il te le prêter. *He will lend it to thee.*
Ils nous les montreront. *They will show them to us.*
Vous vous le direz. *You will say it to us.*
Quand je puis obliger, ma joie est assez grande.
When I can oblige, my joy is great enough, without my wishing to wait until they command me (i. e., they command it to me.)
Pour n'attendre jamais que l'on me le commande. *BOYSSAUT.*
I repeat it to you; you can obtain the esteem of men only by real virtue.
Je vous le dis encore, vous n'aurez l'estime des hommes que par une solide vertu.
MINIE DE MAINTENON.

* Object of the verb preceded in English by *to*, expressed or understood, the dative of the Latin.

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(2.) When the pronoun *régime indirect* is in the third person singular or plural, it must then be placed after the *régime direct*:—

On le lui donnera. *They will give it to him.*
Vous le lui prêterez. *You will lend it to him.*
Nous ne le leur prêterons pas. *We will not lend it to them.*
Vous le leur écrirez. *You will write it to them.*
Le plus sûr appui de l'homme est Dieu, et vous voulez le lui ravir. *BOISSE.*
The surest support of man is God, and you wish to deprive him of it.

(3.) Remark: The reflexive pronoun *se*, used as an indirect regimen, makes an exception to the above rule, as it takes precedence of the direct regimen:—

Si les hommes pensent mal les uns des autres, du moins ils ne se disent pas. *ANONYMOUS.*
If men think ill of each other, at least they do not say it to each other.

(4.) The Rules (1.) and (2.), also the Exception (3.), apply to the imperative used negatively; but Rule (1.) cannot apply to the imperative used affirmatively.

Examples of the Imperative used Negatively.

Ne vous le donnez pas [Rule (1.)] *Do not give it to us.*
Ne le leur prêtez pas [Rule (2.)] *Do not lend it to them.*
Qu'ils ne se le disent pas [Remark (3.)] *Let them say it to themselves.*
Du sang de tant de rois c'est l'unique héritage; *Of the blood of so many kings, it is my only inheritance; do not deny it (to me), leave me my portion.*
Ne me l'écrivez pas, laissez-moi mon partage. *VOLTAIRE.*

(5.) When the imperative used affirmatively has two regimens, the pronoun *régime direct* precedes the *régime indirect* in all the persons:—

Envoyez-le-moi. *Send it to me.*
Donnez-le-nous. *Give it to us.*
Qu'ils le lui donnent. *Let them give it to him.*
Montrez-le-moi, ce mortel privilégié. *Show him to me, that privileged mortal.*
Mets-le-tot dans l'esprit; qui fait mal, trouve mal. *ANONYMOUS.*
Put this into thy mind; he who does evil, finds evil.

§ 102.—RULE.

When two pronouns in different cases, representing rational beings, occur, and the pronoun in the *régime direct* is in the first, or in the second person, this pronoun must be placed according to the general rules; and the pronoun in the *régime indirect* must follow the verb, and be preceded by the proper preposition:—

Il nous a recommandé à eux. *He has recommended us to them.*
Il vous a présenté à elle. *He has presented you to her.*
Rui ne peut se comparer à lui, pour faire en peu de temps, un travail fort inutile. *LA BRUYÈRE.*
No one can compare himself to him, for doing in a short time a very useless piece of work.

§ 103.—RULE.

(1.) The personal pronouns *lui, elle, eux, elles*, used as indirect regimens of verbs and preceded by a preposition, can only relate to persons, and not to things. The expressions *of* or *from it*; *of* or *from them*, when relating to things, should be rendered by *en* [§ 39, (17.)]:—

J'en parle; j'en donne. *I speak of it, of them; I give of it (them).*
J'aime trop la valeur, pour en être jaloux. *I prize valour too highly to be jealous of it.*
Celui qui est dans la prospérité, doit craindre d'en abuser. *He who is in prosperity should fear to abuse it.*
FÉNELON.

(2.) The relative pronoun *y* [§ 39, (18.) § 111], is used in French in relation to things, for the indirect regimen, expressed in English by *at* or *to* (dative). It means *at* or *to it*; or *to them*; *thereto*, &c.:—

J'y songerai. *I will think of it.* *Faites-y attention.* *Pay attention*

C'est lorsque nous sommes éloignés de notre pays, que nous sentons surtout l'instinct qui nous y attache. *CHATEAUBRIAND.*
It is when we are far from our country that we feel, above all, the instinct which attaches us to it.

Tous nos jours vont à la mort, le dernier y arrive. *MONTAIGNE.*
All our days travel towards death, the last one arrives at it (reaches it).

Les choses de la terre ne valent pas qu'on s'y attache. *NICOLE.*
The things of the earth are not worth our attachment to them.

§ 104.—PLACE OF EN AND Y.

(1.) The place of *en* and *y* is the same as that prescribed by Rule (1.) § 100, for the personal pronouns. They are also subject to Exception (2.) and Remark (3.) of the same §. See examples above.

(2.) *En* and *y* are always placed after the other pronouns regimens:—

Il nous en a parlé. *He has spoken to us of it.*
Il lui en a dit quelques chose. *He has told him something of it.*
Parlez-lui-en. *Speak to him of it.*
Ne nous en parlez pas. *Do not speak to us of it.*
Je t'y ai renvoyé. *I have referred him to it.*
Renvoyez-nous-y. *Refer, or send us back to it.*
Ne nous y renvoyez pas. *Do not refer us to it.*

§ 105.—REPETITION OF THE PRONOUNS, RÉGIMES.

These pronouns must, in French, be repeated before every verb:—

Ah! mon enfant, que je voudrais bien vous voir un peu, vous entendre, vous embrasser, vous voir passer. *MINIE DE MAINTENON.*
Ah! my child, how I should like to see you for a short time, to hear you, embrace you, see you pass.

Je veux le voir, le prier, le presser, l'importuner, le fléchir. *DESCARTES.*
I will see him, entreat him, press him, importune him, bend him.

§ 106.—THE POSSESSIVE PRONOUN.

(1.) The possessive pronoun, in French, is always preceded by the articles [§ 34, (2.) § 35, (1.)] which, as well as the pronoun itself, agrees in gender and number with the noun represented:—

L'ambition ni la fureur ne touchent point un cœur comme le mien. *J. J. ROUSSEAU.*
Neither ambition nor snake heat power on such a heart as mine.
Au lieu de déplorer la mort des autres, je veux apprendre de vous à rendre la même saluë. *BOSSUET.*
Instead of bewailing the death of others, I wish to learn from you how to render my own help.

(2.) The pronouns *le nôtre, le vôtre* [§ 34, (3.)], &c., unlike the adjectives *notre, votre*, &c., always take the circumflex accent:—

La musique des anciens Grecs était très différente de la nôtre. *VOLTAIRE.*
The music of the ancient Greeks was very different from ours.

(3.) When the English possessive pronouns, *mine, thine, &c.*, come after the verb *to be*, they are often rendered into French by the indirect pronouns *à moi, à toi*:—

Ce livre est à moi. *That book is mine.*
Ces plumes sont-elles à vous? *Are these pens yours?*

§ 107.—THE DEMONSTRATIVE PRONOUN.

(1.) The demonstrative pronouns [§ 36] can never be placed before nouns. They merely represent them:—

La meilleure leçon est celle des exemples. *LA HARPE.*
The best lesson is that of examples.
N'oublie jamais les bienfaits que tu as reçus; oublie promptement ceux que tu as accordés. *BOISSE.*
Never forget the benefits which thou hast received; forget quickly those which thou hast conferred.

(2.) The pronouns *celui, celle, ceux, celles*, as has been said [§ 37, (2.)], are often used absolutely, not only in the nominative, but also in the regimens, direct and indirect. They have then the sense of *he who, him whom, of whom; that which, of which*. They apply, in this sense, as well to things as to persons.

Celui qui compte dix amis, n'en a pas un. MALESTIERRES.
On ne saurait forcer celui qui ne veut pas.
L'harmonie la plus douce est la voix de celle qu'on aime.
LA BRUYÈRE.

He who reckons ten friends, has not one.
We cannot compel him who will not.
The sweetest harmony is the voice of her whom we love.

(3.) The French use *celui, celle, ceux, celles*, indifferently for this, that. When they institute a contrast or a comparison, they suffix the adverbs *ci* (this) and *là* to the pronouns (§ 37, (3)).

Cornelle s'assujettit à ses caractères et à ses idées; Racine se conforme aux nôtres. Celui-là peint les hommes, comme ils devraient être, celui-ci les peint tels qu'ils sont. LA BRUYÈRE.

Cornelle subjects us to his characters and to his ideas; Racine conforms himself to ours. That one paints men as they should be, this one (the latter) paints them as they are.

* The same adverbs produce the same difference in meaning with the demonstrative adjectives *ce, cet, &c.* They are not placed immediately

(4.) *Celui-ci, celle-ci, ceux-ci, celles-ci*, may be used absolutely in French in the sense of *this one, that one, &c.*

On la vit, toutes les semaines, essuyer les larmes de celui-ci, pour voir aux besoins de celui-là.
FLUCHIER.

Every week, she was seen wiping the tears of this one, providing for the wants of that one.

(5.) *Ceci* and *cela* are always used absolutely. They serve to point out things only. They can, of course, never be prefixed to a noun (§ 37, (5)).

Tant que le jour est long, il grommelle entre ses dents,
Fais ceci, fais cela, va, viens, monte, descends. REGNARD.

The livelong day he mutters between his teeth, do this, do that, go, come, go up, come down.

Je suis un peu surpris de tout ceci.
MASSILLON.

I am a little surprised at all this.

Vous n'avez pu désavouer cela.
PASCAL.

You have not been able to disown that.

after those adjectives, but after the nouns which they determine: *cet homme-ci, this man, cet homme-là, that man, &c.* The commencement of Remark (3.) applies also to the adjectives: *ce, cet, celle, ces, &c.*

LESSONS IN GEOLOGY.—No. XL.

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CHAPTER III.

ON THE INFLUENCE OF ATMOSPHERIC AGENTS ON THE EARTH'S CRUST.

SECTION VII.—ON GLACIERS.

§ III. ON THEIR TRANSPORTING POWER, AND ITS RESULTS ON THE EARTH'S SURFACE.

The last lesson has shown that the glacier is, in its course, covered more or less with fragments of stone and masses of rock, which have either fallen from the sides of the cliff through

glacier makes, is marked by the distance to which enormous blocks of stone are carried, on its surface, in a given number of years. These blocks are so large in size, and so remarkable in figure, that they cannot be confounded with other stones. By drawing a straight line from one of these blocks to either side of the cliffs of the valley, in a given year, and calculating the distance which they have gone downward in a future year, they mark the progress of the glacier as definitely as a log of floating wood tells the rapidity of a river.

Through the incessant operations of atmospheric agents, the sides of a promontory between two glaciers, as represented by fig. 89, in our last lesson, or fig. 90, in this, may yield a great

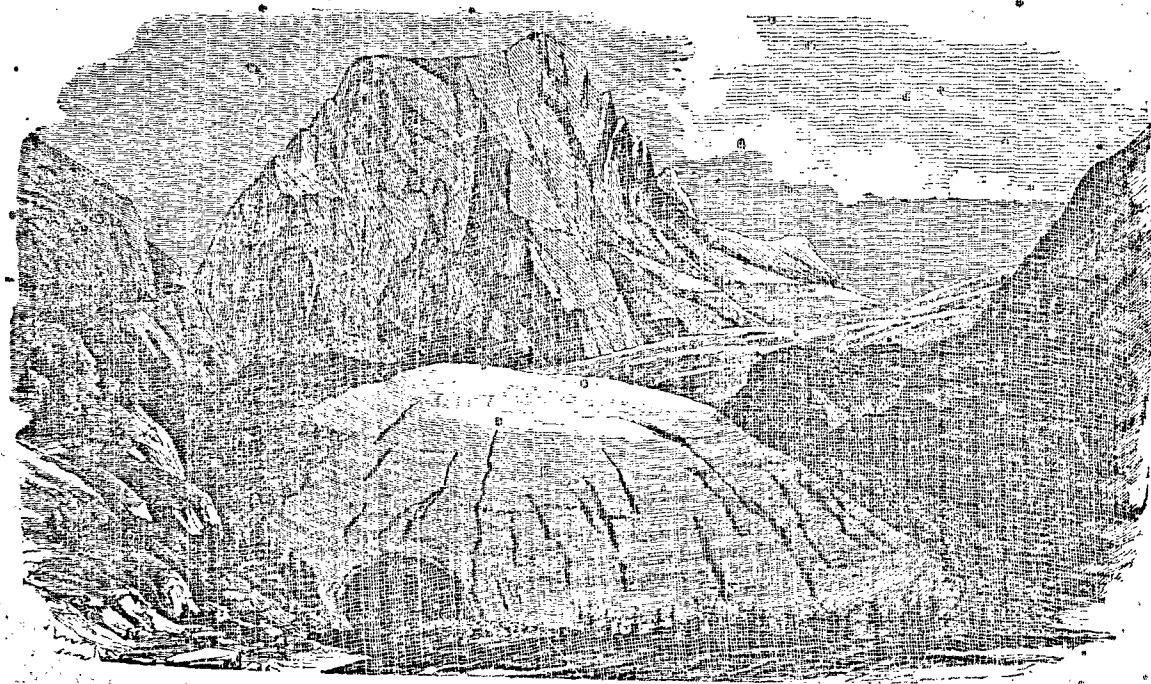


Fig. 90. The Glacier of Arolla, on each side Mont Collon, in the Valley of Erin.

weathering, or have been brought down by avalanches from the higher flanks of the mountain. All these blocks and ridges move downward with the glaciers, in the forms of lateral and medial moraines; which finally are deposited in one terminal moraine in the lower district where the glacier melts away. The progress, which the slow but irresistible motion of the

stream of blocks in the course of years. When the ice is apparently stationary, immense heaps of debris accumulate on the surface of the glacier immediately at the base of cliffs on each side; but as the glacier advances, the entire accumulation is moved with it, until it deposits its charge in a terminal moraine.

When these blocks and fragments in the moraine are examined, they are found to indicate the lithological character of the high and inaccessible cliffs from which they have been brought down. By this means the geologist is supplied with specimens of rocks, that would be otherwise out of his reach. Professor J. Forbes gives us an instance of this; the *Gabbro* of Saas, which, though it has never yet been found *in situ*, or on its parent rock, is discharged by the glacier of Allalein, near Monte Rosa, in the Alps.

The slow but never ceasing progression of rocky masses transported by glaciers, is a study as striking to the imagination as it is suggestive to science. Suppose the length of a glacier to be twenty miles, and that it moves 600 feet every year. To-day you see a block falling from the melting front of a glacier. That block began its journey, at the upper end of the glacier, 200 years ago! Or suppose that in the high valleys of the Alps, you saw this year an immense block hurling down from a cliff at the upper end of such a glacier. That stone will not arrive at its resting-place in the terminal moraine below, till six generations of men have been swept away!

In this diagram the moraine *a* shows that the glacier had been at a higher level than it is at present, and had deposited there a portion of its stony charge. On account of the reflected heat from the cliffs, the sides of the glacier melt faster than the centre. At *b*, in consequence of the steepness of the cliff, the lateral moraine is engulfed between the ice and the rock. It is by this means that the surface of the cliff will become grooved or striated by the movement of the glacier. At *c* is a medial moraine, under which the glacier rises to a greater height than at its sides. The heap at *y* shows that the glacier, at a higher elevation, left a portion of its lateral moraine behind it on melting. At *x* a part of the moraine now on the surface is, as the ice goes on melting on that side, ready to slide, or to roll, to rest on a lower portion of the inclined bank.

It sometimes happens that two glaciers having separate sources in two high glens unite, just like two rivers, in a common valley lower down. The two flanks of the mountain, which form the promontory between them, may consist of rocks of different formations. The left moraine of one valley

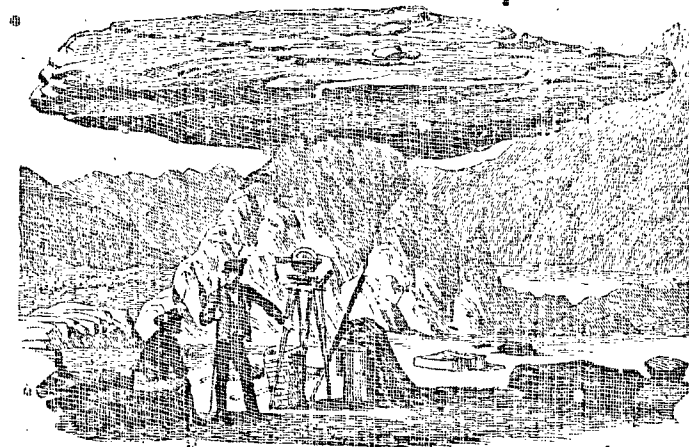


Fig. 92. A Glacier Table on the Mer de Glace of Chamouni in 1842.

You have already seen that, in Alpine valleys, ridges of stony fragments are found at a higher level than that of the surface of the present glacier. In other districts also where there are no glaciers at present, similar ridges of stones and blocks are found. The coupling of these two facts together is of great importance in geological reasoning, as it supplies a good ground for inferring that, at some ancient epoch, glaciers existed in that district. Instances of this are found on the flanks of many hills, and on the ledges of many rocks in mountainous regions.

A little attention to the modes in which a glacier bears its charges of stones downwards, will help you to understand how lateral moraines are sometimes left behind at higher levels than the present surface of the ice, how part of the moraines come to be instruments of grooving and marking the sides of cliffs, and how the terminal moraine is made to consist of an accumulated heap, or of scattered fragments of rocks, widely different in mineralogical character. The annexed diagram, fig. 91, will assist your conception of these glacial phenomena.



Fig. 91. A Glacier having a precipitous Cliff on one side, and an inclined Bank on the other.

and the right moraine of the other will, of course, meet at the point of the promontory, and form one medial moraine. But when they meet, they do not mingle their fragments confusedly. The debris, proper to each side of the rock, join each other, but they mark, by a band of stones, frequently for some miles, the actual separation of the two glaciers. Had it not been for the mineral difference in the sides of the moraine, we should have thought that, in that distance, the two glaciers would have become, like two streams, perfectly united.

Beside the lateral and medial moraines, there are frequently found on the surface of a glacier, huge masses of rock which maintain a conspicuous pre-eminence over the other rocky fragments. These massive blocks do not, either by weight or heat, indent the surface of the glacier, but ride upon an icy knoll, ridge, or pedestal. A single block of this kind may cover a considerable surface of the glacier, and has every appearance of having been pushed or shot up by pressure from the sides or from below. This phenomenon is strikingly and faithfully represented by figure 92.

This glacier table is a magnificent slab of granite, measuring twenty-three feet in length, seventeen in breadth, and about three feet and a half in thickness. It appears as if it had been elevated above the level of the glacier, and seems supported by an elegant pedestal of icy marble beautifully veined.

To account for this apparent tendency of the ice to rise or to shoot up into a rude pedestal, wherever it is covered by a large block of stone, is one of the problems of glaciers. It is probable that what appears as an elevation, results only from the circumstance, that the surface of the glacier has, in reality, been depressed everywhere else by the melting action of sun and rain. The block or slab acts like an umbrella, and protects the ice from both heat and wet. The height, at which the slab or table is seen, measures the level to which the glacier

had previously attained, while all below that elevation has been melted and washed away. This depression along the surface of a glacier is sometimes very rapid, amounting occasionally to a foot per week in the summer. By this waste of the surface-ice all over the glacier sinks considerably in a warm season, while the space of ice immediately under the slab is preserved at its previous elevation.

If the heat of the summer be very great, these icy pedestals themselves will melt away all around, and become too feeble to sustain the weight of the enormous slab that had sheltered them. Eventually, the support of the pedestal gives way, and the block begins to slide, till it slips down to another part of the surface-ice. As soon as it rests on the surface, it immediately recommences the operation of defending the ice below it from the action of sun and rain, and begins to rise or mount afresh, precisely on the same principles as before.

Moraines are found, not only at a higher elevation than the present surface of a glacier, but also at much lower distances than the present point of it. In such a case, the accumulated heaps, or the scattered debris, furnish good ground for the inference that the glacier once extended downward all that distance, and that, since that epoch, the glacier has retreated the whole of that length.



Fig 93. Moraine blocks called Pierre à Dzo, at Monthey.

The amount of these deposited moraines, is an index to the force with which glaciers have acted in the disintegration of mountains and hills, and to the extent of change produced on the surface of the earth, by their agency in transporting blocks, and stones and gravel, and depositing them upon lower levels. In plains at the bottom of some Alpine valleys, and on the sides of some of the lower hills, the quantity of stones and gravel thus transported and deposited is immense. In the valley of the glacier of the Miage, there is a moraine which has been pushed out for several miles along its lower districts, and is several hundred feet in depth. When the sources of these debris are examined, it is found that all these masses of blocks, slabs, and stones have been dislodged and brought down from places that are now immense chasms or gorges in the higher parts of the mountain. All these chasms have been scooped and hollowed out by the operations of the various agencies that combine to form glaciers.

Extensive moraines deposited by ancient glaciers are found in various parts of Switzerland, such as on the flanks of the Jura mountains, on the declivities of the hills in the district

called the Vallais, on the shores of the lake of Geneva and many other places. Wherever they are found they are always indubitable proofs that, at some previous era in the history of our globe, such districts were covered by glaciers. The moraines found on the shores of the lake of Geneva, at the height of about a hundred yards above the level of the waters, prove clearly that once the glaciers of the Rhone extended forty or fifty miles lower down than they do now, and at a level from three to four thousand feet below the present ice-fields. The outward aspect of these moraine blocks, as found in different parts of the Alps, is well illustrated in a heap of huge angular stones called the Pierre à Dzo, situated at Monthey, in the valley of the Rhone.

"The blocks of Monthey," says Professor J. Forbes, "must be seen to be appreciated. I wandered amongst them for a whole afternoon, and though I had previously heard much of their magnitude, I had formed no idea of what I then saw. We have here a belt or band of blocks, poised, as it were, on a mountain side, it may be 500 feet above the alluvial flat through which the Rhone winds below. This belt has no great vertical height, but extends for miles—yes, for miles along the mountain side, composed of blocks of granite of thirty, forty, fifty, and sixty feet in the side—not a few, but by hundreds,

fantastically balanced on the angles of one another, their grey, weather-beaten tops standing out in prominent relief from the verdant slopes of secondary formation on which they rest." "The blocks are piled one on another, the greater on the smaller, having deep recesses between them, in which the flocks or their shepherds seek shelter from the snow storm, and seem not hurled by a natural catastrophe, but as if balanced in sport by giant hands."

A knowledge of the transporting power of glaciers is indispensably necessary to the geological student, for he frequently finds upon alluvial plains and on the surface of secondary beds, vast masses and scratched boulders of primitive rocks, deposited at an immense distance from their origin. On seeing such blocks in such situations, you cannot help asking the question, how they came there? They are fully exposed, they rest upon the bare rock, they have suffered no wear and tear, and sometimes, in rocky places, they are put in such nice equilibrium, that had any water passed over them, they would necessarily have been removed. Often a block of granite, for instance, is found some hundred miles from any granite rock. What was

the power that transported it to that distance? Volcanic explosions could not have hurled them. Currents of water could not have borne such masses across lakes and up the sides of hills without blunting their sharp angles and pointed surfaces. Nor will the theory of floating icebergs account for all the circumstances in which these blocks are found distributed.

Professor Playfair was the first writer that regarded glaciers as geological agents in the transportation of blocks and boulders. "The immense quantity," he says, "and size of the rocks thus transported have been remarked with astonishment by every observer, and explain sufficiently how fragments of rock may be put in motion, even where there is but little declivity, and where the actual surface of the ground is considerably uneven. In this manner, before the valleys were cut out in the form they now are, and when the mountains were still more elevated, huge fragments of rock may have been carried to a great distance; and it is not wonderful if these same masses, greatly diminished in size, and reduced to gravel or sand, have reached the shores, or even the bottom of the sea."

When this hypothesis comes to be applied to the erratic blocks that lie on the plains of Switzerland, or rest on the sides of the Jura mountains, it involves the probability that, at a former epoch, the Swiss glaciers extended much farther than they do now, and even stretched across the present lake of Geneva and covered all the plain of Switzerland.

One of the most remarkable blocks of this description is an immense mass of stone, called Pierre à Bot, resting on one of the Jura hills near Neuchâtel. This Pierre à Bot, or toad-stone, lies in a belt of wood situated in the hollow of a hill. On the side of this hill, there rest many thousands of travelled blocks derived from rocks at a great distance, some of which are small and water-worn; others are large, about a yard each way, and perfectly angular and rugged, except that the corners and edges are slightly worn. The chief of all these blocks is the Pierre à Bot, fifty feet long, twenty wide, and forty high. There it stands, the evidence of some stupendous power.

What was the power that brought all these blocks and stones here? If it was moving water, why are these blocks at so high an elevation, and not buried rather in the lake of Neuchâtel? and why have they such slight marks of friction? If a floating iceberg was the power, where are the boundaries and barriers of such a lake or gulph to be found? The superficial soil of Switzerland is of such a character as to show that, no flood of water has passed over it after the time when these blocks were deposited. "A current of water," says Professor Playfair, "however powerful could, never have carried it up an acclivity, but would have deposited it in the first valley it came to, and would in a much less distance have rounded its angles, and given to it the shape so characteristic of stones subjected to the action of water. A glacier which fills up valleys in its course, and which conveys rocks on its surface free from attrition, is the only agent we now see capable of transporting them to such a distance, without destroying that sharpness of the angles so distinctive of these masses."

This hypothesis of Professor Playfair has been admirably worked out by M. Venetz, who was the first geologist in Switzerland that applied it to the doctrine of glaciers extending the whole distance from the Alps to the Jura, as the only circumstance that could account for the transportation of such blocks. This application was powerfully supported by the illustrious geologists De Charpentier and Agassiz; but Agassiz has extended the application of this theory to every part of the temperate zone, and has employed it to account for the distribution of blocks in Sweden, Norway, and in Great Britain.

Professor J. Forbes has satisfactorily proved that glacier agency will account for the vast number and the peculiar positions of blocks and boulders, found either on the ledges of barren rocks, or in the alluvial valleys of mountainous districts. He shows that the quantity of rocky fragments that reach the surface of the glacier is frequently sufficient to conceal the entire mass of ice on which they are borne. "The lower parts of the glacier de Miage near Mont Blanc, and the

glacier of Zerst, near Monte Rosa, are completely darkened by the quantity of rocks they transport. In many places in Switzerland, there are abundant evidences of the transporting power of glaciers. In some districts, glaciers have filled up entire valleys with stones, and have thereby formed lakes, as is instanced in the glaciers of Miage and of Allala. Rocky masses, equal in dimensions to any blocks found in the ancient moraines, may be seen any day on the surface of existing glaciers. On the ice of the glacier of Viesch in the Vallais there is a block about 100 feet long, and forty or fifty feet high. "A case in point is found in the valley of Saas, where an enormous block of green slate has been brought down by the glacier of Schwartzberg, and deposited about thirty years ago. This block rests now about half a mile from the frontage of the glacier, and the whole of that intervening distance is covered with erratic blocks, precisely as such fragments are found in the Jura, on Snowdon, and in the Highlands."

In concluding this section upon glaciers, you scarcely need to be reminded that the statements which have been made concerning erratic blocks, as found in Alpine districts, are not to be applied to the boulders and rounded stones that are found in what is called the Drift. This will be explained in our next lessons.

THE OLIVE LEAF.

(Tune—"Ivy Green.")

Oh, let me twine an olive leaf
About that garland fair;
And bind it round the human heart,
If blissful peace be there.
For o'er the world a change is come,
In happiness and love;
And men in brotherhood now join
More peaceful than the dove.
Hope on, hope on, the clouds of night,
Gleam with the rosy hue of Truth;
The sun of Peace with healing light,
O'er spreads the earth with joyous youth.

The silver stars now shine above
The workman's happy home;
The flow'ry mead and garden fair,
With pride his own become.
Now, o'er his hearth, does plenty rest,
And industry so blithe;
And where the cruel sword once hung,
Now hangs the peaceful scythe.
Hope on, &c.

That hallow'd spot, the flow'ry vale,
The haunt of youth and joy,
In common ground, and o'er it skips
The mother's darling boy.
In his arm-chair, the ancient sire
Now sits at close of day;
From which that olive bud did spring,
With tender leaves so gay.
Hope on, &c.

The father, too, now sings that song—
Once sung by angels bright;
All nature joins the happy throng,
And echoes with its might.
Angels now linger on the earth,
And mark the peaceful flow
Of love and happiness around
The sons of men below.
Hope on, &c.

Truth boldly urges man to strike
The course mark'd out by right;
And knowledge teaches how to gain
The victory o'er night.
Oh! give me then the olive leaf,
Best symbol of the free;
The garland twined around the heart,
Source of felicity.

Hope on, &c.

JOHN FORD, Stratford, Essex.

LESSONS IN GERMAN PRONUNCIATION.—No. XII.

Die Biene.
Bee bee'-nai.

Eine kleine Biene flieg.
I-nai kl'i-nai bee'-nai flö'ch
Em'ig hin und her und sez.
Em'ig hin dōnt heir dōnt zo'ch
Eüfigkeit aus allen Blumen.
Zü'-sig-kite ouss al'-len bloo'-men
Bienen, spricht die Gärtnerin,
Bee'-nen, spricht des gheer'-nai-rin,
Die sie bei der Arbeit trifft,
Doo zee by dair ar'-bite trift,
Manche Blume hat auch Gift,
Mān'-gai bloo'-mai hāt ouch gift
Und du saugst aus allen Blumen?
Dōnt doo zougst ouss al'-len bloo'-men?
Ja, spricht sie zur Gärtnerin,
Yāh, spricht zee tsoor gheer'-nai-rin,
Ja, das Gift laß ich darin!
Yāh, dāss gift lāss ich dā-rin!

VOCABULARY.

Biene, f. bee.
Em'ig, busily
hin und her, to and fro
saugen, to suck
Eüfigkeit, f. sweetness
Gärtner, m. gardener
manche, many, -a
Gift, n. poison.

LESSONS IN GERMAN.—No. LXV.

§ 77. VERBS OF THE OLD CONJUGATION.

(Commonly called Irregular Verbs).

(1) In the Old Conjugation, the Imperfect Tense and the Perfect Participle are distinguished from the Present, chiefly by a change of the radical vowels. Thus, in some verbs, a different radical vowel is found in each of these three parts.

Present.	Imperfect.	Perfect Participle.
Bitten, beg.	Bat, begged.	Gebeten, begged.
Seifen, help.	Saß, helped.	Geholfen, helped.
Sinnen, reflect.	Sann, reflected.	Gesonnen, reflected.
Trinken, drink.	Trank, drank.	Getrunkten, drunk.

When in the course of the changes noted in the text above, a long vowel or diphthong becomes short, the final consonant of the root is doubled, as:

Reiten, to ride.	Ritt, rode.	Geritten, ridden.
Leiden, to suffer.	Litt, suffered.	Gelitten, suffered.

In the case of *Leiden*, note also, that *l* is changed into its cognate *t*. When, on the other hand, a short vowel is thus made long, the second of two radical consonants is omitted: as,

Bitten, to beg;	Bat, begged;	Gebeten, begged.
Kommen, to come;	Kam, came;	Gekommen, come.

(2) In some, the vowel or diphthong in the Imperfect and the Participle, is the same, but is different from that in the Present: as,

Present.	Imperfect.	Perfect Participle.
Glimmen, glimmer	Glimm, glimmered.	Geglimmen, glimmered.
Sehen, list.	Sah, listed.	Gesehen, listed.
Klimmen, climb.	Klimm, climbed.	Geklimmen, climbed.
Wählen (fürsten), choose.	Wah, chose.	Gewählt, chosen.
Leiden, suffer	Litt, suffered.	Gelitten, suffered.
Saugen, suck.	Sog, sucked.	Gesogen, sucked.
Schieben, shove.	Schob, shoved.	Geschoben, shoved.
Schleichen, sneak	Schlich, sneaked.	Geschlichen, sneaked.
Schnauben, snort.	Schnaub, snorted.	Geschnaubt, snorted.
Schreiben, write.	Schrieb, wrote.	Geschrieben, written.

Streuen, scatter. Streu, scattered. Gestreuen, scattered.
Treiben, drive. Trieb, drove. Getrieben, driven.
Trügen, betray. Trog, betrayed. Getrogen, betrayed.
Weben, weave. Web, wove. Geweben, woven.

(3) In others, the vowel or diphthong of the Present is changed in the Imperfect, but resumed in the Participle: as,

Present.	Imperfect.	Perfect Participle.
Blasen, blow, (sound)	Blies, blew.	Gebblasen, blown.
Fallen, fall.	Fiel, fell.	Gefallen, fallen.
Fangen, catch.	Fing, caught.	Gefangen, caught.
Geben, give.	Gab, gave.	Gegeben, given.
Hängen, hang.	Hing, hung.	Gehangen, hung.
Kommen, come.	Kam, came.	Gekommen, come.
Laufen, run.	Lief, ran.	Gelaufen, run.
Schaffen, create.	Schuf, created.	Geschaffen, created.
Schlagen, beat.	Schlug, beat.	Geschlagen, beaten.
Sehen, see.	Sah, saw.	Gesehen, seen.
Stoßen, push.	Stieß, pushed.	Gestoßen, pushed.
Treten, tread.	Trat, trod.	Getreten, trodden.

(4) Besides the vowel changes indicated above, verbs of the ancient Conjugation have the following characteristics:

a. The Perfect participle ends in *en* or *a*, and is thereby distinguished from that of the New Form, which terminates in *t* or *u*, thus:

Old Form.	New Form.
Geholfen, helped; from <i>helfen</i> .	Geholt (geholt), praised; from <i>helfen</i> .
Gefallen, fallen; from <i>fallen</i> .	Geliebt (geliebt) loved; from <i>lieben</i> .
Getragen, borne; from <i>tragen</i> .	Gelacht (gelacht), quickened; from <i>leben</i> .
Gebet, n. bidden; from <i>biten</i> .	Getauscht (getauscht), exchanged; from <i>tauschen</i> .

b. Those having *a* in the first person singular of the Present Indicative, assume the *u*-inflection in the second and third persons; thus:

INDICATIVE.	INDICATIVE.
ich fange, I catch,	ich schlage, I strike.
du fängst, thou catchest,	du schlägst, thou striketh.
er fängt, he catches,	er schlägt, he strikes.
wir fangen, we catch,	wir schlagen, we strike.
ihr fangt, you catch,	ihr schlagt, you strike.
sie fangen, they catch,	sie schlagen, they strike.

c. Those having *e* (long) in the first person singular of the Present Indicative, take, in the second and third person, *i*; those, in like manner, having *e* (short) take in the same places, the vowel *i*; and in both instances, the Imperative (second person singular) adopts the vowel-form of the second person of the Indicative, thus:

INDICATIVE.	IMPERATIVE.
ich lese, I read.	ich lese, I read.
du liest, thou readest,	lies, tu (for lese) read thou.
er liest, he reads,	lies er, let him read.
wir lesen, we read,	lesen wir, let us read.
ihr lest, you read,	lest ihr, read ye or you.
sie lesen, they read.	lesen sie, let them read.
ich helfe, I help,	ich helfe, I help.
du hilfst, thou helpest,	helf, tu (for helfe), help thou.
er hilft, he helps,	helf er, let him help.
wir helfen, we help,	helfen wir, let us help.
ihr helfet, you help,	helft ihr, help ye or you.
sie helfen, they help.	helfen sie, let them help.

The verbs that thus adopt the vowel-form of the second person of the Indicative lose also the characteristic final *e*: giving, as above, *lies*, for *lese*; *helf*, for *helfe*, &c. It should be noted, further, that the unaccented *e* final, is, in other instances, also sometimes omitted.

d. The final *e*, of the first and third persons singular of the Imperfect Indicative, is always omitted, and in this tense the radical vowel, if it be capable of it, assumes the *u*-inflection in the Subjunctive thus:

LATIN EXERCISES.

INDICATIVE.	SUBJUNCTIVE.	INDICATIVE.	SUBJUNCTIVE.
ich sprach, (for stache) I spoke, tu sprachst, thou didst speak, er sprach, (for stache) he spoke, wir sprachen, we spoke, ihr spracht, you spoke, sie sprachen, they spoke.	ich spräche, I might speak. tu sprächst, thou mightst speak. er spräche, he might speak. wir sprächen, we might speak. ihr sprächt, you might speak. sie sprächen, they might speak.	ich schlug, I struck, tu schlugst, thou didst strike, er schlug, he struck, wir schlugen, we struck, ihr schluget, you struck, sie schlugen, they struck.	ich schlage, I might strike. tu schlägst, thou mightst strike. er schlage, he might strike. wir schlugen, we might strike. ihr schlaget, you might strike. sie schlugen, they might strike.

§ 78. PARADIGM OF A VERB OF THE OLD FORM.

Schlagen, to strike.

	INDICATIVE.	SUBJUNCTIVE.	CONDITIONAL.	IMPERATIVE.	INFINITIVE.	PARTICIPLE.
	Present Tense.	Present Tense.		Present Tense.	Present Tense.	Present.
SING.	1 ich schlage, I strike.	ich schlage, I may strike.		1 schlage tu, strike thou.	schlagen, to strike.	schlagend, striking.
	2 tu schlägst, thou striketh.	tu schlägst, thou mightst strike.		2 schlage er, let him strike.		
	3 er schlägt, he strikes.	er schlage, he might strike.		3 schlage er, let him strike.		
PLUR.	1 wir schlagen, we strike.	wir schlagen, we may strike.		1 schlagen wir, let us strike.		
	2 ihr schlagt, you strike.	ihr schlagt, you may strike.		2 schlaget ihr, strike ye.		
	3 sie schlagen, they strike.	sie schlagen, they may strike.		3 schlagen sie, let them strike.		
	Imperfect Tense.	Imperfect Tense.				
SING.	1 ich schlug, I struck.	ich schlug, I might strike.				
	2 tu schlugst, thou didst strike.	tu schlugst, thou mightst strike.				
	3 er schlug, he struck.	er schlug, he might strike.				
PLUR.	1 wir schlugen, we struck.	wir schlugen, we might strike.				
	2 ihr schluget, you struck.	ihr schluget, you might strike.				
	3 sie schlugen, they struck.	sie schlugen, they might strike.				
	Perfect Tense.	Perfect Tense.			Perfect Tense.	Perfect.
SING.	1 ich habe geschlagen, I have	ich habe geschlagen, I may have			geschlagen haben, to have struck	geschlagen, struck.
	2 tu habest geschlagen, struck, &c.	tu habest geschlagen, struck, &c.				
	3 er hat geschlagen.	er hat geschlagen.				
PLUR.	1 wir haben geschlagen,	wir haben geschlagen.				
	2 ihr habet geschlagen,	ihr habet geschlagen.				
	3 sie haben geschlagen.	sie haben geschlagen.				
	Pluperfect Tense.	Pluperfect Tense.				
SING.	1 ich hatte geschlagen, I had	ich hätte geschlagen, I might have				
	2 du hättest geschlagen, struck, &c.	du hättest geschlagen, struck, &c.				
	3 er hätte geschlagen.	er hätte geschlagen.				
PLUR.	1 wir hätten geschlagen,	wir hätten geschlagen.				
	2 ihr hättet geschlagen,	ihr hättet geschlagen.				
	3 sie hätten geschlagen.	sie hätten geschlagen.				
	First Future Tense.	First Future Tense.	First Future.		First Future.	
SING.	1 ich werde schlagen, I shall	ich werde schlagen, (if) I shall	ich würde schlagen, I should strike		schlagen werden, to be about to strike.	
	2 du wirst schlagen, strike, &c.	du wirst schlagen, strike, &c.	du würdest schlagen, I should have struck, &c.			
	3 er wird schlagen.	er wird schlagen.	er würde schlagen.			
PLUR.	1 wir werden schlagen,	wir werden schlagen.	wir würden schlagen.			
	2 ihr werdet schlagen,	ihr werdet schlagen.	ihr würdet schlagen.			
	3 sie werden schlagen.	sie werden schlagen.	sie würden schlagen.			
	Second Future Tense.	Second Future Tense.	Second Future.			
SING.	1 ich werde schlagen, I shall have	ich werde schlagen, (if) I shall have struck, &c.	ich würde schlagen, I should have struck, &c.			
	2 du wirst schlagen, have struck, &c.	du wirst schlagen, have struck, &c.	du würdest schlagen.			
	3 er wird schlagen.	er wird schlagen.	er würde schlagen.			
PLUR.	1 wir werden schlagen, haben	wir werden schlagen, haben	wir würden schlagen, haben			
	2 ihr werdet schlagen, haben	ihr werdet schlagen, haben	ihr würdet schlagen, haben			
	3 sie werden schlagen.	sie werden schlagen.	sie würden schlagen.			

A KEY TO THE EXERCISES IN THE LATIN LESSONS.

By JOHN R. BEARD, D.D.

(Continued from page 315, Vol. III.)

Page 244, vol. II.—ENGLISH-LATIN.

Bear aid to the wretched and needy person; compare our longest life with eternity, and it will appear very short; it is uncertain what each day and night may bring; apply to that care and thought which may bring to thee the highest dignity and glory; use teaches how to bear labour; it is sordid to prefer money to friendship; in proportion as each person refers whatever he does

to his own advantage, so is he least a good man (so is he farthest from being a good man); [the comma should be after *agit*, not after *referi*]; it is necessary for a good citizen to prefer the dignity of the republic to all his own advantages; this is a part of a good teacher, to see to what his natural character inclines each (pupil); Aristides died in such poverty that he scarcely left enough to bury him (to pay the expenses of his funeral); the poets relate that the giants made war on the gods; Socrates bore back home the same countenance which he bore from home (left home with); Verres took away (plundered) all the gold, all the silver, and all the ornaments that were in the cities of Sicily; many have removed (destroyed) even the vice (the bad qualities) of their nature by meditation and effort; piety toward God being destroyed, the confidence and intercourse of the human race is also destroyed;

have not they who deny that God exists utterly destroyed all religion? affection and benevolence being destroyed, all pleasure is taken from life.

Page 244, vol. II.—LATIN-ENGLISH.

Confer stultitiam tuam cum patris sapientia; meum peccatum cum Dei bonitate contuli; parva cum magnis conferam; malorum tui molem; malorum moles a me lata est; gigantes sustulisse montes feruntur; quid ferat dies mihi est incertum; aequo animo fer laborem; ne omnia ad tuum commodum refer; quod auri, quod argenti habui festulit hostis; caritate subacta, sublata est omnis domi iucunditas; vitiumnegaturae meditationis potes tollere? eadem et vitae societatem tollas.

Page 244, vol. II.—ENGLISH-LATIN.

He who wishes his virtue to be published, labours not for virtue but glory; do not poets wish to be celebrated after death? I, an old man, do not wish for the same things as I wished for (when) a youth; love if thou desirest to be loved; we must enjoy the good of the mind (mental good) if we wish to be happy; he is teachable who is willing to listen attentively; all benefits wish (should) be placed in the light; if you are willing to be earnest and diligent, you will often find great instruction in little things; you ought to make him attentive whom you wish to make teachable; thus let us live with an inferior as we would wish a superior to live with us; well did Socrates say that this was the readiest way to glory, for every one to make it his object to be what he wished to be accounted; whoever shall wish to gain true glory, will be under an obligation to discharge the duties of virtue; we are unwilling to grow weary in preserving good men; men do not like that the same person should excel in many things; do not take seriously what I may have said in jest; I am free in my judgment, and in no way bound by a necessity of the kind, that, whether I will or not, I must maintain my opinion unchanged; Socrates refused to be conducted out of prison when he might easily have been; I would rather be Phidias than the best carpenter; do you prefer that the strength of your body or of your mind should be increased? one person wishes to excel in one virtue, another in another; to those with whom it is a fixed determination to prefer nothing to being good men, every other lesson is easy; woe to you who rather pursue riches than virtue; we prefer being content with little with virtue, to having much without virtue; Aristides, the Athenian, preferred being to appearing good.

Page 244, vol. II.—LATIN-ENGLISH.

Sapientes esse volunt; virtutem quam divitias habere malant; in luxuria excellere nolint; in virtute excellere volo; visne mecum ambulare? mallem hunc librum legere; donum ire voluerunt; quod dicere voles nolet audire; optimos legat libros si quis doctus fieri vult; eundem scientiam, divitias et potentiam habere nolant homines; scientiam quam divitias malant sapientiam quam dives esse malo; pauci sapientiam quam potentiam malant.

Æsop's Fables.

THE TRAVELLERS AND THE ASS.

Two persons who were journeying together having observed an ass wandering in a desert place, ran toward it in joy, and each began to claim it as his own because he was the first to see it. But while they contend and dispute, and even fall to blows, the ass escapes, and neither of them gets possession of it.

THE RAVEN AND THE WOLF.

A raven required from the wolves a part of their booty because he had accompanied them all the day. To whom (in reply) they say: "You have not followed (sectatus) us but the game, and that with this intention, namely, not to spare our bodies if they should be wearied out."—In actions it is proper to consider not what is done, but with what intention it is done.

THE SHEPHERDS AND THE WOLF.

Some shepherds having killed a sheep, were enjoying a feast. When a wolf saw this, he said: "Poor me! if I had carried off a lamb, what a noise would have been made." Then one of the shepherds replied: "Yes, and with reason, for it is our own not another man's sheep that we feed upon."

A TRUMPETER.

A trumpeter being taken by the enemy, said: "Do not slay me, for I am unarmed, nor have I anything except this trumpet." The enemy replied: "On that very account we will put thee to death, because, being unskilled yourself in fighting, you are accustomed to incite others to battle."—The fable shows that not only evil-doers should be punished, but also those who stir up others to do evil.

THE HAWKS AND THE DOVES.

The hawks at one time waged deadly war on each other. The doves, trying to bring them back to friendship, effected a peace

between them. The peace being established, the hawks turned their strength against the doves.—This fable shows that the disagreements of the powerful are often of service to the weak.

Page 260, vol. II.—ENGLISH-LATIN.

Those who come to us at an unseasonable time are often troublesome; we pass over many things which lie under our eyes; swallows depart in the winter months; a mortal body must at some time perish; the innocent sometimes perish; who can deny it? however, more often the guilty perish; all men ought to strive with their utmost power not to pass their lives in silence (sloth); who can doubt that a great man may arise out of a cottage? audacity and rashness must be opposed late rather than not at all; enjoy all the citizens went to meet the soldiers who were returning home from war; if it had been so arranged by nature that men in their sleep should do the things which they dream, all who went to bed would have to be put in bonds; the ancients were deeply convinced that there is feeling in death, and that man, on departing from life, is not so blotted out as to perish utterly; Themistocles sought a narrow pass to prevent his being surrounded by the enemy; Romulus was thought to have gone to the gods; Augustus died in the seventy-sixth year of his age; I never could persuade myself that minds live while they are in mortal bodies, but when they have departed from them, die; almost this has perished; when I return from the country I will forthwith visit thee; Pompey, and many other famous men, perished shockingly; go with the fates call thee; Hercules has gone to the gods; never would he have gone, unless he had prepared the way for himself while he was among men; a very deep sea washed the walls of the towers of the city.

Page 260, vol. II.—LATIN-ENGLISH.

Intempestive ad me venerunt; haud intempestive ad arunculum ibo; librum ante oculos positum transiit; boni moriuntur, non perirent; nunquam peribunt boni; quis dubitat quin magni a casis viri exire possint? ne vitam in silentio transeas tibi sit curae; turpitudini obviam eundum est tibi; urbem adierunt; quum redierunt, tuam ad domum venient; Romulus ad deos transiisse dicitur; anne credis Romulus ad deos transiisse? parentibus obviam ituri sunt liberi; ne circumcatur curat dux; ne militum multitudinem circumcatur urbs vereor; irent; issent; ibo; ibisne? patre redeunte, donum adibat; ivissem; donum mihi eundum est; a patre meo eundum est obviam civibus; cubitum iturus sum; me iturum esse cubitum haud scis? cubitum iverunt.

Page 261, vol. II.—ENGLISH-LATIN.

We are unable to look at the sun; this is the force of what is becoming, that it cannot be sundered from what is honourable; laughter sometimes breaks forth so suddenly that we are unable to restrain it though desiring so to do; say whether you can go with me or not; when the enemy were unable to put our army to the rout, they betook themselves into their fortified camp; when the general was unable to hold back the soldiers by prayers, he resolved to make use of force; often unskilful physicians make ulcers what they are unable to cure; when Demosthenes was unable to pronounce the letter r, he succeeded by practice in becoming able to utter it very distinctly; reflect that an enemy may become a friend; no one becomes good by chance; if all things happen by fate, nothing can admonish us to be more cautious; no one has become immortal by sloth; it makes a very great difference whether an injury has been done through a certain disturbance of mind which is for the most part brief, or intentionally and advisedly; what a man sees frequently he does not admire, though he is ignorant by what means it is produced; we have not been produced by nature so as to appear made for play and joke (jocum), but rather for seriousness and for certain grave and important pursuits; though become wise as old age approaches; I deny that there is such a thing as fortune (chance), and I say that from all eternity all things that are and all that will be are fore-ordained by fate; on what account did you say, that all things which are, or which will be, are held bound by fate; it may happen that a person may think correctly, and yet be unable to utter elegantly what he thinks.

Page 261, vol. II.—LATIN-ENGLISH.

Solem adversum intueri nequeunt homines; virtutes ita inferre junctae sunt ut separari nequeant; saepe risum, quamvis velinus, nequimus retinere; dic utrum queas an nequeas nobiscum ire; multi sunt morbi qui sanari nequeant; rhone dicere Demosthenes potest? rho dicere nequeo; exercitatione ut rho dicere queam fore spero; disce diligenter si doctus fieri vis; ex amicis inimicus saepe fit; non boni mali casu sunt homines; si fortuna omnia fierent, inutilis esset prudentia; ignaviae ulum immortalem fieri putas? senectute sapientiores sunt homines; incerti erant aliqui philosophi omnia fieri putarent; nihil fieri mihi est persuasum.

Page 277, vol. II.—ENGLISH-LATIN.

Those things are opposites of which the one (aliquis) affirms (what) the other denies; Cato declared that he wondered that the soothsayers did not laugh when they looked at each other; a sow, as they say, teaches Minerva; thou affirmest, I deny; Epicurus denies that any one who does not live honourably can live happily; as if I cared as to what he affirms or denies; this I seek to know, namely, what it is suitable for him to say who thinks the highest good (of life) to be in pleasure; whether you affirm or deny this, I shall maintain my (meum) opinion; things that deny are the opposites of those which affirm; dost thou say (ais) sed? when you have laid open and brought to light the most hidden things, will you deny that there is any other thing that can be known? dost thou say yes? I say yes; dost thou deny? I deny; the husbandman plants trees which may be of service to another age, as says the speaker in Menander's Comedy; we do not believe, you say, those things to be true which we say; but though thou sayest, wilt never be troublesome to me; is not my friend, you will say, a handsome man? well has Plato said that he is happy whose lot it is to be able, even in old age, to learn the opinions of sages and true opinions; we will remember that even towards the lowest of these must be observed; the mind remembers past things, discerns present things, foresees future things; he ought to remember benefits on whom they have been conferred, and (he ought) not to make mention of them who has conferred them; always bear that in mind; fit sage who is unable to do good to himself, is wise to no purpose; I will remember what you have so well said to me; those who remember the benefits received from their native land, will always be ready to take up arms on behalf of its safety; remember to die (death); all hate him who is unkindful of a favour; it cannot be that I should not hate the enemies of liberty; the envious hate another's virtue and happiness; virtue must of necessity spurn and hate things contrary to itself; the good we love, the bad we hate; I doubt not, that the wicked hate me; a dire and abominable speech, "Let them hate provided they fear;" Cicero thoroughly hated Clodius; a judge ought not to favour any one or to hate (any one), nor to be angry (with any one); we ought not to love in such a way as if we were likely sometime to hate; the Romans thoroughly hated the name of kings; a good beginning is half the undertaking; oracles vanished when men began to be less credulous; after riches began to be accounted honours, and glory (lustit comina) command, power followed them, valour began to decline, and poverty to be held a disgrace; it is shameful to finish ill a thing well commenced; they began on all sides to throw stones against the wall; they began to besiege the city; he worships who knows God; nothing seems to me more foolish than to think him whom thou knowest not thy friend; he who knows himself will feel that he has something divine, and will always do and aspire to something worthy of so great a favour from God; let every one pursue the art with which he is familiar.

Page 277, vol. II.—LATIN-ENGLISH.

Quod tu ais id ego nego; quum aio, ait, quum nego, negat; reliquisti, aiunt, urbem; utrum alas an neges ignoreo; aientia negantibus sunt contraria; pater tuus, aiunt, Romam rediit; dulce et decorum est, inquit Horatius, pro patria mori; nunquam molestus, inquis, mihi est amicus; beneficiorum collatorum obliviscaris, beneficiorum acceptorum memineris; et ut absentis memineris; si beneficiorum a patribus in nos collatorum meminerimus, nunquam erga eos erimus ingrati; quamvis doctorem meorum bonam doctrinam memini, me occupat desiderium illorum praestantium virorum; qui immethores sunt beneficiorum edimus; quis est qui non oderit libertatis inimicos? cur non oderint ignoramus; fortes amant homines et ianuas oderunt; non dubito quin me mali oderint; non est mihi gratus amicus qui ita amat ut si aliquando cecurus sit; regium nomen perosum esse Romanis constat; infelix est quem oderunt omnes boni; rem bene coepisti sed finivisti male; vix milites munire castra coeperant quum hostes sunt visi; jam hostes expugnare urbem coeperant, quum repente nostri milites civibus auxilio succurrerant; an tu noris amicum meum ignoreo; amares amicum meum si novisses.

Æsop's Fables.

THE FOX AND THE GRAPES.

A fox seeing a bunch of grapes on a vine, jumped up at it with all her might, hoping to be able to reach it. Worn out at length with the fruitless effort, she departed, saying: "Well, they are yet sour, and I would not pick them up if I met with them in the street."—This fable shows that many despise those things which they despair of attaining (assequi).

THE FOX AND THE LIONESS.

A female fox reproached a lioness with the fact that she produced only one cub at a birth; to whom she is said to have answered: "Yes, one, but that one is a lion."—This fable shows that not the abundance but the goodness of things should be estimated.

FIRE MICE.

Some mice once held a council as to how they should avoid the cat. After many proposals, it was unanimously resolved to hang a bell to her neck; for so they being warned by the sound, would be able to fly from her. But when the question arose as to who should fasten the bell on the cat, no one offered himself.—The fable teaches that many are daring in advice but timid in the crisis of action.

Page 307, vol. II.—ENGLISH-LATIN.

To do right is the interest of all; it thunders without lightning by night rather than by day; and now it began to grow light and all things were under (their) eyes; all things are becoming known; it grew dark and they knew not the road; I am weary of your talk; what does it matter to us that Antony has been conquered? when now it had grown dark; O my mother, I am sorry for thee, I am grieved for myself; it much concerns a teacher that his scholars should apply to learning with the greatest zeal; I am greatly concerned to see thee; how suddenly, how swiftly, how terribly it thundered; the corn is not cut down before the frost comes; it rained milk; to live happily is every one's interest; we have it written in our archives that it is inexpedient to hold the national assembly while it thunders and lightens; it snowed arrows, balls, and stones; it will rain to-day, I think; all that time during which (quo) it rains and snows; it is a rainy day; sometimes it snows; let us go, the day already dawns; there are men who are neither ashamed nor wearied of their lust; Pompey himself is weary and very sorry; I am ashamed and grieved at myself; I am indeed grieved and ashamed at my brother; it is the part of a sage to do nothing of which he can have to repent; when Alexander had killed Clitus he could scarcely keep his hands from himself, so great was his sorrow; as if it were not only proper but necessary that it should be so; there are things which, even if lawful, one ought not to do; add, if you will, velocity; what pleases you pleases me.

Page 307, vol. II.—LATIN-ENGLISH.

Meorum peccatorum me poenitet; vitas eum taedet; vitas eum taedet? illos vitas non taedet; omnium hoc interest; tuas meas hoc interest; nostras interest? sermonis nostri eos taedet; vesperascit; pluit; pluitna? grandinat; fulgurat; tonat; pluit totum per diem; ningit; pluit sanguinem; abi donum, nam vesperascit; libidinum eos poenitet; fratris sui me piget; Alexandrum interempti Cliti amici poenituit; te forum peccatorum oportet poenitere; omnium interest benefacere; matrem meam poenitet et taedet; curritur; ridetur; ignaviae tuas te poenitet? illos ignaviae poenitet; benefacere mihi lubet; libertas tibi legere librum? patrem matremque amare est decorum; turpe est mentiri; illud te fallit; melius est mori honeste quam turpiter vivere; hocne te fallit?

SOLUTION OF PROBLEMS AND QUERIES.

Solution of the question about Bacchus and Silenus, p. 224, col. 1, in which § is a misprint for §.

Let x and y denote the number of hours which Bacchus and Silenus respectively take to empty the cask. Then, by the question, § y is the time during which Bacchus drank while Silenus was asleep; now denoting the whole cask by unity or 1, we have

the following proportion $x : \frac{2}{3} y :: 1 : \frac{2y}{3x}$; the fourth term of

which is the part of the cask which Bacchus drank while Silenus

was asleep. Subtracting this from unity, we have $1 - \frac{2y}{3x}$ for the

remaining part of the cask which Silenus drank when he awoke;

and consequently we have the proportion, $1 : 1 - \frac{2y}{3x} :: y : y - \frac{2y^2}{3x}$; the fourth term of which is, the time which Silenus took to

drink the remainder of the cask.

But had they both drank together, Bacchus would have drank

a part denoted by half of $(1 - \frac{2y}{3x})$ or $\frac{1}{2} - \frac{y}{3x}$; and, of

course, Silenus would have drank a part denoted by $1 -$

$(\frac{1}{2} - \frac{y}{3x})$ or $\frac{1}{2} + \frac{y}{3x}$. But by the question, we have

$1 : \frac{1}{2} - \frac{y}{3x} :: x : \frac{x}{2} - \frac{y}{3}$; the fourth term of which is the time that Bacchus took to drink his part; and

$1 : \frac{1}{2} + \frac{y}{3x} :: y : \frac{y}{2} + \frac{y^2}{3x}$; the fourth term of which is the

time that Silenus took to drink his part; but as they both drank together, these times are equal; whence, we have $\frac{x}{2} - \frac{y}{3} = \frac{y}{2} + \frac{y^2}{3x}$

+ $\frac{y^2}{3x}$, or $2x^2 + 5xy = 3x^2$ (A). Now the time which they took

when drinking separately, was $\frac{2}{3}y + y - \frac{2y^2}{3x}$; and when

drinking together, was $\frac{x}{2} - \frac{y}{3}$; whence we have, by the question,

$\frac{2}{3}y + y - \frac{2y^2}{3x} = \frac{x}{2} - \frac{y}{3} + 2$, or $12xy - 4y^2 = 3x^2 + 12x$

(B). From (A), we have $3x^2 - 5xy = 2y^2$, and by quadratics, $x = 2y$. By substituting this value of x in (B), we have $8y^2 = 24y$; whence $y = 3$; consequently, $x = 6$. Therefore, Bacchus would take 6 hours to finish the cask by himself, and Silenus would take 3 hours. Ans.

The following is the solution of Beppo's question, p. 284, col. 1, by PETER SIMPSON, Fleet-street:—

315 loads of oak at £7 9s. 6d. cost.....	£	s.	d.
two-thirds of which is.....	1,719	5	0

Now 11 loads of pine at £3 15s. are worth.....	41	5	0
and 3 loads of teak at £12 5s. are worth.....	36	15	0

which together are worth £78 0 0

But £78 is contained 22½ times in £1,719 5s.; therefore we must have

11 × 22½ = 247½ loads of pine at £3 15s., worth...	£	s.	d.
and 3 × 22½ = 67½ loads of teak at £12 5s., worth	810	0	7½

Which together are worth £1,719 5 6½

* Solved also by D. F. G., R. H. M., and J. Lovett, Ashbury.

ANSWERS TO CORRESPONDENTS.

A HAND-LOOM Weaver.—Pronounce *Plakatos* *Black-st.* or as it were *Black-st.* in English. The description is not correct Latin. We must therefore decline attempting to translate it.

ON PUNCTUATION.—We regret the omission of the letter *theta* in the Greek alphabet, especially as it is much more frequently used than *zeta*, the other form of the letter, which we have given. In the separate lesson this will be corrected.

G. H. F.—The short *o* in German is pronounced like *o* in the English word *go*, and the long *o* like the same letter in *go*. A vowel before two consonants in German is short.

Thus, *Italian* (Machetier): The right method of pronouncing Greek is an antiquarian, not a grammatical question.

W. D. (Leicester): The subject he has chosen, though possibly executed, is rather too difficult for a young beginner; he should copy the lessons in drawing in the P. E. for some time before he attempts these again. In the *History* (Plakatos-green): His pronunciation is very good; and if well acquainted with English, Arithmetic and Book-keeping, we would advise him to stick in for a clerkship first and then a Book-keeper's place. He may consider the bill of exchange at his leisure. W. Wilson (Chester): The *Arithmetical* (Spodish), should study some book on tracing; as to the rest, we do not know. T. H. Stas (Belle Isle): See Preface's Office, or the small treatise on Optics in the Library of Useful Knowledge. H. A. (strong) (M.): See the Map of America and the Lessons on Geography in the P. E.—J. H. (Am.): It should be the coach has arrived; see the Lessons in English, in the P. E.—A. A. (Hartford): The chemical constituents of the potato are starch or *amylum*, albumen, oil, albumen, oil, albumen, oil, and water. J. T. (Hera Roma): (Portsmouth): On the Greek word *logos*, see p. 104, col. 1, vol. II., of the P. E. Two of the new Greek characters he has sent us are contractions, the one for *ou* and the other for *ai*. The transcription of the first two lines of Homer's *Iliad*, given by Walker, is in Pope's *Hom.*, the following:—

"Achilles' wrath, to Greece, the direful spring
Of woes unnumber'd, heav'nly goddess, stop."

LITERARY NOTICES.

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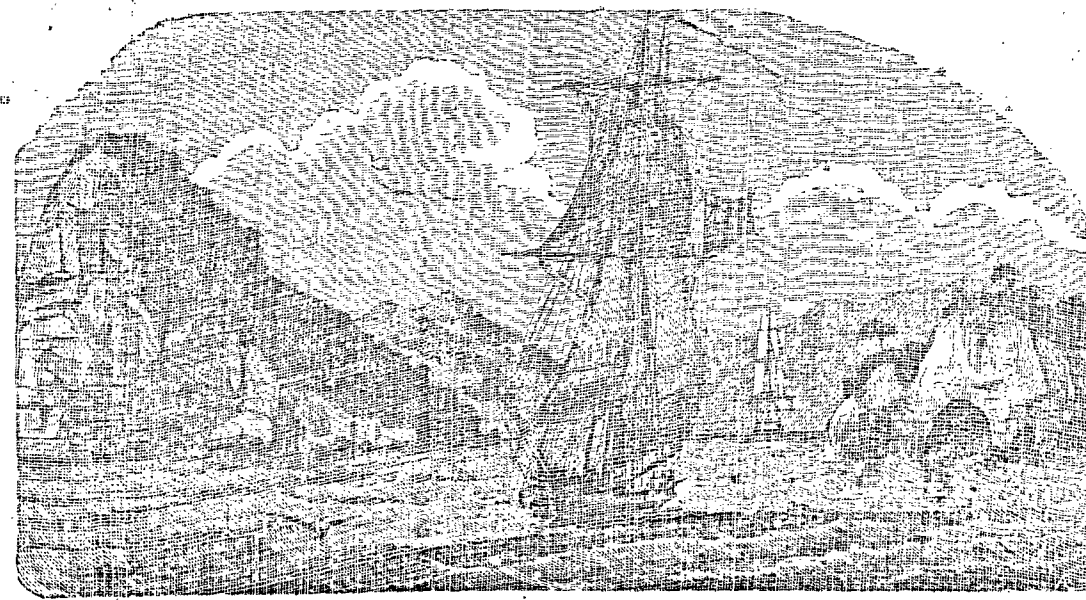
LESSONS IN GEOGRAPHY—No. XX.

MAP OF POLYNESIA.

POLYNESIA, as the name implies, signifies many islands, and consists of New Zealand and the numerous smaller islands which are found scattered here and there, in groups of various forms and sizes, over the vast expanse of the great Pacific Ocean. With the exception of New Zealand, which lies in the south Temperate Zone, by far the greater part of the Polynesian groups lie within the Torrid Zone; but the whole of Polynesia is included in a zone extending in Lat. from about 30° N. to about 50° S., and in Long. from about 130° E. to about 160° W., forming a basin whose breadth is about 5,600 miles, and whose greatest length is about 9,000 miles. The principal groups contained in this basin are the New Zealand group, consisting of two large islands, a smaller one, and several islets; the Auckland Islands, the Chatham Islands, the Friendly Islands, the Hervey Islands, the Society Islands,

New Leinster; otherwise, they are denominated the North, Middle, and South Islands of New Zealand. The North and Middle Islands are separated by a channel called Cook's Strait, and the Middle and South Islands by Forer's Strait. The surface of North Island is reckoned about 24,000 square miles; of Middle Island, about 15,000 square miles; and of South Island, about 900 square miles; making in all a surface of 29,900 square miles; New Zealand, therefore, is larger than Great Britain by about 12,000 miles; but being situated nearer to the equator, its climate must (other things being equal) be deemed superior to that of our native country.

As to the *islets* of the sea in this group of islands, which nearly correspond to the antipodes (i.e., people whose feet are exactly opposite to ours, when they stand on the surface of the earth) of Great Britain, there are the Bay of Islands, the Gulf of Hauraki, the Bay of Plenty, and Haake's Bay, on the east coast of North Island; in Cook's Strait, east side, are Puffin's Bay, Port Nicholson, and the Harbour of Portia; and west



Cook's Strait, New Zealand.

the Austral Islands, the Low Archipelago, the Marquesas Islands, the Samoa or Navigator's Islands, and the islands lying between the two latter groups; the Feejee Islands, the Gilbert Islands, and the islands lying between the two latter groups; the Caroline Islands, the Ladrone Islands, the Sandwich Islands, and the islands lying between these two latter groups; with many detached islands not formed into groups, as Pitcairn's Island, Ducie's Island, &c.

New Zealand lies to the south-east of Australia, at the distance of about 1,400 miles; and it is surrounded on all sides by the Pacific Ocean. The most northerly point of this group is North Cape, in Lat. 34° 29' S. and Long. 172° 49' E.; the most easterly, Cape East, in Lat. 37° 45' S. and Long. 178° 36' E.; and the most westerly, Cape West, in Lat. 45° 54' S. and Long. 166° 10' E. The native names of the two large islands are Ahiatamaui and Towipounamu; the colonial names of these are New Ulster, New Munster, and of the smaller one

side, Cloudy Bay, Queen Charlotte's Sound, Admiralty Bay, Blind Bay, and Myssacre Bay. On the east coast of Middle Island, are Pegasus Bay, Akaroa Harbour, and Port Otage. On the west and south-west coast of the same, are Chalky and Dusky Bays, and Wangarua, Manukae, and Kaipara Harbours. Cook's Strait is about 15 miles broad at the narrowest part; it is indented on the west side with narrow locks or arms of the sea. The islands in this channel are Durville and Wellington Islands, with the island of Kapiti. The breadth of Forer's Strait is on an average 14 miles. There are mountain ranges in the two principal islands of New Zealand, which run parallel to their east and west coasts. Mount Egmont, on the western side of North Island, is 8,210 feet high. Ruapahu, a snowy mountain, is reckoned upwards of 9,000 feet high. In Middle Island, the snowy peak of Kaikoras rises to the height of 9,300 feet. Banks' Peninsula is a rugged and mountainous tract in Middle Island. North Island has some rivers, two of which are 170 miles and 140 miles in length respectively.

The former of these can be navigated to a distance of 100 miles from the sea, by vessels of 30 tons burden. There is a lake called Taupo, which lies at the height of 1,887 feet above sea level, and has an area of 300 square miles. The following is a tabular view of the principal islands of Polynesia, with the usual particulars relating to each, as in the former lessons:—

COLONIES, SETTLEMENTS, AND COUNTRIES IN POLYNESIA.

Countries.	Capitals or Chief Islands.	Latitudes.	Longitudes.	Present Ruler.	Form of Government.		
COLONIES OF NEW ZEALAND.							
NORTH ISLAND.							
Wellington	WELLINGTON	41° 22' S.	174° 50' E.	Victoria I.	Limited Monarchy.		
Auckland	AUCKLAND	31 40	172 20				
New Plymouth.....	NEW PLYMOUTH	38 52	174 33				
MIDDLE ISLAND.							
Nelson	NELSON	41 15	173 20	Victoria I.	Limited Monarchy.		
Canterbury	LYTTLETON	42 55	172 55				
Otago	DUNEDIN	45 55	170 37				
SOUTH ISLAND.							
	Southern Port	47 13	167 21				
AUCKLAND ISLANDS.							
	Port Ross	50 30	168 7				
CHATHAM ISLANDS.							
	North Chatham	43 40	176 14 W.				
Friendly Islands.							
	Tongataboo	21 8	175 19				
Hervey Islands.							
	Rarotonga	21 20	179 30				
Society Islands.							
	Tahiti	17 29	149 20				
Austral Islands.							
	Tonogai	23 23	151 0				
Low Archipelago.							
	Palliser	15 34	148 7				
Marquesas Islands.							
	Ohivahoa	9 50	141 0				
Samoa Islands.							
	Pola	13 28	170 56				
Feejee Islands.							
	Pana	15 16	173 0 E.	Native Princes.	Absolute Monarchy.		
Gilbert Islands.							
	Marshall's	1 16 N.	175 4				
Caroline Islands.							
	Ngoleu	7 42	151 49				
Ladrone Islands.							
	Ascension	19 41	145 27				
Sandwich Islands.							
	Hawaii	20 19	155 58 W.				
Pelew Islands.							
	Babelthoup	7 41	131 55 E.				
Pitcairn's Island.							
		35 4 S.	130 16 W.				
Easter Island.							
		27 6	109 17				

The Auckland Islands are situated at the distance of about 350 miles south of New Zealand. The largest is 25 miles long, and the area of the whole group 137 square miles. The Chatham Islands are distant about 700 miles eastward of New Zealand. The groups of islands scattered in the Polynesian basin are reckoned to contain not more than 40,000 square miles, exclusive of New Zealand. They are divided into two classes as to their natural structure; the *mountainous*, which are mostly of volcanic formation; and the *coral*, which are mostly *low reefs* only raised a few feet above the level of the sea. The mountainous islands, or those of volcanic structure, are the Sandwich Islands, the Ladrone Islands, the Society Islands, the Marquesas Islands, and some of the Feejee, Friendly, Samoa, and Cook's Islands; the coral islands, or those which partake of the character of reefs, are the rest of the groups and single islands formerly enumerated. Of the former class the Sandwich Islands are the most mountainous, the summit of which in two instances, those of Mouua Raa and Mouua Koa, rise to the great elevation of about 16,000 and 15,000 feet above the level of the surrounding unfathomable sea. In Hawaii, the principal island, there is a volcano of frequent and immense eruptions. These islands are situated at the distance of about 1,800 miles from California, the nearest continental country to them. Hawaii has an area of 4,500 square miles, and the entire group contains about 6,000 square miles. Gold has been recently discovered in these islands; their population in 1849 was stated at 80,610. The principal port of the Sandwich Islands is that of Honolulu, on the island of Oahu, where about 500 foreigners are settled.

The Caroline Islands extend over 7 degrees of Latitude and about 49 degrees of Longitude; but they are mere islets or groups of rock, mostly of coral formation. The Feejee Islands, westward of these, are of similar formation. The Ladrone or Marianne Islands are of volcanic origin, and the highest peaks rise 2,000 feet above the level of the sea. They are considered an appendage to the Philippines. The Feejee Islands occupy



New Zealand Chief.

about 4 degrees of Latitude and 5 degrees of Longitude; but the largest of them, Paou, is only 250 miles in circuit, being

mountainous; and the peak of Newella, another of the group, exceeds 3,000 feet in height. The Friendly Islands occupy about 4 degrees of Latitude, and 3 degrees of Longitude; the largest, Tongataboo, is 20 miles long and 10 miles broad; the most of the islands in this group are of coral formation; their population is about 18,000. The Navigator's or Samoa Islands, which are situated north of the preceding group, are all volcanic, Pola, at the western extremity of the group, being the largest; and having a peak more than 3,600 feet high; their population is about 56,000. Hervey's or Cook's Islands occupy about 4 degrees of Latitude, and 3 degrees of Longitude; they are elevated and volcanic, but small; their population is reckoned about 14,000.

The Society Islands occupy about 2 degrees of Latitude, and 4 degrees of Longitude; these islands are elevated, volcanic, and productive. Tahiti, the largest, is 50 miles long, and has a surface of 600 square miles. It consists of two peninsulas, connected by a narrow isthmus, and is reckoned the gem of the Pacific. The population amounts to 20,000, and is reckoned Christian; at present it is said to be under the protection of France. The Austral Islands, lying to the south of the Society Islands, contain about 1,000 inhabitants, who speak the language of Tahiti. The Archipelago of Low Islands is a term applied to an immense number of coral reefs and islets lying to the eastward of the Society Islands, and extending over 14 degrees of Longitude; they are scarcely inhabited, and are of dangerous navigation. The Marquesas Islands occupy about 3 degrees of Latitude and Longitude respectively; they are situated about 900 miles north-east of Tahiti; the largest of the group is Nounakivi, about 200 square miles in surface. These islands are all mountainous, and their peaks rise to about 5,000 feet above the level of the sea. Their population is about 20,000; they were lately taken possession of by France. Pitcairn's Island, which is only about 2½ miles long and one mile broad, is of volcanic formation, having a diversified surface and a fertile soil. The mariners of the ship *Beatty*, who settled here in 1789, have left a population amounting, in 1851, to 150 inhabitants. Easter Island, a small and insular rock, is about 36 miles in circumference, and is considered the most outlying island of the Polynesian basin; it contains craters of extinct volcanoes, and some colossal statues of which the present inhabitants can give no account.

Thus we conclude our description of the general Maps in Vol. II. of the Popular Educator, and of one in Vol. III., which completes the series relating to the *great divisions* of the globe. In our next series of Lessons we intend to enter more minutely into the Geography of each country, and only to refer to the Maps for illustration.

LESSONS IN ENGLISH.—No. LXV.

By JOHN R. BEARD, D.D.

SYNTAX OF THE SUBJECT.

THE ARTICLE, THE ADJECTIVE.

I now proceed to the grammatical analysis of simple sentences considered in their several elements, taking, as the thread of my discourse, the oft-repeated model in its fullest form,—

The sick man carefully drinks pure water at the well.

I shall consider what modifications the several parts may undergo, and what instances of agreement or government they involve.

I shall first take the subject, *the sick man*, and then the predicate, *carefully drinks pure water at the well.*

The Article.

The subject consists simply of three words. Of these words the first, *the*, may become *a*, as *a sick man*. As the sentence stood originally, some particular sick man was designated. Now this definiteness is lost, and instead we have the statement that a sick man, whoever he may be, drinks, &c.

This want of definiteness may be increased by substituting the indefinite pronoun *some* for the indefinite article *the*. Or it may be wholly removed, and an exact determination may be substituted, by putting *this* into the place of *a* or *the*, as *this* (or *that*) *sick man* *drinks*.

A gives an intimation of unity, but *one* declares unity explicitly. *One* then, is also a determinative.

Of these determinatives some are singular, others plural, and they may be arranged thus:—

Determinatives.	
Singular.	Plural.
A	
One	
Some	some
This	these
That	those

These determinatives are adjectival, that is, they qualify nouns, as *a man*. Of these adjectival determinatives *one* and *some* may be used with a substantival force, as

Substantival Determinatives.

"I love boys." "All boys?" "No, good ones."

Here are many books, *some* in Greek, *some* in Latin.

These determinatives all agree with their nouns. Thus *a* agrees with *man*; *some* also agrees with *books*, for *some* and *books* are symbols of the same objects.

The definite article is prefixed to adjectives and adverbs to assist in the expression of comparisons; e. g.,

Adjectives. The longer the noviciate the greater the progress.

Adverb. I choose the book the rather because, &c.

Adj. and Adv. The longer we continue in sin the more difficult is reformation.

The definite article is also prefixed to adjectives in the superlative degree, in order to denote the highest possible amount, being thus used intensively, as—

The most strenuous exertions will be made.

The indefinite article gives to plurals the force of totality or unity; as,

"Let the Amsel abide a few days."—(Gen. xxiv. 55.)

When *a few* is the subject of a proposition, it has a plural verb; e. g.,

"When a few years are come, then I shall go." &c.—(Job xvi. 22.)

The repetition of the article with adjectives of dissimilar import requires the verb to be in the plural; e. g.,

The metaphorical and the literal meaning are improperly mixed.

Here two meanings are intended. But in this example,

The original and present signification is retained,

only one signification is meant. We may also say,

The north and south poles are wide asunder.

The article is repeated when each object is contemplated separately.

The articles in general stand before the nouns which they qualify; e. g.,

"See the blind beggar stretch his supplicating hand."

"The rot a here, the lute a king."—*Pope.*

When a qualifying word accompanies a noun, that qualifying word sometimes precedes and sometimes follows the article; e. g.,

Both the men were ignorant.

The two men were ignorant.

They went many a mile.

With names of kings and potentates the definite article with an ordinal adjective comes after the noun, as, Henry the eighth; so of days of the month, May the thirtieth.

By poetic license an inversion may take place, putting the noun between the article and the adjective; e. g.,

The primrose path, led by white and red.

In agreement with a usage that is very common in Greek and in French, the article sometimes has the force of a possessive pronoun; e. g.,

"Seven thousand men who have not bowed the knee to Baal."

(Rom. xi. 4.)

That is, "who have not bowed their knee."

The Adjective.

The next word in the subject is the adjective *sick*, which qualifies the noun *man*. As qualification is the attribute of the adjective,

it may be called the qualifier, and whatever word qualifies a noun performs the part of an adjective.

Adjectives may pass into adverbs; that is, adjectives may qualify verbs instead of nouns. When I say "the house is near," *near* is an adjective. But when I say "he stood near," I use *near* in an adverbial sense.

Near has also the appearance of a preposition, as "they lie near each other;" but here it is really an adverb, the preposition *to* being understood.

Participles frequently stand as adjectives, as the *broken* wheel, the *smoking* city.

The function of qualifying is sometimes performed also by a noun, and that in two ways: first the noun, used as an adjective, stands in agreement with the qualified noun, as the *cor-ring*, the *book-case*; or in the second place the noun is in a state of dependence on the qualified noun; e. g., the *man of colour*, which is equivalent to the *coloured man*; where *of colour* has the same import as the participle *coloured*. Yet the one form of expression cannot be always substituted for the other, since a *warlike man* and a *man of war* represent very different objects.

As nouns perform the office of adjectives, so on the other hand adjectives sometimes appear as nouns. The word *square* is according to its application either a noun or an adjective; as appears in these examples:—

Noun. The general ordered the troops to form a *square*.

Adjective. A *square* room falls in due proportion.

Adjectives may be made into nouns by means of the definite article, as the *cowardly*; e. g.,

The cowardly flee when there is no danger.

It is only when an adjective has acquired a fixed substantival force that it can be preceded by the indefinite article; as,

An *indecisive* should be restrained from doing evil.

It also deserves remark, that an adjective converted into a noun by the definite article is used in the plural; thus we say

The sick are well tended;

but if we want to employ the singular, we must say, not "the sick drinks," but "the sick man drinks pure water."

Adjectives are generally placed before the nouns which they qualify; e. g.,

"Miserable comforters are ye all."—(Job xvi. 2.)

But when an adjective is an attribute, and so forms part of the predicate, it stands after its noun, as,

"No hand is wholly innocent in war."

The qualified noun is sometimes understood, that is, it has to be supplied from either the sense or the context; e. g.,

"To whom they all gave heed from the least to the greatest."—(Acts vii. 10.)

The agreement between the qualifying word and the qualified word is at the bottom a logical agreement, an agreement in the thought and the sense. In form, however, there is usually no variation of the adjective, for we say alike *a tall man* and *a tall woman*. In every case the adjective agrees with the particular noun with which it stands connected. When, then, the noun is of the singular number, the adjective is to be accounted of the singular number; when the noun is of the plural number, the adjective is to be accounted of the plural number. Also the gender of the noun determines the gender of the adjective.

There are pronouns which possess an adjectival force, as *this* and *that*. *This* and *that* have plural forms; consequently *this* and *that* undergo a change when they come before plural nouns; e. g., *These horses, these horses; that book, those books*.

The word *whole* denoting one object, a unit, cannot like *all* be used distributively, and consequently ought not to stand before a plural noun. Hence therefore is wrong when he says,

"Almost the whole inhabitants were present."

Equally wrong is Webster in these words,

"No less than three dictionaries were published."

Less is an adjective of quantity, and three is an adjective of number. Without inconsistency the two cannot be employed of the same noun. The writer should have said,

"No fewer than three dictionaries were published."

Quantity and number are often confounded, as,

What a *quantity* of people!

Which should be

What a *number* of people!

Take care not to employ adjectives where adverbs are required; e. g.,

Incorrect. It is a remarkable good likeness.

Correct. It is a remarkably good likeness.

As a singular noun requires a singular adjective, so, vice versa, a singular adjective requires a singular noun. Hence we must consider as ungrammatical the union of adjectives of number (except one) with nouns in the singular; e. g.,

Incorrect. Twenty foot long. Six pound ten shillings.

Correct. Twenty feet long. Six pounds ten shillings.

Two or more adjectives may come together so as to form a compound epithet; e. g.,

Your son is an agreeable young man.

In such cases the conjunction *and* is not used, and the right of precedence is determined by custom; we do not say,

Your son is a young agreeable man; nor

Your son is a young and agreeable man.

There has been some discussion as to whether we should say "the two first" or "the first two" when speaking of two objects out of a series; e. g.,

1. Give me the two first books on that shelf.

2. Give me the first two books on that shelf.

In reality there is no option between the two phrases, for they are not of the same import. Now let one signify the book that is first and the book that is second in the line of books, each of the two being considered separately; but number two means the first pair of books, it being implied that on the shelf there are several pairs. This second is not the ordinary meaning, consequently "the first two" should not be ordinarily used. The phrase "the two first" is elliptical; e. g.,

Seize the two first that enter the room; that is,

Seize the two that first enter the room.

Adjectives in the comparative degree take *than* after them; e. g.,

He is wiser than you.

The sentence is obviously elliptical; if you fill it up, it will stand thus,

He is wiser than you are.

Here you bears to *are* the same relation that *he* bears to *is*; I mean they are severally subjects to the verbs. Hence arises the ordinary rule, that conjunctions (*than* is a conjunction) have the same case after as before them. In the following,

I believe him to be wiser than you,

you may be either the subject or the object, according to the construction intended. I will fill up the ellipsis in two ways, and you will see the difference,—

Subject. I believe him to be wiser than you (are).

Object. I believe him to be wiser than (I believe) you (to be).

The proper way, then, to ascertain the relation which a noun or pronoun holds after a comparative, is to fill up the ellipsis or supply the words necessary to complete the sense.

After *than* an objective case is sometimes found; e. g.,

Nero, *than whom* no sovereign committed greater crimes.

This usage is an imitation from the Latin, and not to be encouraged in English. The sentence should be thrown into a different form; e. g.,

Nero, who committed greater crimes than any other sovereign.

And here I may notice a difference of import between two nearly related propositions; e. g.,

Solomon was wiser than any king.

Solomon was wiser than any other king.

The difference lies in this, namely, that in the second sentence Solomon is made one of the class called *kings*, while in the former sentence he is not included in that class.

If you say,

Iron is more useful than all metals,

you, by the use of *all*, intimate that iron is not a metal, and so do not compare the metal iron with other metals. The proper phrase is,

Iron is more useful than all other metals (are).

Even this, however, is not rigidly correct, for it makes iron more useful than other metals, considered collectively, or in a mass; but what you mean is that,

Iron is more useful than any other metal.

Other, which is here required, is with the superlative out of place. Some adjectives, from the nature of their import, do not admit of comparison. If a thing is universal, it cannot be more than universal, consequently *universal* has no comparative and no superlative. Equally is *perfect* incapable of comparison. The same may be said of *absolute*, *infinite*, *intelligible*, *boundless*. Accordingly it is incorrect to say,

He is more perfect than you;

instead of which you may say,

He is less imperfect than you; or

He is nearer perfection than you.

Double comparisons are to be avoided; e. g.,

Incorrect. Less nobler plunder.

Correct. Less noble plunder.

The most stratagem sect.

The stratagem sect.

LESSONS IN ARITHMETIC.—No. XXIX.

WEIGHTS AND MEASURES.

(Continued from page 270.)

(Having in our last two lessons given a popular view of our moneys, weights and measures, as at present in use, with a few practical observations on some which, though abolished, are still partially employed in particular trades and districts; we now proceed with our remarks on the changes proposed by the "Commissioners appointed to consider the steps to be taken for the Restoration of the Standards of Weights and Measures." In the table of Long Measure, it appears that the English Mile is composed of 8 Furlongs, and that each Furlong is composed of 220 yards in length; therefore, the English Mile contains 1760 yards in its length; for $220 \times 8 = 1760$. The Commissioners propose an important change in the length of the Mile, namely, that it shall contain only 1,000 yards, and that it shall be denominated *Milgard*, for some other name to be fixed by Act of Parliament. They also recommend that all our literary distances shall be measured by the *Milgard*, and that marks be set up at every such distance of 1,000 yards; that distances less than this shall be measured in yards and decimal parts of a yard; or in feet and decimal parts of a foot. They next recommend that the acre and decimal parts of the acre shall be employed for the measurement of the surface of land in all surveys, &c.; that the denomination *square chain* or *chain*, shall be recognised as describing the tenth part of the acre, and that some name shall be recognised as describing the thousandth part of the acre. If a name were adopted similar to that employed by the French in their decimal system, it would be the *Centi-chain*, or the *Milli-acre*, and this measure would contain 484 square yards. Lastly, on this part of the subject, they recommend that the method of expressing *Land Measure* in acres, rods, and perches shall be abolished, and that it shall be required in future to express such measures in acres and decimal parts of an acre. According to this proposed new arrangement our old measures as compared with the new would stand thus:—

Old Measures.	Square Chains.
1 square inch	= 0.0000013+
1 square foot	= 0.0002066+
1 square yard	= 0.0015575+
1 square perch	= 0.05625
1 rood	= 3.56000
1 acre	= 10.00000

Proposed New Measures.	Square Yards.
1 centi-chain or milli-acre	= 484
1 deci-chain or centi-acre	= 48.4
1 chain or deci-acre	= 4.84
1 acre	= 4840

LESSONS IN ARITHMETIC.

This system of Land Measures proposed by the Commissioners is only a modification of that which was long ago introduced into this country by the celebrated Edmund Gunter (who died in 1626), and which was founded by him on the square chain above described. This square chain is, in fact, the square of the length of the chain still called *Gunter's Chain*, and is constantly used by our land surveyors at the present day. This length is 22 yards or 66 feet, being 4 poles of 6½ yards each; and its square is 484 square yards, 10 times this quantity being an acre. It is divided decimally, or rather centesimally, into 100 links, each link being of course 7.92 inches in length. According to this recommendation, the Table of Land Measures will stand as follows:—

GUNTER'S LAND MEASURE.

62 7284 sq. inches	= 1 square link,
100 square links	= 1 centi-chain,
10000 square links	= 1 chain,
100000 square links	= 1 acre.

Such is the beautiful system of reckoning originally invented by Gunter to accompany his chain, and which has since been adopted by all land surveyors, without the authority of an Act of Parliament, simply because it was founded on common sense, and strongly recommended itself by its simplicity. The term *centi-chain*, of course, has not been in use, but the thing itself has been in use for a very long period of years. The following comparison of *Gunter's Measures* with the *Common Measures* of Land, will make this subject still more evident to the attentive reader:—

Common Measures.	Gunter's Measures.
1 square inch	= 0.015942+
1 square foot	= 2.295634+
1 square yard	= 20.661157+
1 square perch	= 4.825
1 rood	= 25000
1 acre	= 100000

In this remarkable case, therefore, the Royal Commissioners are slowly following in the wake of a man whose improvements were put in practice in this country more than 200 years ago!

We have already remarked that the Commissioners recommend that the weight called the *Troy Pound* and even its name should be abolished; yet, with strange inconsistency, they would permit the use of the *Troy Ounce* and the *Troy Penny-weight*, by recommending that this use be confined to gold, silver, and precious stones! This, of course, is for the sake of the *Goldsmiths and Jewellers*; and is a fine specimen, in a small way, of what is called "Class Legislation." They recommend the abolition of the "*Avoirdupois dram*," which is, as our readers know, the sixteenth part of an *Avoirdupois pound*; and they recommend that no denomination of weight lower than the pound be recognised, except the ounce, the grain, and the decimal parts of a pound! Here's a pretty kettle of fish! No denomination of weight lower than the pound, except the ounce! Now the ounce is the sixteenth part of a pound; and why not the sixteenth part of an ounce, or the eighth part of an ounce, or the fourth part of an ounce, or half an ounce? Yet these Commissioners, we presume, call themselves practical men! These reasonable parts of an ounce are to be disregarded by an Act of Parliament;—no, they are not to be recognised by the Act, and yet the grain is to be recognised! And pray what is the grain? why it is only the 7000th part of a pound! And so the 7000th part of a pound is to be recognised by a proposed Act of Parliament, but the 256th part is not to be recognised! What inconsistency is this! And pray where is the *Decimality* (or, the *Tenth-part-of-an-ounce*) of the seven-thousandth part of a pound? The grain is to be recognised! and what part of an ounce is a grain? not a decimal part assuredly; but the part represented by $\frac{1}{7000}$, or two-eight hundred and seventy-fifths of an ounce; for it takes 437½ grains *Troy Weight* to make an ounce. The Commissioners next recommend as the unit of weight following the grain, a weight called *Millet*, which is to be the one-thousandth part of an Imperial or *Avoirdupois pound*, and, of course, must weigh 7 grains. On these recommendations, we should find that our table of Imperial or *Avoirdupois* weight would stand thus, with the necessary names and decimal divisions for ordinary purposes:—

NEW AVOIRDUPOIS WEIGHT.

7 grains	= 1 millet
10 millets	= 1 decamillet
100 millets or 10 decamillets	= 1 centomillet
1000 millets or 10 hectamillets	= 1 pund

Or if new names like *Millet* were wanted for the decimal sub-divisions recommended by the Commissioners, they might stand thus:

7 grains	= 1 millet
10 millets	= 1 cent
10 centets	= 1 decet
10 decets	= 1 pound

We may now ask, where would be the place of the recognised ounce in this table, which is not a decimal part but a sixteenth part of the pound? Where, also, would be the place of the *Troy Ounce*, and the *Troy Pennyweight*, in the same table? Assuredly, these also are not decimal parts of a pound. And in addition to all this, where would be the place of the different parts of the *Apothecaries weight*? For the use of this weight is also recommended to be permitted by the Commissioners, being only the *Troy Weight* differently divided for medicinal purposes.

Let us see how this new and anomalous table of weights proposed for the British Empire will now stand, including all the new and old subdivisions recommended to be adopted or permitted by the Royal Commissioners:—

PROPOSED AVOIRDUPOIS WEIGHT.

7 grains	= 1 millet
20 grains or 2 $\frac{2}{3}$ millets	= 1 scruple, Apothecaries,
24 grains or 3 $\frac{1}{3}$ millets	= 1 pennyweight, Troy,
60 grains or 8 $\frac{2}{3}$ millets	= 1 dram, Apothecaries,
70 grains or 10 millets	= 1 centet,
437 $\frac{1}{2}$ grains or 6 $\frac{1}{4}$ centets	= 1 ounce, Avoirdupois,
480 grains or 6 $\frac{3}{4}$ centets	= 1 ounce, Troy,
480 grains or 6 $\frac{3}{4}$ millets	= 1 ounce, Apothecaries,
700 grains or 10 centets	= 1 decet,
7,000 grains or 10 decets	= 1 pound, Imperial.

We have here employed the terms *Centet* and *Decet*, gratuitously of course; because, intimating as they do the parts of a pound for which they stand, like the term *Millet*, they are formed quite according to analogy; besides, if these terms were not adopted, some others, perhaps less expressive, would have to be adopted in their stead; but whether the names are adopted or not, the things for which they stand are strongly recommended for adoption. Now, if the preceding table, which, as we have said, includes all the recommendations of the Commissioners relating to the subdivision of the pound, what are we to think of the uniformity in our weights and measures, and what of the adoption of the proposed Decimal scale mingled with such heterogeneous elements? Let the public judge and answer for itself; we are doing our duty. The Commissioners, in concluding this part of the subject, recommend the "Government to consider the expediency of preparing and printing for the use of dealers in bullion an edition (they mean a set) of tables for facilitating the reduction of Assays, equivalent to those now in use, but adapted to decimal multiples of the *Troy ounce*, instead of multiples of the *Troy pound*." This recommendation shows that they are serious in wishing to preserve the elegant irregularity of subdivision exhibited in the preceding table. But we leave this part without comment to the sagacious reflections of our more ingenious readers!

We are not yet done, however, with the recommendations of the Royal Commissioners on the subject of the Imperial or Avoirdupois weights. They recommended that all weights of 14lbs., 24lbs., 56lbs., 112lbs., or any of their multiples shall be abolished; and that the only legal weights above one pound shall be weights consisting of multiples of one pound not exceeding 100lbs., and weights consisting of multiples of 10lbs., not exceeding 100lbs.; that the name *Centner*, or some other name to be fixed by Act of Parliament, shall be recognised as designat-

ing the weight of one hundred pounds; and that the Government shall consider the expediency of some plan by which the former or old weights may be withdrawn, and the latter or new weights may be made to take their place. According to this recommendation, which is perhaps the most sensible of all that they have made, the extension of the Avoirdupois weight would, following the example of the French, stand thus:—

10 pounds	= 1 decicentner,
100 pounds or 10 decicentners	= 1 centner,
1,000 pounds, or 10 centners	= 1 decacentner,
10,000 pounds, or 100 centners	= 1 hectacentner.

For large weights, these names and this decimal system might be very convenient; and certainly the restoration of 100 pounds to the rank of the unit in this table would be a very great improvement; still we do not see why the name *Hundred-weight* should be abolished, seeing that it more clearly expresses to the English ear the weight of 100 lbs., than *Centner* or any other name that could possibly be devised. By this means the name *Ton* would be abolished, which there would be little reason to regret, seeing that it is often confounded with that of *Tun*, the former being a weight and the latter a measure.

The Commissioners further recommend that the Exchequer Standard of length be measures and beds (for the measures) of one foot (the bed having divisions into inches, tenths of inches, and tenths and hundredths of feet); of two feet (the bed similarly divided); of one yard (the bed divided into halves, quarters, eighths, and sixteenths, and also into tenths and hundredths); of 10 feet (the bed divided into feet and tenths of feet); and a measure of the chain of 22 yards (divided into fathoms).

Here then we have the combination of the centesimal, decimal, duodecimal, ternary, and binary systems in the subdivision and multiples of the chain, the yard, the foot, the inch, and the link; and the table of standard measures of length will stand thus:—

STANDARDS OF LENGTH.

10 tenths of an inch	= 1 inch,
10 hundredths of a foot	= 1 tenth of a foot,
10 tenths of a foot, or 12 inches	= 1 foot,
10 feet, or 120 inches	= 1 ten-foot,
10 hundredths of a two-foot	= 1 tenth of a two-foot,
10 tenths of a two-foot, or 24 inches	= 1 two-foot,
2 sixteenths of a yard	= 1 eighth of a yard,
2 eighths of a yard	= 1 fourth of a yard,
2 fourths of a yard	= 1 half of a yard,
2 halves of a yard	= 1 yard,
10 hundredths of a yard	= 1 tenth of a yard,
10 tenths of a yard, or 3 feet	= 1 yard,
7 $\frac{1}{2}$ inches	= 1 link,
10 links	= 1 tenth of a chain,
100 links, or 66 feet, or 22 yards	= 1 chain.

The Commissioners also recommend the adoption of the following standards of weight: 1 grain, 10 grains, 100 grains, 1,000 grains, 100,000 grains, and several multiples of each; 1 Troy ounce, 10 Troy ounces, 100 Troy ounces, and several multiples of each; 1,000 Troy ounces, but no weight of 12 Troy ounces or of any of its multiples. Also the ounce (Avoirdupois) and several multiples of it, but no dram weights; lastly, one pound (Avoirdupois) and several multiples of it not beyond 100lbs.; 100lbs., and several multiples of it not beyond 100lbs.; 100lbs., but no weight of 14lbs., or any multiple of it, except 70lbs. Also the tenth, the hundredth, and the thousandth parts of a pound, with several multiples of them.

In addition to the standards of capacity now in the Exchequer, which consist of the Imperial gallon and Imperial bushel, with some multiples and submultiples of the same, they recommend the adoption of a wine bottle measure to hold exactly one-sixth of a gallon; and of measures of 3, 5, and 9 gallons. Surely this is not a decimal division or subdivision of the standard measures of capacity.

In conclusion, among a variety of useful recommendations for carrying their proposed new system into operation, of which of course, our readers will plainly perceive we cannot

wholly approve, the Commissioners recommend that a set of itinerant [itinerating] standards be employed for the purpose of extending its adoption in the Colonies. We think that a similar set would be of immense use in extending the same throughout the three kingdoms; but this is a minor consideration so long as the system of Weights and Measures is itself liable to great objections. Another recommendation, borrowed from the example of some towns in Scotland, is to fix standards of the principal measures of length in the wall or on the floor of some public building, in each of the principal towns of the empire, for public use. But here we must draw our observations to a close. Some correspondents have asked us to explain how the pendulum could be employed as a natural standard for the recovery of lost standards of measure. We cannot stop to explain this now, but we shall do it on a future occasion; the idea, however, is not new, being at least as old as the time of Butler, who says, in "Hudibras," that

"By the vibrations of this pendulum,
All tailors' yards should be of one
Unanimous opinion."

LESSONS IN FRENCH.—No. LXXVI.

By Professor LOUIS FASQUELLE, LL.D.

§ 108.—REMARKS ON THE DEMONSTRATIVE PRONOUN *Ce*.

(1.) *Ce*, when used as a demonstrative pronoun, is almost always construed with the verb *être*, or followed by a relative pronoun:—

C'est un poids bien pesant qu'un grand nom à soutenir. A great name is a very heavy weight to sustain.

Ce qui me plaît c'est sa modestie. That which pleases me is her modesty.

(2.) *Ce* is used for *he, she, they*, preceding any part of the verb *to be*, when that verb is followed by a noun, or an adjective used substantively and preceded by *the, a* or *an*, or a possessive or demonstrative adjective.

(3.) Observe, that the verb *être* following the pronoun *ce*, is put in the plural when the noun following that verb is plural. The pronoun *ce*, however, remains unchanged:—

C'est un trompeur. He is a deceitful man.
C'est la femme que je cherche. She is the woman whom I seek.
C'étaient mes amis. They were my friends.
Ces sermons paraissent exquis. They would be exquisite words.
Si c'était un grand qui parlât. If a great man were to speak then.

N'étaient-ce pas les mêmes hommes? Were they not the same men?

All these sentences are elliptical; a noun being understood after the *ce*:—

Cet homme est un trompeur. That man is a deceitful one.
Cette femme est la femme que je cherche. That woman is the woman whom I seek.

(4.) *This is, that is, these are, those are*, may also be rendered by *c'est ici, ce sont ici*:—

C'est ici la place. This is the place.
Ce sont là mes enfants. Those are my children.

Voilà, voilà, are, however, to be preferred to c'est ici, &c.—

Voilà la place. This is the place.
Voilà mes enfants. Those are my children.

(5.) *Ce* answers to the English pronoun *it*, when this latter word stands as the nominative of the verb *to be*, without definite reference to an antecedent:—

Ce n'est que par les sens que l'âme peut s'instruire. It is only through the senses that the mind can receive instruction.

Ce fut d'une retraite de pâtre et d'aventurier, que sortirent les conquérants du monde. It was from a refuge for shepherd and adventurer, that emerged the conquerors of the world.

C'est un défaut capital qu'il faut éviter dans quelque sujet que ce soit. This is a capital defect which should be avoided in whatever subject it may be.

(6.) When the verb *être*, however, is used impersonally, and followed by an adjective [§ 87, (3)], the pronoun *il* is not

rendered by *ce*, but by the pronoun used with all unipersonal verbs (17):—

Il est nécessaire d'étudier. It is necessary to study.
Il est plus difficile pour les nations que pour les individus, de découvrir l'estime de leurs voisins quand elles l'ont perdue. It is more difficult for nations than for individuals, to recover the esteem of their neighbours when they have lost it.

§ 109.—THE RELATIVE PRONOUN.

(1.) The relative pronoun *que, whom, which*, &c. in French, never be suppressed like the corresponding English pronouns:—

Les louanges que nous donnons, se rapportent toujours par quelque chose à nous-mêmes. The praises (which) we give, have always in some way a relation to ourselves.

(2.) The pronouns *quel, que, quoi, lequel*, represent the English pronouns *which* or *what* used interrogatively.

1. *Quel* is used before a noun in a determinative sense:—

Quel livre lisons-nous? What book shall we read?
Quel est donc votre mal?? What then is your ailment?

2. *Que* is used before a verb:—

Quid dites-vous? What do you say?

3. *Quoi* is used as an exclamation:—

Quoi! est-ce vous? What! is it you?

4. *Lequel*, used interrogatively, means *which one*:—

Voici deux plumes, laquelle voulez-vous? Here are two pens; which (which one) will you have?

(3.) *Qui* is also used interrogatively for the régime direct, and preceded by a preposition for the régime indirect. It then means *whom, of whom, to whom, whose, &c.*—

Qui avez-vous vu? Whom have you seen?
De qui tenez-vous cette nouvelle? From whom have you this news?
A qui est ce livre? Whose book is this?

§ 110.—THE PRONOUN *En*.

(1.) We have already [§ 39, (17.) § 95, (5.) § 103, Rule (1.)] made several remarks on this pronoun.

(2.) *En* signifies *of it, from it, with it, about it, of them, from them, &c.* expressed or understood. Though *en* is by some French writers often used in relation to persons, their example should be imitated in such cases only as that presented by the example [§ 92, (2.)].

(3.) *En*, used as an equivalent for the English *some* or *any*, expressed or understood, preserves its nature of an indirect régime, and has, in the same manner as the French article placed before a noun used primitively, the sense of *of it, of them*; the word *partie* being understood:—

Avez-vous des pommes? Have you apples?

That is, *some*, or rather, *of the, a part of the apples*.

J'en ai. I have some. I have of them, or I have (a part) of them.

(4.) *En* sometimes recalls the whole or part of a proposition:—

L'on ne saurait voir, sans en être piqué. We cannot, without being piqued, see another person in possession of goods which we have failed in obtaining.

Nous disputons plus, chacun à sa pensée. Let us no longer argue about this; every one has his own opinion.

§ 111.—THE PRONOUN *Y*.

Some remarks have already been made on this pronoun [§ 39, (18.) § 103, (2.)]. *Y* means *at it, at it, to them, of them*. It is seldom used in relation to persons or animals, but frequently in relation to things:—

Y a-t-il un homme qui croit qu'il n'y a rien? Is there a man who believes (that) he is here.

The conjunction, *that*, is often omitted in English; its equivalent, *que*, must always be expressed in French.

Je crois qu'il est ici. I believe (that) he is here.

Je reçois votre lettre, ma chère enfant, et j'y fais réponse avec précipitation. MME. DE SEVIGNÉ.
Tirer vanité de quelque chose, c'est prouver qu'on n'y est pas accoutumé. ROBERT.
Chargez-vous de cette affaire; donnez-y tous vos soins. BONIFACE.

§ 112.—PLACE OF THE PRONOUN EN AND Y.

See § 104, (1.) (2.)

§ 113.—THE INDEFINITE PRONOUN ON [11, (4.).]

(1.) *On*, which is very extensively used in the French language, is said only of persons. The verb, of which it is always the nominative, must be in the singular. This pronoun is of the masculine gender. (See § 2.) *On* is used in French for *people*, *one*, *some one*, *we*, *they*, whenever these words have a general and indefinite meaning, and do not refer to any particular word:

On pardonne aisément le mal involontaire. DELA BOUTRAYE.
On cherche les rieurs, et moi je les évite. LA FONTAINE.

Another translation of the above sentences, will show us that the pronoun *on* often enables the French to make use of the active voice, which they always prefer to the passive. Thus the two examples last given may be rendered as follows:—

Active Voice in French. *On pardonne aisément le mal involontaire.*
On cherche les rieurs, mais moi je les évite.

Passive Voice in English. *Involuntary injuries are easily forgiven.*
Merry or joyful people are generally sought; for my part, I avoid them.

A few more examples from some of the best French authors, elucidating the use of this pronoun, will be useful to the student:—

Quand on est chrétien de quel que sexe que l'on soit, il n'est pas permis d'être lâche. FÉNELON.
On peut être honnête homme, et faire mal des vers. MOLIÈRE.
On aime peu celui qui n'aime aimer personne. DEKAILLÉ.
A-t-on jamais pleuré d'avoir fait son devoir? CHANFORT.
Quand on a même but, rarement on s'accorde. LÉRON.
Artistes, écrivains, poètes, en vous vous copiez toujours, on ne vous copiera jamais. BERNARDIN DE ST. PIERRE.

A Christian, of whichever sex he may be, is not allowed to be cowardly.
One may be a worthy man, and make bad verses.
We feel but little love for him who dares love nobody.
Has one ever grieved on account of having done our duty?
Those who have the same aim, rarely agree.
Artists, writers, poets! if you always copy each other, no person will copy you.

(2.) If the word *on* denotes definitely a female, the adjective relating to it takes the feminine termination:—

Quand on est belle, on ne l'ignore pas. L'ACADÉMIE.

When one (a lady) is handsome, she is not ignorant of it.

(3.) The pronoun *on* must be repeated before every verb:—

On lève l'ancre, on part, on fuit loin de la terre.
On découvrait déjà les bords de l'Asie. VOLTAIRE.

They raise the anchor, they depart, they flee far from the land, already they discovered the shores of England.

§ 111.—THE VERB.—AGREEMENT OF THE VERB WITH ITS SUBJECT.

(1.) The verb agrees with its nominative of subject, whether that nominative precedes or follows:—

On dit, it is said; on rapporte, it is related; on craint, it is feared. &c. Cela se fait ainsi, literally, that makes itself thus, that is made in this manner, &c.

L'honneur est né pour régner sur tous les animaux. VOLTAIRE.
Les hommes sont encore enfants à six cents ans. ARNAUD.
Par ces portes sortaient les fibres. SAINT-VICTOR.

Honour is born to reign over all the animals.
Men are still children (even) at six hundred years.
Through those gates issued the proud lions.

(2.) When a verb has two or more singular nominatives connected by the conjunction *et*, the verb is put in the plural:—

La colère et la précipitation sont deux choses fort opposées à la prudence. FÉNELON.
La violence et la vertu ne peuvent rien l'une sur l'autre. PASCAL.

Anger and precipitation are two things very much opposed to prudence.
Violence and virtue have no power over each other.

(3.) When a verb has several singular nominatives not connected by *et*, it is put in the singular or in the plural according to circumstances:—

1. It is put in the singular, if the nominatives are in some way synonymous:—

La douceur, la bonté du grand Henri, a été célébrée de mille louanges. PÉLUSON.
D'où peut venir cet ennui, ce dégoût? COLIN D'HARLEVILLE.

The sweetness, the goodness of the great Henry, has been celebrated by a thousand praises.
Whence can proceed that ennui, that disgust?

2. When, in a series of nominatives, the last has more force or interest attached to it, and therefore, makes us, as it were, overlook the others:—

Ce sacrifice—votre intérêt, votre honneur, Dieu vous le commande!

This sacrifice—your interest, your honour, God commands it!

3. The verb is put in the plural, when the affirmation is intended to be made of all the nominatives taken collectively and not of each in particular:—

La douceur, les soupirs de cette femme infortunée ne peuvent le sécher. WAFFLY.
Savez vous, si demain? LACINE.

The sweetness, the sighs of that unfortunate woman could not move him.
—Do you know, if to-morrow, his life, his life, will be in your power?

(4.) On the forms of the verbs when connected by *ou*. See § 83, 2, 3.

§ 115.—NUMBER OF THE VERB AFTER A COLLECTIVE NOUN.

(1.) Every verb having, as its subject, a general collective noun [§ 3, (6.)], preceded by the article, such as *la multitude*, *l'infinité*, &c., takes the number of that noun:—

L'armée des infidèles fut entièrement détruite. L'ACADÉMIE.
La multitude des bonnes choses que l'on trouve dans un ouvrage, which we find in a work, makes us lose sight of the multiplicity of the bad ones. CAMINADE.

The army of the infidels was entirely destroyed.
The multitude of the good things which we find in a work, makes us lose sight of the multiplicity of the bad ones.

(2.) When a partitive collective noun [§ 3, (6.)] occurs as the subject of a proposition, the verb agrees with that noun, if it occupies the first rank in the thought of the speaker or writer.

The verb agrees, on the contrary, with the plural noun following the collective word, if the collective acts only a secondary part, or if it is employed only to add an accessory idea of number:—

Agreement with the Collective.
Une troupe d'assassins entra dans la chambre de Coligny. VOLTAIRE.

Agreement with the following Nouns.
Une troupe de nymphes couronnées de fleurs, nagèrent autour de son char. FÉNELON.

A gang of assassins entered Coligny's chamber.
A troop of young nymphs, crowned with flowers, were swimming around her chariot.

Une nuée de traits obscurcit l'air. L'ACADÉMIE.
A cloud of arrows darkened the air.

Cette espèce de paons paraît avoir éprouvé les mêmes effets par la même cause. BURTON.
That species of peacocks seems to have experienced the same effects through the same cause.

Cette espèce de chiens qu'on appelle chiens de Laconie, ne vivent que dix ans. BOILEAU.
That species of dogs which they call Laconian dogs, live only ten years.

§ 116.—NUMBER OF THE VERB AFTER THE PRONOUN CE.

(1.) The verb *être* preceded or followed by *ce*, as the grammatical subject, takes the number of the noun placed in apposition with that pronoun [§ 108, (3.)]:—

Ce sont les moines qui font la bonne compagnie. LA CHAUSSE.
Sont-ils des religieux et des prêtres qui parlent ainsi? sont-ils des chrétiens? PASCAL.

It is monks which form good company.
Are they monks and priests who speak so? are they Christians?

(2.) The verb *être* may also be put in the plural, when the pronoun *eux* and *elles* are put in apposition with the pronoun *ce*. This rule, however, is optional, as the examples will show. Before *nous* and *vous* similarly placed, the verb is always in the singular: *c'est nous*; *c'est vous*:—

C'est eux qui ont bâti ce superbe labyrinthe. BOSSUET.
Ce sont eux qui viennent. BESOUVERELLE.

Singular.
Plural.

Singular. *Plural.*
It is they who have built that superb labyrinth. *It is they who come.*

§ 117.—THE VERB RELATING TO SEVERAL NOUNS IN DIFFERENT PERSONS.

A verb having several subjects in different persons, is put in the plural, and assumes the termination of the first person in preference to that of the second, and that of the second in preference to that of the third. It may then be preceded by the plural pronoun of the person preferred, recapitulating, as it were, all the other subjects:—

Votre père et moi, nous avons été longtemps ennemis l'un de l'autre. FÉNELON.
Allez; vous et vos semblables n'êtes point faits pour être transplantés. MONTESQUIEU.

Your father and I have long been enemies to each other.
Go; you and such as you are not fit to be transplanted.

LESSONS IN GERMAN.—No. LXVI.

(1) ALPHABETICAL LIST OF VERBS OF THE OLD FORM.

(commonly called *Irregular Verbs*).

Note that in the following list many compound forms are not set down. In such case, the student has only to look for the verb in its simple form.

INFINITIVE.	PRESENT INDICATIVE.	IMP. INDIC.	IMP. SUBJ.	IMPERAT.	PARTICIPI.	REMARKS.
Baden a), to bathe,	ich badete, du badest, er badete.	ich bad	ich bade	badete	gebadet.	a) Regular when active; as, er badete; badete; badete; badete.
Bekommen b), to bargain, to need,	ich bekomme, du bekommst, er bekomme.	ich bekom	ich bekomme	bekomme	bekommen.	b) Regular when it means to add a condition, to modify. Being, conditional, is regular.
Befehlen, to command,	ich befiehe, du befehlst, er befiehe.	ich befahl	ich befiehe	befiehe	befohlen.	c) Befehlen (ich), to apply one's self, is regular.
Befleissen (ich) c), to apply one's self,	ich befliehe, du befliehst, er befliehe.	ich beflie	ich befliehe	befleisse	befleissen.	d) In the imperf. subj. befliehe is also used.
Beginnen d), to begin,	ich beginne, du beginnst, er beginne.	ich begin	ich beginne	beginne	begonnen.	e) Begonnen is not frequently used, and is employed, only in the sense of compressed.
Belohnen e), to pinch, press (by anxiety),	ich belohne, du belohnst, er belohne.	ich beloh	ich belohne	belohne	belohnen.	
Bergen, to conceal,	ich berge, du bergst, er berge.	ich berg	ich berge	berge	bergen.	
Berufen, to burst,	ich berste, du berstest, er berste.	ich berst	ich berste	berste	berufen.	
Bekommen f), to think of,	ich bekomme, du bekommst, er bekomme.	ich bekom	ich bekomme	bekomme	bekommen.	
Befleissen g), to possess,	ich befliehe, du befliehst, er befliehe.	ich beflie	ich befliehe	befleisse	befleissen.	
Betrügen, to deceive,	ich betrage, du beträgst, er betrage.	ich betrug	ich betrage	betrage	betrügen.	f) Irregular when it means, to induce; regular when it means, to move a body or affect the sensibilities.
Biegen, to bend,	ich biege, du biegst, er biege.	ich bog	ich biege	biege	gebogen.	g) Biegt and bent, in the present, are poetical.
Bieten g), to offer, to bid,	ich biete, du bietest, er biete.	ich bot	ich biete	biete	geboten.	
Bitten, to bind,	ich bitte, du bittest, er bitte.	ich bat	ich bitte	bite	gebeten.	
Bitten, to entreat, to beg,	ich bitte, du bittest, er bitte.	ich bat	ich bitte	bite	gebeten.	
Blasen, to blow,	ich blase, du bläst, er blase.	ich blies	ich blase	blase	geblasen.	
Bleichen, to remain,	ich bleibe, du bleibst, er bleibe.	ich blieb	ich bleibe	bleibe	geblieben.	
Bleichen h), to fade,	ich bleiche, du bleichst, er bleiche.	ich blies	ich bleiche	bleiche	gebleichen.	h) Bleichen, to bleach in the sun, active, is regular.
Braten, to roast,	ich brate, du brätst, er brate.	ich brach	ich brate	brate	gebraten.	
Brachen, to break,	ich breche, du brichst, er breche.	ich brach	ich breche	brache	gebrachen.	
Brennen i), to burn,	ich brenne, du brennst, er brenne.	ich brannte	ich brenne	brenne	gebrannt.	i) Often regular when active; as, ich brenne; brenne; brenne; brenne.
Bringen, to bring,	ich bringe, du bringst, er bringe.	ich brachte	ich bringe	bringe	gebracht.	
Denken, to think,	ich denke, du denkst, er denke.	ich dachte	ich denke	denke	gedacht.	
Dingen k), to bargain,	ich dingte, du dingst, er dingte.	ich dunt	ich dingte	dinge	gedungen.	k) Dingte is sometimes used in the imperfect, in the sense of hire.
Dreschen, to thresh,	ich dresche, du dreschst, er dresche.	ich drach	ich dresche	dresche	gedreschen.	
Dringen l), to press, to urge,	ich dringe, du dringst, er dringe.	ich drang	ich dringe	dringe	gedrungen.	l) For drang, drang was formerly in use.

IRREGULAR VERBS. (Continued.)

INFINITIVE.	PRESENT INDICATIVE.	IMP. INDIC.	IMP. SUBJ.	IMPERAT.	PARTICIPLE.	REMARKS.
Dürfen, to be able,	ich darf, du darfst, er darf, wir dürfen, &c.	ich dürfte	ich dürfte	—	gedurft	
Empfangen, to receive,	ich empfang, du empfangst, er empfängt, &c.	ich empfang	ich empfang	empfang	empfangen	
Empfehlen, to recommend,	ich empfehle, du empfiehst, er empfiehlt, &c.	ich empfehl	ich empfehle	empfehl	empfehlen	
Empfinden, to feel,	ich empfinde, &c.	ich empfinde	ich empfinde	empfinde	empfinden	
Entinnen, to escape,	ich entinne, &c.	ich entinne	ich entinne	entinne	entinnen	
Entschlafen, to fall asleep,	ich entschlaf, &c.	ich entschlaf	ich entschlaf	entschlaf	entschlafen	
Entsprechen, to answer,	ich entspreche, &c.	ich entspreche	ich entspreche	entspreche	entsprechen	
Erbleichen, to turn pale,	ich erbleiche, &c.	ich erbleich	ich erbleiche	erbleiche	erbleichen	m) Derived from bleichen, to whiten as in the sun, which is regular.
Erfreren, to freeze,	ich erfrere, &c.	ich erfrere	ich erfrere	erfrere	erfreren	
Ergreifen, to seize, to catch,	ich ergreife, &c.	ich ergreife	ich ergreife	ergreife	ergreifen	
Erheben, to select,	ich erhebe, &c.	ich erhebe	ich erhebe	erhebe	erheben	n) It is used in sublime style, and in poetry.
Erkühlen, to choose,	ich erkühle, (erkühle), &c.	ich erfor	ich erkühle or (erkühle)	erkühle (erkühle)	erkühlen	o) This verb is very seldom used.
Ersticken, to extinguish,	ich erstick, &c.	ich erstick	ich erstick	erstick	ersticken	p) Like verbleichen and aufgehen, irregular only when intransitive. Verbleichen is always transitive and regular.
Erkaufen, to be drowned,	ich erkaufe, du erkaufst, er erkauf, &c.	ich erkauf	ich erkauf	erkauf	erkaufen	
Erhalten, to resound,	ich erhalte, &c.	ich erhalte	ich erhalte	erhalte	erhalten	
Erscheinen, to appear,	ich erscheine, &c.	ich erscheine	ich erscheine	erscheine	erscheinen	
Erschrecken, to be frightened,	ich erschrecke, du erschreckst, er erschreckt, &c.	ich erschreck	ich erschreck	erschreck	erschrecken	q) Irregular always as an intransitive verb, but regular when transitive.
Ertrinken, to be drowned,	ich ertrinke, &c.	ich ertrinke	ich ertrinke	ertrinke	ertrinken	
Erwägen, to consider,	ich erwäge, &c.	ich erwäge	ich erwäge	erwäge	erwägen	r) More frequently used as a regular verb.
Essen, to eat,	ich esse, du isst, er isst, &c.	ich esse	ich esse	esse	essen	s) This poetical word is rarely used, and in the imperfect not at all.
Fahren, (obsolete), to catch,	ich fahre, du fahst, er fahet, &c.	—	—	fahre	fahren	t) All the compounds of fahren are irregular except willfahren.
Fahren, to drive a carriage,	ich fahre, du fährst, er fährt, &c.	ich fahre	ich fahre	fahre	fahren	
Fallen, to fall,	ich falle, du fällst, er fällt, &c.	ich fälle	ich fälle	fälle	fallen	u) Irregular only in the participle now, for which gefallt is often used.
Falten, to fold,	ich falte, &c.	ich falte	ich falte	falte	fallen	v) The forms feng and fenge are obsolete. So also empfang and empfangen.
Fangen, to catch,	ich fange, du fängst, er fängt, &c.	ich fang	ich fang	fange	fangen	
Fechten, to fight,	ich fechte, du fechtst, er fecht, &c.	ich fecht	ich fecht	fecht	fechten	
Finden, to find,	ich finde, &c.	ich finde	ich finde	finde	finden	

LESSONS IN GERMAN PRONUNCIATION.

No. XIII.

13.

An den Mond.
An dain moant.Wie schön kommt dort mit freundlich hellem Lichte
Voo shü'n komt dort mit freuntlich hel'lem Lich'taiDer volle Mond daher!
Dair fol'lai moant dā-hair!Wie liegt im Silberglanz die Doppel und die Fichte
Vee reecht im zil'ber-glantz-dees dāp'pel dōnt deo fīch'taiDie schlanken Nette hin und her!
Dee shlan'ken es'tai hin dōnt hēr!O welch ein Blick! O welch ein sanfter Schimmer!
O welch ine blick! O welch ine zānt'ler shīm'mor!Oft hab' ich dich gesehn,
Oft hālp ich dīch gai-zeyn,Du stiller guter Mond, und doch bist du mir immer
Doo still'ler, goo'ter moant, dōnt doch bist doo meer im'merSo neu, so lieb und wunderschön!
Zo nei, zo leep dōnt vōn'-'der-shō'n!Wer lehrt dich so abgemessen gehen?
Vair ley'r'tai dīch zo āp'-gai-meess'en ghey'-hen?In keinem Ort zu früh,
An ki'-nem ort too frū,In keinem Ort zu spät hat man dich je gesehen.
An ki'-nem ort too spāt hāt mān dīch yey gai-zey'-hen.O Freund! verirrst du dich denn nie?
Oh freunt! fer-irrst' doo dīch den nei?Gewiß dich führt ein artig reißes Wesen.
Gai-vīss, dīch fūrt ine artig rīsses vey'-zen.

LESSONS IN ALGEBRA.—No. VII.

DIVISION.

GREATEST COMMON MEASURE.

108. A common measure of two or more quantities, is a quantity which will divide or measure each of them without a remainder. (Art. 30.) Thus 2d is a common measure of 12d, 6d, 8d, &c.

109. The greatest common measure of two or more quantities, is the greatest quantity which will divide these quantities without a remainder. Thus 6d is the greatest common measure of 12d and 18d; and 8 is the greatest common measure of 16, 24, and 32.

110. To find the greatest common measure of two given quantities.

RULE.—Divide the greater of the given quantities by the less, the divisor by the remainder, and every successive divisor by its own remainder, till nothing remains; the last divisor will be the greatest common measure.

111. To find the greatest common measure of three or more quantities.

RULE.—Find the greatest common measure of any two of them; then the greatest common measure of that one and another of the quantities, and so on, till all the quantities have been employed in the operation; the last divisor is the greatest common measure.

The greatest common measure of two quantities is not altered by multiplying or dividing either of them by any quantity which is not a divisor of the other, and which contains no factor which is a divisor of the other.

The common measure of ab and ac, is a. If either be multiplied by d, the common measure of abd and ac, or of ab and acd, is still a. On the other hand, if ab and acd are the given quantities, the common measure is a; and if acd be divided by d, the common measure of ab and ac is a.

112. Hence, in finding the common measure by division, the divisor may often be rendered more simple by dividing it by some quantity which does not contain a divisor of the dividend. Or the dividend may be multiplied by a factor, which does not contain a measure of the divisor.

1. Find the greatest common measure of $6x^2+11x+3x^2$ and $6x^2+7x-3x^2$.

Here, $6x^2+7x-3x^2$

$4x+6x^2$ Remainder.

Now, dividing this remainder by $2x$, we have $2x+3x$ for the next divisor.

Divisor: Dividend.

$2x+3x$ $6x^2+7x-3x^2$

$6x^2+9x$

$-2x-3x^2$

$-2x-3x^2$

The first remainder was divided by $2x$ because it is a common factor of both terms of that remainder, and it cannot form a factor of the common measure, not being a factor of every term in the proposed quantities. As the division of the preceding divisor by this simplified remainder leaves no remainder; therefore $2x+3x$ is the common measure required.

2. Find the greatest common measure of x^2-b^2x and $x^2+2bx+b^2$. Ans. $x+b$.

3. Find the greatest common measure of $ax+x^2$ and a^2+a^2x . Ans. $a+x$.

4. Find the greatest common measure of $3x^2-24x-9$ and $2x^2-16x-6$. Ans. x^2-8x-3 .

5. Find the greatest common measure of a^4-b^4 and a^5-b^5 . Ans. a^2-b^2 .

6. Find the greatest common measure of x^2-1 and $xy+y$. Ans. $x+1$.

7. Find the greatest common measure of x^3-a^3 and x^4-a^4 . Ans. x^2-a^2 .

8. Find the greatest common measure of $a^2-ab-2b^2$ and $a^2-3ab+2b^2$. Ans. $a-2b$.

Wohl muß es gültig sein: Voo müssa es gü'tig zeyn:

Du feuchtfreundlich ja! Du feuchtfreundlich ja! Doo loig'test freuntlich yai dān fōn'-dānk-bāh'-ren bözen

Und doch geschieht, daß Menschen, die es sehen, dōnt doch gai-shēn', dass men'-shen, deo ess zey'-hen,

Wie du so hübsch bist, Vee doo zo hūbt'-'st bist,

Im Herzen Lieb und Gaf, in deinem Richte gehen, Im hēr'-zen nīe dōnt lāss; in dī'-nēn līch'-tai ghey'-hen,

Auf Wangen flüßend und auf Lippen, Aaf wāng'-en zīn'-nēnt dōnt aaf līp-

Ich aber will an dir ein Beispiel nehmen, Ich āb'-er vīll ān dīr ine by'-speel nāi'-nēn,

Wohl Willst du, wie du; Voll mīllst dū zīnē, yee doo;

Ich will durch Liebe den, der mich nicht liebt beschämen, Ich vīll dūrch lāb'-de dān, dān mīch nīch leep't, bāi-shāi'-mēn

Und friedlich fördern seine Ruh. Und frīdlich fōrdern sēnē Rūh.

Du wirst es sein von deinem Himmel oben, Doo vīrst es zey'n fōn dī'-nem hīm'-mel o'-ben,

Du habest Licht der Nacht; Doo hāb'-des līch't dān'r nāch't;

Mit Freude wirst du's sehen und deinen Schöpfer loben, Mīt frōi'-dā vīrst dū's zey'n dōnt dī'-nēn shōp'-fer lō'-ben

Der dich und mich so gut gemacht. Dair dīch dōnt mīch zo goo't gai-māch't.

VOCABULARY.

Mont, m. moon

ter, there

licht, n. light

wagen, to rock

paar, f. pair

schlank, slender, well shaped

schon, already

schon, already

schon, already

schon, already

schon, already

schon, already

schon, already

schon, already

schon, already

schon, already

schon, already

schon, already

9. Find the greatest common measure of $a^2 - x^2$ and $a^2 - a^2x - x^2$. Ans. $a^2 - x^2$.
10. Find the greatest common measure of $a^2 - ab^2$ and $a^2 + 2ab + b^2$. Ans. $a + b$.

LEAST COMMON MULTIPLE.

113. A common multiple of two or more quantities is a quantity which can be divided by each of them without a remainder. Thus, $12ab$ is a common multiple of $4a$ and $6b$; or, of $3a$ and $2b$, &c.

114. The least common multiple of two or more quantities is the least quantity which can be divided by each of them without a remainder. Thus, $12abc$ is the least common multiple of $4a$, $3b$, and $6c$.

115. To find the least common multiple of two or more given quantities.

RULE.—Reduce the given quantities to their prime factors; find the product of the greatest powers of these factors, and it will be the least common multiple required.

EXAMPLES.

1. Find the least common multiple of $(a+x)^2$, $a^2 - x^2$, and $(a-x)^2$.
- Here, the prime factors of the quantities are $(a+x)^2$, $(a-x)^2$, $(a-x)$, and $(a-x)^2$; now of these factors, which are different powers of $a+x$ and $a-x$, the first and last contain their highest powers; therefore, according to rule, $(a+x)^2(a-x)^2$ is the least common multiple of the quantities required.
2. Find the least common multiple of bc , ce , and bg . Ans. $bceg$.
3. Find the least common multiple of a^2b^2 and a^2b^2 . Ans. a^2b^2 .
4. Find the least common multiple of $2ab$, $3bc$, $4cd$, $5de$, and $6ef$. Ans. $60abcdef$.
5. Find the least common multiple of $(a+b)^2$, $(a^2 - b^2)$, $(a-b)^2$, and $(a-b)^2$. Ans. $(a^2 - b^2)^2$.

FRACTIONS.

116. FRACTIONS in algebra, as well as in arithmetic, have reference to parts of numbers or quantities. The term is derived from the Latin word *fractio*, which signifies a breaking into parts.

Thus $\frac{a}{2}$ is $\frac{1}{2}a$; $\frac{b}{4}$ is $\frac{1}{4}b$; $\frac{2a}{3}$ is $\frac{2}{3}a$; and $\frac{4x}{7}$ is $\frac{4}{7}x$.

117. Expressions in the form of fractions occur more frequently in algebra than in arithmetic. Indeed the numerators of every fraction may be considered as a dividend, of which the denominator is a divisor.

118. The value of a fraction, is the quotient of the numerator divided by the denominator. Thus the value of $\frac{6}{2}$ is 3. The

value of $\frac{ab}{b}$ is a ; and the value of $\frac{a-a-b}{a-b}$ is $a+b$.

119. From this it is evident, that whatever changes are made in the terms of a fraction, if the quotients be not altered, the value of the fraction remains the same. For any fraction, therefore, we may substitute any other fraction which will give the same quotient.

Thus $\frac{4}{2} = \frac{10}{5} = \frac{4bx}{2ba} = \frac{8cax}{4dax} = \frac{6+2}{3+1}$, &c. For the quotient in each of these instances is 2.

120. It is also evident, from the preceding articles, that if the numerator and denominator be both multiplied, or both divided, by the same quantity, the value of the fraction will not be altered. Thus $\frac{2}{3} = \frac{2 \times 3}{3 \times 3}$, each term being multiplied by 3; and $\frac{2}{3} = \frac{2 \div 2}{3 \div 2}$, each term being divided by 3, and the result by 3 again.

So $\frac{bx}{b} = \frac{abx}{ab} = \frac{3bx}{3b} = \frac{4bx}{4b} = \frac{5bx}{5b}$; for the quotient in each case is x .

121. Any integral quantity may, without altering its value, be expressed in the form of a fraction, by making unity or 1 the denominator; or by multiplying the quantity into any proposed

denominator, and making the product the numerator of the fraction

required. Thus, $a = \frac{a}{1} = \frac{ab}{b} = \frac{a^2 + ah}{d+h} = \frac{6adh}{6dh}$. The quotient of each of these being a .

Also $d+h = \frac{dx+hx}{x}$; and $r+1 = \frac{2dr+2dr}{2dr}$.

ON THE SIGNS OF FRACTIONS.

122. Each sign in the numerator and denominator of a fraction affects only the single term to which it is prefixed. The dividing line answers the purpose of a parenthesis or vinculum, namely, to connect the several terms of which the numerator and denominator may each be composed. The sign prefixed to it, therefore, affects the whole fraction collectively and every term individually. It shows that the value of the whole fraction, and of course every term, is to be subjected to the operation denoted by the sign. Hence, if the sign before the dividing line be changed from $+$ to $-$, or from $-$ to $+$, the value of the whole fraction is also changed.

Thus, it is plain that the value of $\frac{ab}{b}$ is a . (Art. 110.) But this will become negative if the sign $-$ is prefixed to the fraction.

Hence, $y + \frac{ab}{b} = y + a$. But $y - \frac{ab}{b} = y - a$.

123. In performing fractional operations there is frequent occasion to remove the denominator of the fraction; also to incorporate a fraction with an integer, or with another fraction; in each of these cases, if the sign $-$ is prefixed to the dividing line, the signs of all the terms in the numerator must be changed, as in Art. 66, where a parenthesis, having the sign $-$ before it, is removed.

Thus $b - \frac{ad+ah}{a} = b - d - h$; and $b - \frac{ad-ah}{a} = b - d + h$.

Next, if all the signs of all the terms in the numerator of a fraction are changed, the value of the fraction is changed in the same manner. Thus $\frac{ab}{b} = +a$, (Art. 100;) but $\frac{-ab}{b} = -a$.

And $\frac{ab-bc}{b} = a-c$; but $\frac{-ab+bc}{b} = -a+c$.

Again, if all the signs of all the terms in the denominator of a fraction are changed, the value of the fraction is also changed.

Thus $\frac{ab}{b} = +a$; but $\frac{ab}{-b} = -a$.

124. If then the sign prefixed to a fraction, or the signs of all the terms of the numerator, or the signs of all the terms of the denominator, be changed, the value of the fraction will be changed, from positive to negative, or from negative to positive.

125. If the same change be made upon the numerator and denominator of a fraction at the same time, they will balance each other, and the value of the fraction will not be altered. Thus by

changing the sign of the numerator, the fraction $\frac{ab}{b} = +a$,

becomes $\frac{-ab}{b} = -a$. But by changing the signs of both the

numerator and the denominator, it becomes $\frac{-ab}{-b} = +a$, where the

original value is restored. By changing the sign before the fraction, the expression $y + \frac{ab}{b} = y + a$ becomes $y - \frac{ab}{b} = y - a$. But

by changing the sign of the numerator also, it becomes $y - \frac{-ab}{b}$, where the quotient $-a$ is to be subtracted from y , or

which is the same thing, (Art. 59,) $+a$ is to be added, making the value $y + a$ as at first. In like manner, $\frac{6}{2} = \frac{-6}{-2} = \frac{-6}{-2}$

$\frac{6}{-2} = -3$. And $\frac{6}{-2} = \frac{-6}{2} = -3$. Hence the quotient in division may be set down with different signs and still have the same value. Thus $(a-c) \div b$, is either $\frac{a-c}{b}$, or $\frac{-a+c}{-b}$.

REDUCTION OF FRACTIONS.

126. A fraction may be reduced to lower terms, by dividing both the numerator and denominator by any quantity which will divide them without a remainder; or, by throwing out any factor common to both. According to Art. 120 this process will not alter the value of the fraction.

EXAMPLES.

1. Reduce $\frac{ab}{ab}$ to lower terms. Ans. $\frac{a}{c}$.
2. Reduce $\frac{6dm}{8dy}$ to lower terms. Ans. $\frac{3m}{4y}$.
3. Reduce $\frac{7m}{7mr}$ to lower terms. Ans. $\frac{1}{r}$.
4. Reduce $\frac{a+bc}{(a+bc) \times m}$ to lower terms. Ans. $\frac{1}{m}$.
5. Reduce $\frac{am+ay}{am+ay}$ to lower terms. Ans. $\frac{a}{b}$.
127. If the same letter or combination of letters is in every term, both of the numerator and denominator, it may be cancelled, for this is dividing by that letter or combination of letters. (Art. 97.)

EXAMPLES.

6. Reduce $\frac{3am+ay}{ad+ch}$ to lower terms. Ans. $\frac{3m+y}{d+h}$.
7. Reduce $\frac{dry+dy}{dhy-dy}$ to lower terms. Ans. $\frac{r+1}{h-1}$.
128. If the numerator and denominator be divided by the greatest common measure, it is evident that the fraction will be reduced to its lowest terms.

1. Reduce $\frac{5a^4}{5a^4}$ to its lowest terms.
- Here $\frac{5a^4}{5a^4} = \frac{5a^4}{5a^4} = \frac{5a^4}{5a^4}$. Ans.
2. Reduce $\frac{6x^4}{3x^4}$ to its lowest terms. Ans. $\frac{2x}{1}$.
3. Reduce $\frac{3a^2+4a^2}{5a^2}$ to its lowest terms. Ans. $\frac{3a+4a^2}{5}$.
4. Reduce $\frac{8xy-12a^2y^2+6ay^3}{6x^2y+4xy^2}$ to its lowest terms. Ans. $\frac{4a^2-6ay+3y^2}{3x+2y}$.
5. Reduce $\frac{x^2+a^2}{x^2+2ax+a^2}$ to its lowest terms. Ans. $\frac{x^2-ax+a^2}{x+a}$.
6. Reduce $\frac{x^3-a^3}{x-a^2}$ to its lowest terms. Ans. $\frac{x^2+ax+a^2}{a}$.
7. Reduce $\frac{8a^3-27b^3}{1a^3-9b^3}$ to its lowest terms. Ans. $\frac{4a^2+6ab+9b^2}{2a+3b}$.
8. Reduce $\frac{3x^2+2x^2-x^2-x^2+2x+3}{x^2-6x^2-6x+1}$ to its lowest terms. Ans. $\frac{3x^2-x^2-x+3}{x^2-6x^2-6x+1}$.

9. Reduce $\frac{x^2+x^2-2x+2}{2x^2-x-4}$ to its lowest terms. Ans. $\frac{x^2+x^2-2}{2x^2-x-4}$.

10. Reduce $\frac{18x^2-5x^2+44x-5}{3x^2+20x^2-57x^2+80x-50}$ to its lowest terms.

11. Reduce $\frac{16x^2-53x^2+45x+6}{8x^2-30x^2+31x^2-12}$ to its lowest terms. Ans. $\frac{6x^2+8x-1}{x^2+8x-10}$.

12. Reduce $\frac{24x^3-22x^3-14x^3+21x^3-8x}{18x^3-18x^3-11x^3+30x^3-12x}$ to its lowest terms. Ans. $\frac{4x^3-x^2-3x+2}{3x^3-x^2-3x+3}$.

LESSONS IN GREEK.—No. VII.

By JOHN R. BEARD, D.D.

THE THIRD DECLENSION.

The forms of the third declension in Greek are various, and can be learnt only by attentive practice. Some aid may, however, be given by means of classification.

The variations occur mostly in the singular number, and in the nominative and genitive case. The forms of the nominative singular, which are numerous, will appear as we proceed, and may therefore be omitted from this table of

The Case-endings of the Third Declension.

	Singular.	Plural.	Dual.
N.		ες	ε
G.	ος	ων	ων
D.	ι	σιν (ν)	ων
A.	ν or α	ας	ε
V.		ε	ε

Neuter nouns have the nominative, the accusative, and the vocative alike. The student who is acquainted with Latin will readily see how much this Greek third declension corresponds with the Latin third declension.

The terminations given above are affixed to the stem. The stem is, in some words, the same as the nominative; thus *λαίμων*, *λαίμων-ος*, a meadow, where the ending *ος* is simply added to *λαίμων*. In masculine and feminine nouns, however, the stem often appears in the nominative in an altered form. When the stem is so altered you must find it before you affix the case-endings to it. In order to find the stem, remove the genitive termination from the noun; what remains is the stem; e.g. *κορακος* (of a crane), the *ος* is the sign of the genitive, which being removed, leaves *κορακ* as the stem; and *κορακ* is, for the sake of euphony, lengthened in the nominative into *κορακος*, that is *κοραξ*; for the laws of sound in Greek endure at the end of a word only these consonants, namely, *ν*, *ρ*, *σ* (*ς*); the other consonants are either changed or thrown away. Hence the *τ* in the stem of *Xenophon* is dropped, as *Ξενοφώντ-ος*, *Ξενοφώντ*, *Ξενοφών*. Neuter nouns present the stem in the nominative. But when a word ends in *ς*, the *ς* is either discarded or changed into *σ*; as

Stem	Nominative	Genitive
πτερι	πτερι, pepper	πτερι-ος
σωμα	σωμα, body	σωμα-ος
τεπαρ	τεπαρ, a prodigy	τεπαρ-ος

The accusative has *ν* in masculines and feminines ending in *ς*, *ος*, *ων*, and *ων*, the stems of which severally terminate in *ν*, *ν*, *ων*, and *ων*, as

Stem	N.	A.
πολι	πολις	πολι
πολι	πολις	πολι
πολι	πολις	πολι

6. To find the height of each perpendicular. For the first seven, take three-fourths of their distance from the acute angle for their height. For the last two, take $\frac{1}{2}$ of their distance from the other corner of the field for their height. These rules give the following results:—

Sum paid by each.	Share of each in square chains.	Distance of the perpendicular from acute angle.	Height of perpendicular.
A £2 17 6	431	10.7238	8.0428
B 2 2 6	467	15.4919	11.6189
C 3 6 6	504	19.3649	14.5236
D 3 12 6	541	22.8035	17.1026
E 3 17 6	581	25.9807	19.4855
F 4 2 6	614	28.9827	21.7370
G 4 7 6	659	31.8590	23.8342
H 4 12 6	695	35	26
I 4 17 6	731	39.2617	29.3177
K 5 2 6	768		
£40 0 0	500		

Aug. 6, 1853.

PETER SIMPLE, Fleet-street.

CORRESPONDENCE.

CHEMISTRY.

SIR,—In your first lesson on Chemistry, you direct us to procure a quarter of a pound of the glass-tube termed "quilled." Now I have tried to get it everywhere in the town, and have been unsuccessful, as there seems to be no glass-tube known by that name in these parts. I have procured a barometer tube, but I know not whether that will do. If you will have the kindness to inform me what is meant by the term "quilled" in your next number, you will greatly oblige your attentive reader, WILLIAM DYER.

N.D. Infirmary, Barnstaple, Devon.

[The term "quilled" is applied to the thinnest variety of glass tubing. The diameter may be said, in general terms, to vary from that of a small tobacco-pipe-shank, or even smaller, to about half an inch. Barometer tubing is far too thick for several chemical purposes, and to work it requires practice and much address. We would suggest that, whenever possible, students working by these lessons should form class associations, and study in concert. Many advantages would result from this practice. One student may possess that which another requires. One student may see the rationale of a process which another does not immediately comprehend; and, more important still, the remembrance of phenomena would be impressed by discussion. There is yet another reason in favour of class associations, a reason which has reference to the future rather than the present. Qualitative chemistry does not require for its prosecution any expensive instruments: but quantitative chemistry requires a delicate balance, an instrument which cannot be procured for less than £20. Such an instrument may be readily purchased by an association, but the expenditure would be too great for many individuals.]

ANSWERS TO CORRESPONDENTS.

AMICI EDUCATORI POPULARI: If our correspondent, under the above signature, will call at our office, we will gladly exchange any copies of our works that may have reached him in a damaged condition, which will sometimes happen in making up hurriedly the large number of impressions called for of most of our publications.

WM. BALPIN: The promise to publish a series of French works, is not forgotten, though its fulfilment has been delayed by the press of other matters. The English of the sentence referred to is—"but I have not been able to do it."

GEORGE BAY: The translation of the sentence is as follows:—"The ancient history of Arabia before the time of Mahomed is little known; it is only with this extraordinary man that the Arabians emerge for a short time from obscurity." The word *AUSSEHRENDLICH*, from which *AUSSEHRENDLICHEN* comes, is given in Cassell's German Dictionary, p. 49.

JAS. FLYCHER, Junr.: We have not yet published extracts from French writers, but will bear our promise in mind, as we stated in answer to another correspondent not long since.

JOHN GREENGLASS: The subject of French pronunciation involves great practical difficulties, and cannot be taken in hand at present. However, we thank our correspondent for his suggestions, which may, perhaps, be turned to account at some future time.

ERRATA.

We regret to state that in No. 75 one or two misprints in the Greek Lessons escaped observation till it was too late to correct them. They are the following—p. 337, col. 2, last line, *ἑοικατοῦντος*, which should have been *ἑοικατοῦτος*, and p. 338, col. 1, line 1, *ὄρεα* put erroneously for *ὄρεα*. These mistakes will be rectified in the separate lessons.

LITERARY NOTICES.

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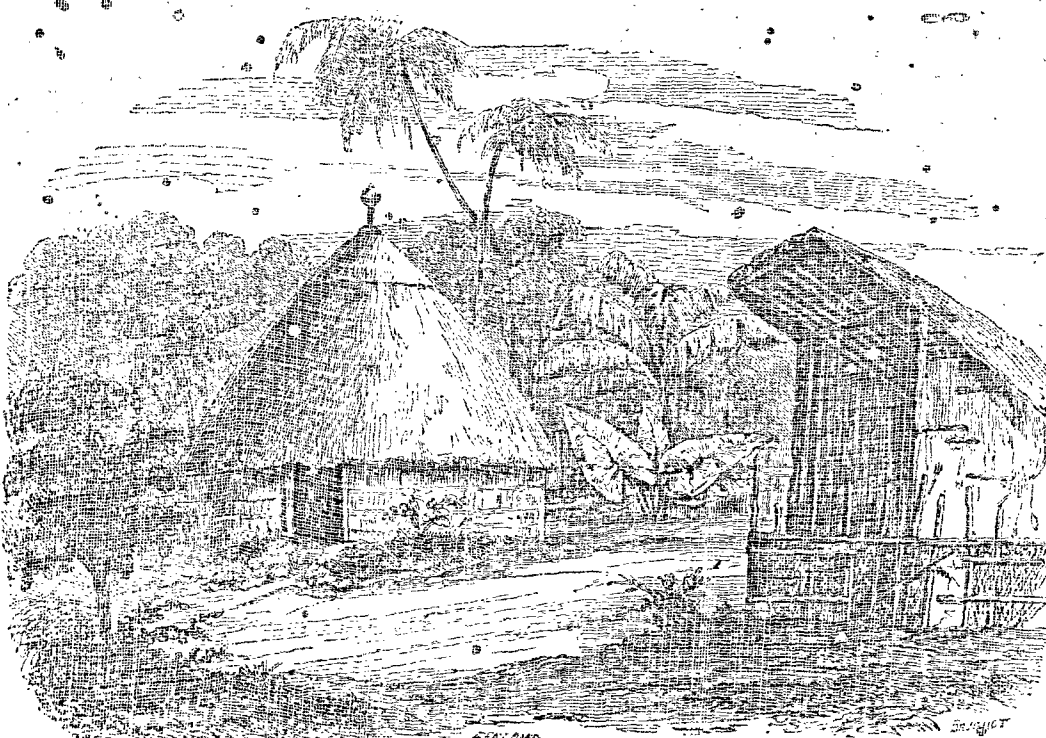
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ON CIVILIZATION.

As Lessons in Chemistry, Natural Philosophy, and other branches of knowledge are to be carried on with regularity and vigour from the commencement of next volume, we conclude the present with some remarks on the subject of civilization. The usual theory of civilization is, that man arose from the savage state to the civilized, through a long series of gradual steps in improvement, and continued for a vast number of ages. The *mutum ac turpe pecus* of Horace is the acme of this absurd opinion; and although many of our modern philosophers do not perhaps go so far as to look upon man as descended from a race of crawling animals, who fought at first with their nails and their fists for their acorns and their caves, yet they still believe that man was originally no better than

must be told. It is true that when the passions are not roused by some provoking circumstances, such savages in their common intercourse with one another and with strangers may exhibit some of the milder qualities of civilized life; but it is plain that their usual employments are plunder, rapine and murder.

Seeing then, that the advocates of the original savagism of the human race, have these living witnesses to demonstrate, as they think, the truth of their theory, it may now be asked what other theory can be proposed on this subject, and when proposed, how can it be supported? Admitting the existence of an all-wise, an all-good, and an all-mighty Creator, it does not appear *a priori*, that the original state of man could have been such as we have described; and that it would be revolt-



A Scene in New Caledonia.

an infant, and that he had everything to learn as he best could. The degraded and uncivilized state in which many of the South Sea Islanders are found living to this day, confirms them in this opinion; and the rude savagism of the natives of those islands in Australasia and Polynesia on which no European settlements have been formed, would seem to place it beyond a doubt. Take, for example, the island of New Caledonia, which is no less than 250 miles long and 80 miles broad, and has a population of perhaps 50,000. The character of the inhabitants is, according to D'Entrecasteaux, that of fierce fighters with one another, and devourers of human flesh. Other navigators have softened this sad picture; but the truth

ing to our ideas of the wisdom, the power and the goodness of God, to imagine that man was created a savage. But we are not left to *a priori* reasoning in the matter. We have in our hands a document which men in all ages and in all nations have revered; a document which was penned by inspiration from heaven. This document teaches us a new and a better theory of civilization than the former; and not only better, but the only true theory that can be given. According to this document, it appears that man at first was created in the image or likeness of God; and that he held communion with his Maker, before he fell from that state in which he was created. This "likeness to God," spoken of in the document to which we have alluded, could not, of course, have consisted in his outward form or bodily appearance, for God is a Spirit, as the

* The dumb and vile herd.

same document informs us. It must therefore have consisted in the likeness of the spirit of man to the spirit of God, but in an infinitely inferior degree; it consisted in a finite degree of knowledge, righteousness and holiness, such as became a created being. When God placed man in Eden and held communion with him there, it is plain that his knowledge must have been such as to render him fit to speak with God, since God condescended to speak with him; his righteousness must have consisted simply in his innocence, or freedom from the transgression of God's law, for God holds no man guiltless who breaks his law; and his holiness must have consisted in freedom from moral pollution, for God cannot look upon sin, much less can he have communion with the wicked.

Moreover, whatever was necessary to his comfort and well-being, both as to the necessities of life and to his future happiness, he was taught by God to perform, while he lived in this innocent and contented state. But man fell from the holy and happy state in which he was created, by sinning against God. Now all was changed; man lost the image of God; he became vile and degraded. He hid himself. When he was discovered, he was clothed in skins. Notwithstanding his sin, God clothed him, and taught him how to do it. God gave him work to do, and taught him how to do it. God laid the foundation of civilization, and taught man the arts and sciences. God did more than this, and wonderful was the deed! God laid the foundation of Christianity by giving the first sinner the *Protevangelium*, the first glad tidings of the Gospel. No doubt the arts and sciences are great civilizers of men, but Christianity is the *Grand Civilizer*. Without Christianity we should fall into barbarism and become savages, with all our knowledge of the arts and sciences.

In proof of this assertion we have only to turn to the history of all the ancient empires that have ever existed in the world. Where is ancient Egypt, with all her primitive glory, and all her boasted knowledge of the arts and sciences? Gone, with the years before the flood! Where is Assyria, with all her early civilization, and all her knowledge of the most ennobling sciences? Battered in the bowels of the earth, and only at the distance of thousands of years, just beginning to show her dead carcass above the surface! Where is Greece, with her mighty warriors, her glorious arts, her splendid sciences? Groaning under the tyranny of ages, or but emerging from the grasp of gross ignorance and horrid superstition and fanaticism? Where is Rome, the proud mistress of the world? But enough—we have said and shown enough to prove that the true source of civilization is Christianity, in the germ, in the bud, and in the full flower. Its beams have shone upon the world, and have lightened every land. Christianity has now opened the impenetrable gates of China, the mightiest empire the world ever saw, and has cast down to the ground the accumulated folly and stupidity of ages. China will soon be the great, the glorious, and the free; and three hundred and sixty millions of men, one-third of the human race, will be emancipated in a day by the invisible progress of Christianity. The passions of men will no longer furnish the glory of this revolution of revolutions, this one great wonder of the world in our day; but the truth is no less sure and certain. "I will overturn, overturn, overturn," said Jehovah, "until he come whose right it is, and I will give it him." The words of ancient prophecy are now being most wonderfully fulfilled; and the uttermost parts of the earth for thy possession. Christianity is the *Grand Civilizer*, the only preserver and encourager of the Arts and Sciences, God himself being their founder. After this, our theory of Civilization is plain: God made man civilized, and taught him the arts and sciences. So long as man continued in the knowledge of the true God, and in communion with him, he retained the former; when he fell from that knowledge he lost them, and became savage! Witness the South Sea Islanders! Witness the aboriginal inhabitants of Malaysia and Australasia! Witness the North American Indians, the South American Indians, the Negroes of Africa, the Hottentots of the Cape, and the aboriginal inhabitants of all countries on the face of the globe. What were the Greeks and Romans, with all their boasted learning and skill? A set of civilized savages! What are the Hindoos, the Chinese, and the Japanese at the present day? Only civilized savages!

Restore Christianity, and the arts and sciences will flourish! Restore Christianity, and the nations will become civilized!

LESSONS IN ENGLISH.—No. LXVI.

By JOHN R. BEARD, D.D.

NOUNS.

VARIOUS FORMS OF THE SUBJECT OF A PROPOSITION.

We now come to the noun *man* in our model sentence,

The sick *man* copiously drinks.

The noun *man* is the subject to the verb *drinks*. We thus see that a noun may be the subject of a proposition. Is there any other part of speech that may be the subject of a proposition?

1. An adjective may be the subject of a proposition; e. g.,
The sick *drinks*.

But here it must be observed that for *drinks* I have substituted *drink*, the plural for the singular form of the verb. The rule then is, that *adjectives when used in the plural and preceded by the definite article may be the subject of a proposition*.

2. A pronoun may be the subject of a proposition; e. g.,
I, the sick *man*, drink.

Here *I* is the subject to the verb *drink*, as *I drink*; so we may say,

You, the sick *man*, drink.
I, you, we, they drink.

These additions to the subject modify the signification; and offer instances of what is called *apposition*. Apposition (from *ad*, to, and *pono*, I place) exists when a noun is added to a pronoun or a noun in order to explain the intended meaning. Thus here it is not *I* merely that drinks, but *I, the sick man*. Instead of a pronoun you may have a noun, as,

Alexander, the son of Philip, conquered Darius.

Apposition takes place in the object as well as in the subject; e. g.,

Wine overcame Alexander, the son of Philip.

3. An infinitive mood may be the subject of a proposition; e. g.,
To labour is pleasure.

Other words may be connected with the infinitive mood; as,

A noun. To drink *water* is pleasant.

A noun and adjective. To drink *good water* is wholesome.

A noun, adjective, and adverb. To drink *good water copiously* is wholesome.

4. A present participle may be the subject of a proposition; as,
Drinking is bad.

Drinking has here the force of a noun, while it retains also its participial force. That it is a noun is clear from its being the subject to the verb *is*. That it has also the force of a participle is clear from its power to govern an object; as,

Drinking *spirits* is bad.

As a noun, *drinking* may be qualified by an *article*, an adjective, and a personal pronoun; e. g.,

Article. The drinking was injurious.

Adjective. Much drinking is very injurious.

Pers. Pron. His drinking has been injurious to him.

Equally may the participial force carry with it words qualifying the object; as,

Drinking *pure water* is wholesome.

Drinking *even a glass of wine* may be blamed.

This last sentence presents a subject compounded of several words, for the subject to the verb *may* is the clause, *drinking even a glass of wine*.

Here is a clear and striking instance of the advantage of the term *subject* over the term *nominative* or *nominative case*. These words are the subject, but they are not the nominative of the verb *may*. The nominative case must be restricted to *drinking*.

I submit another example of this compound subject:

Reading books which you do not read will not make you wise.

In this subject you have a sentence within a sentence; that is, the proposition is not a simple but a compound sentence, the included or subordinate sentence being *which you do not read*.

A past participle may be added to a present participle so as to form the subject of a proposition; e. g.,

Being involved in debt drove him from his country.

Here too qualifying words may be introduced, as,

Being *greatly* involved in debt, &c.

The past participle itself cannot, however, be a subject to a proposition. We may indeed say,

Driven is a past participle;

but here *driven* is used in a general sense as a noun, and may have prefixed to it these terms, *the word*, as, "the word *driven* is a noun."

When this participial noun has the article connected with it, it in a measure loses its participial force, and, becoming a noun, is connected with a second noun by means of a preposition; e. g.,

The driving of the cattle was blamed.

With the noun, however, adverbs may be joined; e. g.,

The driving-off of cattle is a crime at law.

The subject in this last sentence is very complex, extending as it does to the verb *is*.

The two last sentences would, however, sound better and be more simple if the article and the preposition were dropped; e. g.,

Driving-off cattle is a crime at law.

The subject of a sentence is sometimes a proposition, or several words introduced by an adverb or a preposition. Such subjects are likely to give the learner trouble; I, therefore, give specimens, marking the words which form the several subjects.

Compound or Adverbial Subjects.

Subject.

That too much care can injure
By what means I may serve you
For a prince to be reduced

Predicate.

is a dangerous doctrine.
is unknown to me.
is a great calamity.

Agreement.

The compound subjects I have now laid before you contain instances of both agreement and government. They contain instances of agreement in,

1. Much drinking is very injurious.
2. Drinking pure water is wholesome.

In number 1. *much* is an adjective agreeing with the participial noun *drinking*, whose meaning it qualifies. In number 2. *pure* is an adjective agreeing with *water*, whose meaning it qualifies.

The instances of government which it is chiefly important to notice, are found in these propositions:

1. Drinking *spirits* is bad.
2. Drinking a glass of *wine* is not necessary.
3. Disturbing the peace of the *queen's subjects*.

In number 1. we have the simple case of the object depending on the verb, and the rule may be given as *the object of a proposition depends on or is governed by the verb*.

In number 2. we find the Norman or false genitive in the words *a glass of wine*, where the two nouns are connected by *of*, and the latter, namely *wine*, depends on or is governed by the proposition.

In the third sentence the words *queen's subjects* present an instance of the Saxon genitive, in which the former term *queen's* depends on or is governed by the term *subjects*; the rule may be laid down thus: *If two nouns in immediate dependence, the former is in the genitive case*.

This last example contains an instance of both the Norman and the Saxon genitive, and that too in combination, as in the words,

The peace of the queen's subjects.

These two genitives may be indicated thus:—

The Saxon genitive. Queen's subjects.

The Norman genitive. The peace of the subjects.

For the Saxon genitive, the rule is that when two nouns come together the dependent noun is in the genitive case. Observe that the dependence is merely structural, as in "queen's subjects," the form *queen* becomes the form *queen's* by being dependent on *subjects*. You may state the rule thus also, *the possessive case is the case of the possessor*, as, *John's books*. Thus stated the relation is more than structural, for possession is a fact.

Instead of a noun, a clause, or several words, may govern the genitive case. Instances of this kind involve idioms that may be called peculiarly English, though similar constructions appear in Greek.

What is the reason of *this person's* hastily dismissing his servants?

What is the reason of *this person's* dismissing his servant so hastily?

He prevented his *army's* being enclosed.

Possessive pronouns may hold the place of the genitive; as,

"This is the last time of *my* acting so imprudently."

In this instance the pronoun agrees with the participle *as if* it were a noun.

Sometimes the idea of possession is wholly dropped, and the participle stands alone, either simply agreeing with a noun, or with a gerundial force; e. g.,

1. He produced an argument *against Moses* being the author of the Pentateuch.

2. Madam, what do you mean by *holding up your train*?

Participles sometimes occur as simple participles when in truth they have the force and should have the construction of nouns, as in the following sentence:—

Wrong. "Cyrus did not wait for the Babylonians coming to attack him."—(Rollin.)

Right. Cyrus did not wait for the Babylonians' coming to attack him.

Compound or adverbial subjects require the verb in the singular number. Respecting pronouns considered as subjects, a few details are necessary. Pronouns that denote one person or object must have their verb in the singular number. Pronouns that denote more than one person or object must have their verb in the plural number. When two or more pronouns occur in one sentence, and refer to the same person or thing, they must be in the same gender, number, and person; e. g.,

I saw *my* dog bite the man.

She came to show me *her* bonnet.

But if different persons or things are intended, the proper pronouns must be employed; e. g.,

I saw *his* dog bite the man. She came to show me *your* hat.

The distributive pronouns *each*, *every*, *whoever*, &c., being singular in form, should have a verb in the singular number; they should also have corresponding pronouns in the singular number; e. g.,

Each man is coming for *his* wages.

"Every good gift and every perfect gift cometh down from above."—(James i. 17.)

Whoever comes, let *him* enter.

Inaccurate speakers are wont to put the second pronoun in the plural, saying,

Whoever comes, let *them* enter.

The error is the more to be guarded against, because *every one* &c. implies a number, and is nearly equivalent to *all*.

POSITION OF THE SUBJECT AND ITS AGREEMENT WITH THE VERB.

Position of the Subject.

The ordinary place of the subject is immediately before the verb, as,

The sick *man* drinks.

One word or more may intervene between the subject.

The subject, however, comes after the verb in questions, as,

Does the sick *man* drink wine?

2. With the imperative mood, as,

Go *thou*, *come* ye.

3. On the expression of a strong wish, as,

May they learn wisdom by what they suffer.

* An instance of two nouns combining to form one thought, and so putting the verb in the singular.

4. When the conjunction *if* is dropped:
Were my father alive, for "if my father were," &c.
5. With the conjunction *nor*, as,
Nor can your turpitude be denied.
6. In cases of emphasis:
Rich is the reward of the righteous.
7. After an adverb or adverbial phrase; as,
After the infantry marched the grenadiers, then followed the horse.
8. With an interposed verb; as,
"My children," replied the dying father, "I entreat you."
- The imperative mood of the first and third person singular and plural, is formed with the assistance of *let*; as,
Let him go; let them eat.

Here it will be observed the pronouns are in the objective case. The reason is that *let* is really an independent verb, and as such

governs the objects *him* and *them* in the objective case, *go* and *eat* being infinitives depending on *let*. This is the true analysis of such sentences.

An adverb, when it begins a sentence, puts the subject after its verb; as,

"There will I plead with you face to face."—(Ezek. xx. 35.)

Yet by no means universally, as,

"There they buried Abraham and Sarah."—(Gen. xlix. 31.)

When, however, *there* is used as an expletive, the subject follows the verb; as,

"There shall be no night there."—(Rev. xxi. 25.)

"An expletive" is a word which according to its derivation, signifies a word which fills up or is redundant. A regard to idiom may sometimes require the retention of expletives.

Adverbial phrases have great force in causing the subject to take place after the verb.

LESSONS IN GERMAN.—No. LXVII.

Irregular Verbs, continued from p. 370.

INFINITIVE.	PRESENT INDICATIVE.	IMP. INDIC.	IMP. SUBJ.	IMPERAT.	PARTICIP.	REMARKS.
Stechen <i>a</i>), to twist, Dingen <i>a</i>), to fly,	ich steche, du steichst, er sticht ich flieg, du fliegst, er fliegt	ich steche ich flieg	ich steche ich flieg	stich fliege	gestochen. gefliegen.	<i>a</i>) <i>streich</i> and <i>sticht</i> in the present, and <i>stich</i> in the imperative are forms used only in poetry.
Stichen <i>a</i>), to flee,	ich fliehe, ic.	ich flieh	ich fliehe	fliehe or flieh	geflohen.	<i>a</i>) <i>Streich</i> , <i>streich</i> and <i>streich</i> , poetical.
Stichen <i>a</i>), to flow, Biegen <i>a</i>), to ask, Stehen <i>a</i>), to devour, Stehen <i>a</i>), to freeze,	ich fliehe, ic. ich frage, du fragst, er fragt ich esse, du isst, er isst ich friere, ic.	ich flieh ich frage ich esse ich friere	ich fliehe ich frage ich esse ich friere	fliehe frage esse friere	gefliegen. gefragt. geessen. gefroren.	<i>a</i>) <i>Streich</i> , <i>streich</i> and <i>streich</i> , poetical.
Gähren <i>a</i>), to ferment, Gebären <i>a</i>), to bring forth, Geben <i>a</i>), to give,	ich gähre, ic. ich gebäre, du gebärst (gebierst), er gebärt (gebirt) ich gebe, du gibst, er gibt	ich gähre ich gebäre ich gebe	ich gähre ich gebäre ich gebe	gähre gebäre (ge- birt) gib	gegähren. gebornen. gegeben.	<i>a</i>) Sometimes regular, <i>gähre</i> .
Gebieten <i>a</i>), to command, Gelingen <i>a</i>), to prosper, Gefallen <i>a</i>), to please,	ich gebiete ic. ich gelänge, ic. ich gefalle, tu gefällst, er gefällt	ich gebiet ich gelänge ich gefalle	ich gebiete ich gelänge ich gefalle	gebiete gelänge gefalle	gebieten. gelingen. gefallen.	<i>a</i>) Some writers prefer <i>gibst</i> <i>gibst</i> , to <i>gibst</i> , <i>gibst</i> , <i>gib</i> . <i>b</i>) <i>Gebietst</i> , <i>gebiet</i> poetical. <i>c</i>) <i>Gelingen</i> is but a strengthened adjective form of the past participle. <i>d</i>) <i>Ging</i> for <i>ging</i> is antiquated.
Gehen <i>a</i>), to go, Gelingen <i>a</i>), to succeed, Gelten <i>a</i>), to be worth, valid, Genesen <i>a</i>), to recover, Genießen <i>a</i>), to enjoy, Gerathen <i>a</i>), to hit upon, Geschehen <i>a</i>), to happen,	ich gehe, ic. es gelingt ich gelte, tu gelst, er gilt ich genes, ic. ich genieße, ic. ich gerathe, du geräthst, er geräth es geschieht, ic	ich ging es gelang ich galt ich genes ich genieße ich geräthe es geschieht	ich gehe es gelänge ich gälte ich genes ich genieße ich geräthe es geschieht	gehe or geh gelänge gilt genes genieße gerathe geschehe	gegangen. gelingen. gegessen. genesen. genossen. gerathen. geschehen.	<i>e</i>) Formerly <i>galt</i> , <i>gälte</i> , were used in the imperfect indicative and subjunctive. <i>f</i>) <i>Genießest</i> , <i>genießt</i> , and imperative <i>genieß</i> , poetical, seldom used.
Gewinnen <i>a</i>), to gain, to win, Gießen <i>a</i>), to pour, Gleichen <i>a</i>), to resemble,	ich gewinne, ic. ich gieße, ic. ich gleiche, ic	ich gewinne ich gieße ich gleiche	ich gewinne ich gieße ich gleiche	gewinne gieße gleiche	gewonnen. gegossen. geglichen.	<i>a</i>) <i>Gewinnst</i> , <i>gewinnst</i> , and imperative <i>gewinn</i> . See <i>genießen</i> . <i>b</i>) Regular as an active verb, to make similar, to compare. <i>Gewinnst</i> , although active, is irregular.
Gleiten <i>a</i>), to glide,	ich gleite, ic.	ich glitt	ich gleite	gleite	geglitten.	<i>c</i>) <i>Gleiten</i> and <i>gleiten</i> are not derived from <i>gleiten</i> , but from <i>gleiten</i> , and are therefore regular.
Glimmen <i>a</i>), to shine, Graben <i>a</i>), to dig, Greifen <i>a</i>), to seize,	ich glimme, ic. ich grabe, du gräbst, er gräbt ich greife, ic.	ich glimm ich grab ich greife	ich glimme ich gräbe ich greife	glimme gräbe greife	geglommen. gegraben. gegriffen.	<i>d</i>) Now more frequently regular.
Halten <i>a</i>), to have, Halten <i>a</i>), to hold,	ich habe, du hast, er hat ich halte, du hältst, er hält	ich habe ich halte	ich habe ich halte	habe halte	gehalten. gehalten.	<i>e</i>) <i>Halten</i> is regular

Irregular Verbs continued.

INFINITIVE.	PRESENT INDICATIVE.	IMP. INDIC.	IMP. SUBJ.	IMPERAT.	PARTICIP.	REMARKS.
Hangen <i>a</i>), to hang,	ich hänge, du hängst, er hängt	ich häng	ich hänge	hänge	gehangen.	<i>a</i>) <i>häng</i> , <i>hänge</i> are old forms. This verb must not be mistaken for <i>hängen</i> , to suspend, which is active and regular.
Heben <i>a</i>), to how, Heben <i>a</i>), to leave, Heben <i>a</i>), to be named, Heben <i>a</i>), to help,	ich habe, ic. ich hebe, ic. ich heiße, du heißt, er heißt ich helfe, du hilfst, er hilft	ich heb ich heb or heb ich helfe ich helfe	ich hebe ich hebe ich heiße ich helfe or helfe	hebe or hau hebe heiße helfe	gehoben. gehoben. geheissen. geholfen.	<i>a</i>) <i>hau</i> (regular) is used when cutting wood, carving stone, &c. are meant.
Reizen <i>a</i>), to chide, Reizen <i>a</i>), to know, Reizen <i>a</i>), to cleave, Reizen <i>a</i>), to climb, Reizen <i>a</i>), to sound, Reizen <i>a</i>), to swim, Reizen <i>a</i>), to sing,	ich reize, ic. ich reize, ic. ich reize, ic. ich reize, ic. ich reize, ic. ich reize, ic. ich reize, ic.	ich reiz ich reiz ich reiz ich reiz ich reiz ich reiz ich reiz	ich reize ich reize ich reize ich reize ich reize ich reize ich reize	reize or reiz reize reize reize reize reize reize	gezeiten. gezeiten. gezeiten. gezeiten. gezeiten. gezeiten. gezeiten.	<i>a</i>) This verb is sometimes used as a regular verb.
Reizen <i>a</i>), to be able, Reizen <i>a</i>), to creep	ich kann, du kannst, er kann ich kriech, ic.	ich kann ich kriech	ich kann ich kriech	kann kriech	gekann. gekriech.	<i>a</i>) <i>Reizen</i> , <i>reizen</i> , <i>reizen</i> , obso- lete. Only poetically used.
Rühren <i>a</i>), to choose,	ich rühre, ic.	ich rühr	ich rühre	rühre	gerührt.	<i>a</i>) <i>Rühren</i> is entirely antiquated, <i>wählen</i> having taken its place.
Säen <i>a</i>), to load,	ich lade, du ladest, er ladet	ich lad	ich lade	lade	geladen.	<i>a</i>) <i>Säen</i> is regular.
Laufen <i>a</i>), to let, Laufen <i>a</i>), to run, Laufen <i>a</i>), to suffer, Laufen <i>a</i>), to lend, Laufen <i>a</i>), to read, Laufen <i>a</i>), to lie down, Laufen <i>a</i>), to lie, Laufen <i>a</i>), to grind,	ich lasse, du lässest, er läßt ich laufe, du läufst, er läuft ich leide, ic. ich leihe, ic. ich lese, du liest, er liest ich liege, ic. ich lüge, ic. ich mahle, du mahlest, er mahlt	ich lass ich lauf ich leid ich leihe ich las ich lag ich lüge ich mahle	ich lasse ich laufe ich leide ich leihe ich lasse ich lüge ich mahle	lasse or lass laufe, lauf leide leihe lies lege lüge mahle	gelassen. gelaufen. gelitten. geliehen. gelesen. gelegen. gelogen. gemahlen.	<i>a</i>) <i>Säen</i> is regular.
Meiden <i>a</i>), to avoid, Meiden <i>a</i>), to milk, Messen <i>a</i>), to measure, Missfallen <i>a</i>), to displease, Misslingen <i>a</i>), to go amiss, Müssen <i>a</i>), to be able, Müssen <i>a</i>), to be obliged, Nehmen <i>a</i>), to take,	ich meide, ic. ich melke, du melkst, er melkt er milt, er milt ich messe, du misst, er misst or misst ich missfalle, du missfällst, er missfällt es misslingt ich mag, du magst, er mag, wir mögen, ic. ich muß, du mußt, er muß, wir müssen, ihr müßt, er müßt, ic ich nehme, du nimmst, er nimmt	ich meide ich melk er milt ich messe ich misst ich missfalle es misslingt ich mag ich muß ich nehme	ich meide ich melke er milt ich messe ich misst ich missfalle es misslingt ich mag ich muß ich nehme	meide melke milt messe misst missfalle misslinge mag muß nehme	gemieden. gemolken. gemessen. missfallen. misslingen. gemusst. genommen.	<i>a</i>) Except the past participle <i>gemessen</i> , no irregular form is in use. <i>b</i>) Sometimes regular. <i>Müssen</i> , &c. rarely used.

LESSONS IN GEOLOGY.—No. XLI.

By THOMAS W. JENKYN, D.D., F.R.G.S., F.G.S., &c.

CHAPTER IV.

ON THE INFLUENCE OF ATMOSPHERIC AGENTS ON THE EARTH'S CRUST.

SECTION VIII.—ON ICEBERGS.

§1. ON THE FORMATION AND THE DRIFTING OF ICEBERGS.

Our last three lessons have instructed you in the formation and the operations of glaciers. The diagrams have explained to you, in a very graphic and striking manner, how glaciers extend from high glens among the ridges of the Alps down to the lower vales where orchards and vineyards are cultivated. Still, what you have learnt about glaciers in the Alps, or among any inland mountains, will give you no idea of an iceberg. In order to have an accurate conception of an iceberg, imagine that a glacier-valley runs down to the sea-shore, and that the glacier pushes its icy body to a considerable distance into the sea. Then, by a change in the temperature of the season, and by the action of the sea upon the glacier that has

invaded its borders, an immense mass of the glacier is snapped, and an enormous fragment of ice is separated from the parent glacier and begins to float. It is this snapped or lopped fragment of ice, as large as a mountain, that is called an iceberg.

All navigators who have sailed to polar regions, whether to the north or to the south, have borne witness to the extreme rapidity with which these icebergs are formed. When a mass of ice has been separated from a glacier, or from an icy barrier, it drifts away with the waves, and is again broken into many pieces. From the accumulation of snow which falls upon its upper surface, such a mass assumes a flat or table-topped shape, and continues to increase in height. As these successive layers of snow accumulate, the iceberg becomes more heavy, and consequently sinks deeper into the sea.

This accretion of layers is formed not by snow only, but also by frozen rain, and even by the dense fogs which prevail in high latitudes. The American navigator WILKES relates, that when he was near the south pole, ice had accumulated on the riggings and spars of his ship to the thickness of a quarter of an inch, in the course of a few hours, though neither rain nor snow fell at the time. The icebergs, therefore, are at all times on the increase; for there are but few days in such climates in

which some mode of precipitation does not take place, and where ice seldom melts. As even in summer the temperature is rarely above the freezing point, icebergs, a thousand feet thick, would require but a few years to form.

Navigators frequently meet with floating icebergs in all states of formation, rising from five feet to 250 feet above the surface of the sea, and exposing their stratification in horizontal layers from six inches to four feet in thickness. When they are fully formed they have a tabular or stratified appearance, have their sides perfectly perpendicular, and vary in height from 180 to 210 feet above the waves. The magnitude of such icebergs will be better conceived when you consider that the mass of ice below the water is nearly eight times greater than what is seen above. In some cases it is ten and even fifteen times greater.

The number of these icebergs is as astonishing as their dimensions. Scoresby counted 500 of these icebergs drifting in latitudes 69° and 70° north, and these were from 100 to 200 feet high. In Baffin's Bay, Captain Ross saw several of them aground in water fifteen hundred feet deep. Every four or five years a large number of icebergs float from Greenland and are stranded on the west coast of Iceland. In the Antarctic regions, "the sight of the icebergs around us," says Lieut. Wilkes, "all of large dimensions, was beautiful. The greatest number in sight was found to be more than a hundred, varying from a quarter of a mile to three miles in length."

When icebergs are met with in low latitudes, the whole of their outward aspect is found to have been altered by the distance, and by the different temperatures, through which they have floated. Sometimes they are apparently much worn, by the action of the sea, into cavities, and exhibit large fissures as though they were ready to fall in pieces. Others exhibit lofty arches of many coloured tints, arches that lead into deep caverns open to the swell of the sea, which rushing in with impetuosity produces a sound like a loud and distant thunder. These caverns worn in the perpendicular sides of the icebergs, appear the more strange, as in some cases, the flight of birds in and out of them, remind the navigator of ruined abbeys; dilapidated castles, and mountain caves. Icebergs that have been long afloat, lose the tabular form and the stratified aspect which they had when they first started from the parent ice-field or glacier. At starting, these tabular icebergs were like vast mountains of beautiful alabaster. But, through the influence of increased temperature and by the action of the waves, they have the appearance of an immense city, with houses built of alabaster grouped together, with long lanes and streets, but now in ruins,—the Palmyra of the ocean. As their distance from the pole increases, the upper surfaces of the tabular icebergs incline at a considerable angle towards the horizon. This inclination is caused by a change which the abrading action of the waves produces on the position of the centre of gravity. In their decayed state, they rarely exhibit any signs of stratification, but appear as if they had been formed of soft and porous ice; though, at other times, the ice seems as hard as flint. In many cases their upper surface indicates that by the motion of the sea they have been completely overturned.

The process of their dissolution is frequently very rapid. On the coast of Newfoundland, for instance, these floating islands of dazzling crystal, are seen every year to melt away in the warm waters supplied by the gulf stream of the Atlantic, and they disappear in a few weeks.

The magnificent dimensions and the awful movements of these icebergs, as found afloat, render an inquiry into their formation and origin interesting. It is well known that the glens and ravines of the islands of Spitzbergen are filled up with solid ice, which has been accumulating for many ages. It is probable that the glaciers of polar regions began in the snows of winter. The summer suns melted the surface of this snow, and the water, thus produced, penetrated into the snow beneath, and, by saturating it, increased its density. The successive winters froze this glacier into a mass of porous ice, and superadded fresh layers of snow. These processes being repeated every summer and winter, changed the lowest stratum of the melted snow into dense and transparent ice. Centuries upon centuries, of alternate summers and winters, completed their operations in the production of icy aggregations of prodigious dimensions.

Icebergs, and by land glaciers, and before they begin to

float, appear near the sea-shore like enormous mountain cliffs. Scoresby saw one iceberg of this kind, that was eleven miles in length and four hundred feet in height above the level of the sea at the water's edge, but towards the middle it attained the height of sixteen hundred feet. The upper surface of a land iceberg is generally somewhat hollow, and the hollow is, during summer, filled with pools or lakes of the purest water. This water often wears channels for itself through the substance of the ice, and sometimes falls over the edge in the form of a cataract. Lieut. Wilkes found such an iceberg near the south pole, in the centre of which he found a large pond of most delicious water which rested under a scum of ice about ten inches thick. From this natural reservoir his ship was supplied with five hundred gallons of water, and about twelve times that quantity was left behind in the hollow surface of the iceberg.

You have already been informed that the ice of these bergs is porous and fissured. The water that is formed on the surface will necessarily percolate through the pores of the iceberg. When this water becomes frozen in these pores and fissures, it expands with irresistible force, and tears off immense fragments from the outer edge, which, with accelerated velocity, fall with an awful crash into the sea. A similar result is produced by the action of high spring tides which, lashed by frequent storms, rush into the fissures at the bottom and in the sides of the icebergs, undermine portions of the base, and shiver the awful mass into huge fragments, which float away as separate icebergs.

In the Arctic regions, a little to the north of Horn Sound, there is a fixed iceberg which occupies eleven miles in length of the sea coast. It rises precipitously from the sea, with a side perfectly smooth, to the height of above four hundred feet. It extended back towards the summit of the mountain, to about four times that elevation. These fixed icebergs become slowly corroded by the salt water, whose temperature has been raised by the Gulf stream. As the ice of glaciers in the polar valleys is still passing downward from behind, the mass projected into the sea can no longer support its own weight; it therefore snaps off, plunges into the deep sea, and splits into small masses, forming as many icebergs. Sea currents waft them towards different coasts. The great glaciers generated in the valleys of Spitzbergen, in 79° of north latitude, are almost all out off at the beach. But in Baffin's Bay on the west coast of Old Greenland, where the temperature of the sea is not mitigated by the waters of the Gulf stream, the glaciers stretch out from the shore, and furnish repeated crops of mountainous masses of ice which, when dislocated from the parent glacier, float off into the ocean.

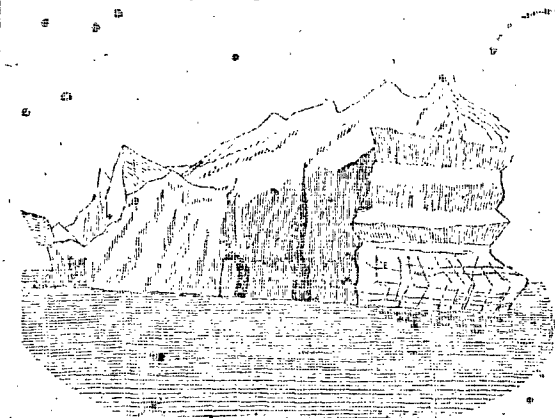


Fig. 91. Iceberg seen in Baffin's Bay.

In Terra del Fuego, Mr. Darwin found lofty mountains covered by a wide mantle of perpetual snow, and in many parts magnificent glaciers which extended from the mountain side to the water's edge on the sea-shore. The fragments which had fallen from one of these glaciers into the sea, were floating away, and the channel, with its icebergs, presented, for

LESSONS IN FRENCH.—No. LXXVII.

By Professor LOUIS PASQUELLE, LL.D.

118.—USE OF THE TENSES.—THE PRESENT OF THE INDICATIVE.

(1.) This tense denotes what exists, or is taking place at the time we speak:—

Je lis; vous parlez.

I read; you speak.

(2.) The French have only one form of the indicative present:—

Je lis means, therefore, I read, do read, or am reading.

(3.) The indicative present is used in French, as well as in English, for expressing things which are and will always be true:—

Dieu est éternel, sa puissance est sans bornes, et sa clémence est grande. *God is eternal, his power is boundless, and his clemency is great.* GIRARD DU VIVIER.

(4.) It is often used to express a proximate future:—

Je suis de retour dans un moment.

I shall be back in a moment.

Si Titus a parlé, s'il l'épouse, je pars.

If Titus has spoken, if he marries her, I go (will go).

(5.) The present is frequently used for the past, to awaken attention, and place the event, as it were, before the reader:—

J'ai vu, Seigneur, j'ai vu votre malheureux fils.

I saw, my lord, I saw your unfortunate son dragged by the horses which his own hand has led; he wishes to recall them, but his voice frightens them.

Traine par les chevaux ce que sa main a nourri:

Il veut les rappeler, mais sa voix les effraie.

RACINE.

119.—THE IMPERFECT.

(1.) The imperfect, or simultaneous past, is used to express something which was in progress, while another thing was taking place. It leaves the beginning, duration, and end of an action undetermined:—

J'écrivais, quand je reçus votre lettre.

I was writing, when I received your letter.

(2.) The French imperfect, as may be seen in the above example, represents the English past tense formed of the auxiliary *to be*, and the participle present of a principal verb.

(3.) The imperfect is also used to express repeated or customary action. It may then often be rendered in English by the infinitive of the verb preceded by "used to":—

Lorsque j'étais à Londres, j'allais me promener le matin, ensuite je dinais, et je passais le reste de la journée à lire et à écrire.

When I was in London, I walked (used to walk) in the morning, after meals I dined (usually dined), and spent (usually) the remainder of the day in reading and writing.

(4.) The use of this tense will be further explained in the next Section.

120.—THE PAST DEFINITE.

(1.) The past definite indicates an action performed at a time entirely past:—

J'allai à Londres, où je vis votre père; je finis mes affaires dans cette ville, et revins aussitôt ici.

I went to London, where I saw your father; I finished my business in that city, and returned hither immediately.

M. un tel écrivit hier au soir un sixain à Mademoiselle une telle.

Mr. such-a-one wrote last evening six verses to Miss such-a-one.

MOLIÈRE.

(2.) The past definite can only be used, as we have seen above, when the time at which an action took place is entirely elapsed. We cannot, therefore, use it in connexion with the words *to-day*, *this morning*, *this week*, *this month*, *this year*, &c. [See § 121, Past Indefinite.] We may use it in speaking of *yesterday*, *last week*, *last year*, &c.:—

Je vous envoie, mon cher frère, une lettre que j'écrivis hier pour Madame de Laval.

I send you, my dear brother, a letter which I wrote yesterday for Madame de Laval.

FÉNELON.

the space of a mile, a miniature likeness of the Polar Sea. In that country, a range of mountains of only the height of Ben Lomond or Snowdon, that is, from 3,000 to 4,000 feet high, have every valley filled with glaciers descending to the coast. Almost every arm of the sea, which penetrates into the interior of the higher chain, not only in Terra del Fuego, but on the coast for six hundred and fifty miles northwards, is terminated by tremendous glaciers. Great masses of ice frequently fall from these icy cliffs, and the crash of their fall reverberates through the lonely channels, like the broadside of a man-of-war.

In the Arctic regions, the icebergs are snapped from the glaciers of the polar valleys by increased temperature, and by the action of spring tides; but in Terra del Fuego, Mr. Darwin observed that this severance is sometimes produced by earthquakes. As earthquakes frequently cause masses of rock to fall from sea cliffs, the effects of these agents must be terrific on a body like a glacier, already in motion, and traversed by fissures. It can be readily imagined that by such an earthquake shock, the water of an arm of the sea would be fairly beaten back out of the deepest channel. This water would then return with an overwhelming force, and whirl about large masses of rock as if they were mere grains of chaff. In Eyre Sound there were seen about fifty icebergs floating outwards at one time, and one of them must have been at least 168 feet in total height. In the gulph of Penas, in lat. 43° 50', a glacier was found fifteen miles in length, and in one part seven miles broad, which reached to the sea-shore.

The distance to which icebergs are floated is as remarkable as their magnitude. In the northern hemisphere their extreme limit is lat. 40°, and they are occasionally seen in lat. 42° N. near the termination of the great bank of Newfoundland, and at the Azores, in the same latitude, to which they are sometimes drifted from Baffin's Bay. In the southern hemisphere, icebergs, within the last five years, have been seen at different points off the Cape of Good Hope, between latitudes 36° and 39°. One of these was two miles in circumference and 150 feet above the water, appearing like chalk when the sun was obscured, and looking like refined sugar when the sun shone upon it. Others rose even to 300 feet above the level of the sea, they must, therefore, be of great volume below. These two facts from the northern and southern hemispheres show that the area, over which the effects of moving ice may be experienced, comprehends a large portion of the globe.

A knowledge of these facts connected with the formation of icebergs, and the distance to which they are drifted, is of great importance in geology. The application of these facts will be more fully explained in our next lesson. You have seen that as polar glaciers extend themselves not only to the sea coast, but also to a considerable distance in the sea, not only do the glaciers, in their descent from the glens and ravines, bring down stones and boulders, as was represented in our lessons upon glaciers, but the ice that stretches into the sea upon the coast must lay hold upon the masses of rock that lie at the bottom of such a frozen sea. When an iceberg is snapped from the parent glacier and floats, its lower surface takes up, as it rises in the water, the blocks and stones which it had imbedded when in the process of being formed. As such icebergs, charged with the fragments which the glacier had brought down from the polar mountains, and loaded with the blocks which have adhered to their lower surface, become drifted to lower latitudes and warmer seas, they melt away and deposit their loads of blocks and gravel at the bottom of the sea, or on the sides of banks, on which they have stranded. The application of these facts to the explanation of the phenomena of drifted gravel and erratic blocks, is called by geologists the Glacial Theory, and by some the Glacio-aqueous theory.

"Are mists begotten? who their father know?
From whom descend the pearly drops of dew?
To bind the stream by night, what hand can boast?
Or whiten morning, with the hoary frost?
Whose powerful breath, from northern regions blown,
Touches the sea, and turns it into stone?
A sudden desert spread o'er realms defaced,
And lays one-half of the creation waste?"

(3.) The imperfect may almost always be rendered in English by the participle present of the verb and the auxiliary to be; or by prefixing "used to" to the infinitive mood. The preterite definite can never be so rendered.

(4.) The imperfect might be called the descriptive tense of the French.

(5.) The past definite might be called the narrative tense. It expresses that which took place at some time fully past. We will endeavour to illustrate this difference between these two tenses.—A traveller has entered a wood and discovered a retired cottage; he wishes to describe what he saw there, and makes use of the imperfect or descriptive tense; he says:—

Un vieillard se promenait sous les arbres; il tenait un livre à la main; de temps en temps, il élevait les yeux vers le ciel, ou les courbait de la main, et semblait s'abîmer dans une profonde rêverie. Devant la porte de la cabane était assise une femme qui berçait un enfant sur ses genoux; elle était pâle; ses cheveux étaient au gré du vent; des larmes coulaient le long de ses joues, &c.

An old man was walking under the trees; he held (was holding) a book in his hand; from time to time he raised his eyes towards heaven, or concealed them with his hand, and seemed to sink into a profound reverie. Before the door of the hut, sat (was sitting) a female rocking (who was rocking) a child on her knees; she was pale; her hair waved (was waving) at the mercy of the wind; tears flowed (were flowing) down her cheeks, &c.

The traveller has here drawn a picture of what presented itself to his eyes as he approached the cottage. Not content with representing merely the then present situation of things, he wishes also to narrate what took place. He has described the theatre on which the occurrence took place, which he is going to relate; he now proceeds to the narrative, and uses the past definite or narrative tense:—

Je m'approchai du vieillard; lorsqu'il m'aperçut, il s'avança vers moi, me salua, et me pria de ne pas troubler cette paisible retraite du malheur. Il retourna à la cabane, prit l'enfant des bras de la femme, et retourna; elle le suivit, &c.

I approached the old man; when he perceived me he came towards me, greeted me, and besought me not to disturb this peaceful retreat of the unfortunate. He returned to the cottage, took the child from the woman's arms, and went in; she followed him.

Another example might be taken from La Fontaine's well-known fable:—

LE CORBEAU ET LE RENARD.
Maître corbeau sur un arbre perché,
Tenait en son bec un fromage;
Maître renard, par l'odeur alléché,
Lui tint à peu près ce langage.

THE RAVEN AND THE FOX.
Master raven perched upon a tree,
Held (was holding) in his beak a cheese;
Master fox, attracted by the smell,
Addressed him nearly in the following words.

Here the poet uses the imperfect of *tenir* in describing the situation in which the fox found the raven, but in relating the action of the fox, La Fontaine uses the narrative tense of the same verb.

The commencement of the first book of *Télémaque* offers an excellent illustration of what we have here advanced on the use of the imperfect and the past definite.

§ 121.—THE PAST INDEFINITE.

(1.) The past indefinite expresses an action entirely completed, but performed at a time of which some part is not yet elapsed, as, to-day, this month, this year, &c.:—

Le roi m'a nommé aujourd'hui archevêque de Cambrai.

The king appointed me to-day archbishop of Cambrai.

Ce matin j'ai trouvé le pavé si glissant, que j'ai pensé que si je venais à tomber sur le bras droit, je serais tout à fait désemparé.

This morning I found the street so slippery, that I thought in case I happened to fall on my right arm, I should then be completely helpless.

BERNARDIN DE ST. PIERRE.
Je t'ai défendu (see § 2.) de venir cent fois de raser ton méchant violon; cependant, je t'ai entendu ce matin.—Ce matin? Ne vois-tu pas que vous me le mîtes (§ 120 (2.)) hier en pièces?

"I have forbidden thee a hundred times to scrape thy wretched violin; nevertheless, I heard thee this morning." "This morning? Do you not recollect that you broke it to pieces yesterday?"

FALAPET.

(2.) The past indefinite is also used with regard to a time entirely past, but not specified:—

Les fruits de la terre ont été les premiers nourritures des hommes.
GIRAULT DUVIVIER.
Les Français ont gagné la bataille de Marengo.

The fruits of the earth were the first aliments of mankind.
The French gained the battle of Marengo.

(3.) When the time is specified, and entirely elapsed, the past indefinite is by many of the best French writers used indifferently with the past definite:—

Past Definite.
Huit jours après son départ, il m'écrivit une lettre.
BERNARDIN DE ST. PIERRE.
A week after his departure, he wrote me a letter.

Past Indefinite.
Je vous ai écrit, il y a quinze jours.
THE SAME.
I wrote to you a fortnight ago.

Je fus bien fâché hier, ma chère cousine; de vous avoir quittée avec tant de précipitation. FÉNELON.
I was very sorry yesterday, my dear cousin, for having left you in so much haste.

Hier en travaillant à mon quatrième dialogue, j'ai éprouvé un vrai plaisir.
MIRABEAU.
Yesterday, while working at my fourth dialogue, I experienced real pleasure.

(4.) When the first verb of a sentence is put in the past indefinite, every other verb of that sentence, and of the sentences referring to it, should be in the same tense:—

Où avez-vous été?
J'ai d'abord été à l'église, ensuite je suis venu dîner.

Where have you been?
I first went to church; and then came home to dinner.

§ 122.—THE PAST ANTERIOR.

The past anterior expresses what took place immediately before another event which is also past: the latter event being usually the result of, or dependent upon the former:—

Quand j'eus reconnu mon erreur, je fus honteux des mauvais procédés que j'avais eus pour lui.
GIRAULT DUVIVIER.

When I had perceived my error, I was ashamed of my bad conduct towards him.

See (3.) of the § below.

§ 123.—THE PLUPERFECT.

(1.) The pluperfect marks an event not only past in itself, but as past with regard to another past event:—

J'avais déjeuné, quand vous vîntes me demander.
GIRAULT DUVIVIER.

I had breakfasted, when you came vinted me to inquire for me.

(2.) The pluperfect having as its auxiliary the imperfect of the verbs *avoir* or *être*, partakes of the signification of that tense. It may, therefore, often be used to denote customary action:—

Dès que j'avais lu quelques pages, je me promettais.

As soon as I had read a few pages, I used to take a walk.

In such cases, it generally precedes or follows another verb in the imperfect.

(3.) When the action is not a customary one, and the sentence commences with one of the adverbs, *quand*, *lorsque*, *aussitôt que*, *dès que*, &c., the past anterior is generally used:—

Dès que j'eus lu quelques pages, je sortis.

As soon as I had read a few pages, I went out.

§ 124.—THE TWO FUTURES.

(1.) The future simple is used to signify what will be, or will take place, at a time not yet come:—

Votre frère partira demain.

Your brother will go to-morrow.

(2.) The future is used, in French, after an adverb of time, in cases where the English use the present of the indicative:—

Quand vous viendrez, vous apporterez mon livre.

When you come, you will bring my book.

(3.) It has sometimes the sense of the imperative in sentences like the following:—

Craignez qui voudra l'historien Capitois et quelques autres écrivains qui font danser les éléphants sur la corde.
GIRAULT.

Fear who will the historian Capitois and several other writers who make elephants dance on a rope.

(4.) The future anterior is used to signify what will have

been at a future period; it is also used after an adverb of time in cases where the perfect definite is used in English:—

Quand j'aurai fini mes affaires, je vous irai voir.
GIRAULT DUVIVIER.

When I have finished my affairs, I will go and see you.

§ 125.—THE TWO CONDITIONALS.

(1.) The conditional present denotes what would take place under a certain condition:—

Nous goûterions bien des jouissances, si nous savions faire un bon usage du temps.
GIRAULT DUVIVIER.

We should have many enjoyments, if we knew how to make a good use of time.

(2.) The conditional past denotes what would have taken place, at a time past, if the condition on which it depended had been fulfilled:—

Il serait allé à la campagne, si le temps lui avait permis.

He would have gone into the country, if the weather had allowed him.

(3.) The two futures, and the two conditionals, cannot, in French, follow the conjunction *si*, meaning in case that. The *si* is present is then used instead of the future, and the perfect instead of the conditional. This rule is often broken by the French, but seldom by the Americans or Irish who have acquired a good knowledge of the French usage.

§ 126.—THE IMPERATIVE.

(1.) The imperative is used to express a command, exhortation, permission, or entreaty:—

Connaissez-moi tout entière.
CORNEILLE.
Soyez sage, et ne craignez rien.
RACINE.
Je meure.

Know me entirely.
Ah! remain, my lord, and deign to listen to me.
Let us tarry no longer; let us proceed; and, if I must die, let us die.

§ 127.—THE SUBJUNCTIVE.

(1.) The subjunctive is the mode of doubt or indecision:—

Je veux qu'on robeasse.

Obey, if they wish that one day others may obey thee.

(2.) The subjunctive is governed by the conjunction *que*, must be subjunctive in French, though it may be indicative or conditional in English:—

Je doute que vous réussissiez.

I doubt that you will succeed in this affair.

Je suis sûr que vous réussirez.

I am sure that you will succeed.

Je suis sûr que vous réussirez.

I am sure that you will succeed.

(3.) The verb preceding *que* expresses consent, command, surprise, want, duty, necessity, fear, apprehension:—

Je souhaite, je doute, je suis surpris.

I permit, I wish, I doubt, I desire, I order, I am surprised, that you may or should come.

Je souhaite, je doute, je suis surpris.

I permit, I wish, I doubt, I desire, I order, I am surprised, that you may or should come.

Je souhaite, je doute, je suis surpris.

I permit, I wish, I doubt, I desire, I order, I am surprised, that you may or should come.

Je souhaite, je doute, je suis surpris.

I permit, I wish, I doubt, I desire, I order, I am surprised, that you may or should come.

Je souhaite, je doute, je suis surpris.

I permit, I wish, I doubt, I desire, I order, I am surprised, that you may or should come.

Je souhaite, je doute, je suis surpris.

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Je souhaite, je doute, je suis surpris.

I permit, I wish, I doubt, I desire, I order, I am surprised, that you may or should come.

Je souhaite, je doute, je suis surpris.

I permit, I wish, I doubt, I desire, I order, I am surprised, that you may or should come.

Je souhaite, je doute, je suis surpris.

I permit, I wish, I doubt, I desire, I order, I am surprised, that you may or should come.

Je souhaite, je doute, je suis surpris.

I permit, I wish, I doubt, I desire, I order, I am surprised, that you may or should come.

that part of the sentence which precedes them expresses an interrogation, or implies a wish, a doubt, or a condition. They must also be followed by the verb in the subjunctive when they are preceded by a superlative relative (§ 14, (9.)):

Y a-t-il quelqu'un qui ne respecte le malheur?

Is there any one who does not respect misfortune?

Choisissez une retraite où vous soyez tranquille.

Choose a retreat in which you may enjoy repose.

(4.) A verb preceded by *que*, and one of the unipersonal verbs *falloir*, *importer*, *convenir*, *suffire*, *valeoir*, *importer*, or by the verb *être*, used unipersonally in connexion with the adjectives *fâcheux*, *juste*, *injuste*, *surprenant*, *possible*, or with *à propos*, *temps*, *à désirer*, *à souhaiter*, &c., must be put in the subjunctive (§ 8, § 72, R. 1.):—

Il faut que vous veniez.

You must come, or it is necessary that you should come.

Il est temps que vous partiez pour Rome.

It is time that you should go to Rome.

Il ne me plaît pas, que vous alliez là.

It does not please me that you should go there.

Il n'est pas certain, que vous ayez raison.

It is not certain that you are right.

(5.) After the expressions *quelque*, *quel*, *quel*, *si*, &c., *que*, *quoique*, the verb is always put in the subjunctive:—

Quelque effort que fassent les hommes, leur néant paraît partout.

Whatever effort men may make, their nothingness appears everywhere.

Qui que ce soit, parlez et ne le craignez pas.

Whoever he may be, speak, and do not fear him.

Si mieux qu'il puisse être, un cheveu fait de l'ombre.

However thin it may be, a hair has a shadow.

(6.) For the other conjunctions which must be followed by the subjunctive, see § 143.

A KEY TO THE EXERCISES IN THE LATIN LESSONS.

By JOHN R. BEARD, D.D.

(Continued from page 359, Vol. III.)

Page 397, col. 2, vol. II.

Isop's Fables.

THE DOG AND THE WOLF.

The father of a family ordered a brass bell to be hung to the neck of a dog which was given to biting, in order that all persons might avoid him. But he was rejoiced at the tinkling of the brass, and, as if it were a reward for his excellence, began in consequence to despise other dogs in comparison with himself. When an old dog said to him, "Thou fool! dost thou not know that by the tinkling thy bad habit of biting is proclaimed?" This fable is written against those who take pleasure in the tokens of their disgrace.

THE DOG AND THE WOLF.

A wolf seeing a well-fed dog, said, "How happy you are! you, it seems, live bravely while (at) I am worn down with hunger." The dog replied, "You may, if you will, come into the town with me, and enjoy the same good fortune." The wolf accepted the offer. As they go along together, the wolf notices that the hair is worn off the dog's neck. "What," asked he, "is this? Do you wear the yoke? why, your whole neck is bare." "It is nothing at all," answered the dog. "Only sometimes they tie me up to make me more watchful by night, and these are the marks of the collar which they put round my neck." Then the wolf spoke and said, "Farewell, my friend! I have no taste for happiness which must be purchased with my freedom." This fable shows that to the free no advantage can be sufficiently valuable to compensate for the calamity of servitude.

THE WOLF AND THE CRANE.

A bone once stuck in the throat of a wolf. He therefore hired a crane to extract it. The crane easily did with the aid of her long neck. But when she asked for her wages, the wolf, smiling and gnashing his teeth, said, "Surely you are not ill paid in being allowed to draw your head uninjured out of the jaws of a wolf?"

THE HUSBANDMAN AND THE SNAKE.

A husbandman found a snake which was almost dead from cold. Moved with pity, he cherished the animal and put it into his bosom. The snake was soon restored; when recovering its strength, it inflicted a deadly wound on the man in return for his benefit. This fable shows what return the ill-disposed are wont to make for the favours they receive.*

Page 321, col. 2, vol. II.—LATIN-ENGLISH.

A painting adorns the house; we salute our parents; I have asked for my book; the stars surpass the earth in magnitude; men are satisfied with food; this sparrow has been killed by a hawk; the human body is best strengthened by labour; we are loved by God, and we have always been loved by him; often is an army saved by the valour of one soldier; kings were formerly created by the people; the wretched console themselves with the hope of better times; elephants of a very large size wander in the forests and on the mountains of India; chariots are driven four in hand; Coelius, as he kept saying, went to Caesar; the mind which consists of air on fire, seeks loftier (regions); he frequently supped alone at my father's; the hawk is accustomed to drive about trembling doves; there is a hope that we are about to be hungry; all in joy obey the command and execute the orders; thou thyself wilt begin to fear lest thou shouldst bring danger on an innocent man; he chooses smiths from the legions, and orders others to be sent for from the continent; of what good man did he ever speak ill? he spoke favourably? Yes! what good and brave citizen has he not most impudently assailed? I wish you to come to me; they went into the island; how foolish is it, when you have received the signal for battle, to brandish your arms! Juba (not juba) the king's son flits about before their eyes; it is not easy for a human being to fly with wings.

Page 321, col. 2, vol. II.—ENGLISH-LATIN.

Picturis domus ornatur; volant aves; volant aves; pennis volare possum; mihi, innocenti, periculum fecit; duci benedixit; edendae est spes? hostem agitat; in syrā vagatur clephas; bonus Deus amat; boni a Deo amantur; magnitudine terra stellis superatur; a parentibus saluamur; matrem salutavit puer; a rege accessit sum; ducem accessit rex; virtute exercitum liberavit dux; bonorum sapientia virorum mundus servatur; arunculi jussa juvenis fessit; cibo satiaris; labor agricolam roborat (or labor durat agricolam); labore duratur agricolae; passerem necavit accipiter; olim populus creavit reges.

Page 349, vol. II.—LATIN-ENGLISH.

Pythagoras travelled over Egypt, visited the priests of the Persians, and traversed on foot many barbarous lands; when the armies were on the point of joining battle, the commander-in-chief rode round the lines and exhorted the soldiers; after the river had been passed, a terrible fight began; he who despises death avoids death; there are many words and kinds of respect to be shown to a victor, not the orator, he is a true friend who conceals nothing from us; no poet seems to have been able to imitate Homer; the Tarquins devastated that part of the Roman territory which lay next to Etruria, on which account the Romans declared war against them; Sylla was the first that entered the city of Rome in arms; we are aware that the light which we enjoy, and the breath which we draw, are given us by God; Cicero relates that there were two Roman knights who promised Catiline to murder him (Cicero) by night; ambition is certainly a vice, nevertheless we often see it to be the mother of virtues; hope, full of belief, supports our life, and constantly declares that things will be better to-morrow; Viriathus carried on war against the Romans for fourteen years; Pythagoras was the first to pronounce himself a philosopher, that is, a lover of wisdom; Mount Olympus is very high; every animal is mortal; my father scolded me; geese do not fly; diligent men labour; good men love their parents and relatives; husbandmen in spring sow the seed; have you the books you want? lofty mountains check the force of the winds; the sun and moon fill the whole earth with their light; the leaves of this tree flourished in summer; we sit at banquets but the ancient Greeks and Romans reclined on couches; the world has been filled with various kinds of good by God; he fears many who is feared by many; the air is always in movement, but if it is moved violently, wind arises; a good man confesses his sins and does not conceal them; we cannot look at the sun with unclosed eyes.

Page 349, vol. II.—ENGLISH-LATIN.

Regina inquit Scotos; bona omnia a Deo hominibus data esse intelligit? se contra Catilinam orationem habuisse narrat Cicero;

*Slight deviations from verbal closeness have been permitted for the sake of the English usage and as an example to the student.

pater patriae dictus est Cicero; Cicero ait se patrem patriae dictum esse? honestum est dici patrem patriae; qui pater patriae dici vult, eum decet esse sapientem, amum, acerbissimumque; coenati cubitum ibimus; Tarquinienses quum devastassent partem agri Romani, eis bellum Romani indixerunt; quis poetam Homerum imitavit inquam? primus Homerus longura poema scripsit; bonis mundum implevit Deus; eane bonum decet? Persarum sacerdotēs visitati sunt a Pythagore, qui multas terras peragravit; exercitum circumvenit dux et milites hortabatur; verusne tibi est amicus? invenire verum amicum est difficile; mali perdifficile esse verum invenire amicam confirmant; boni a bonis amantur; totus mundus solis ac lunae repletus est luce.

Page 363, col. 2, vol. II.—LATIN-ENGLISH.

Athens was a city; Remulus was a king; Bactra, the chief place of the district, lay under mount Parepanisus; Leontidas was king of the Spartans; Jugurtha led an army which attended to him and cattle rather than to war; money is a queen; pleasures very winning mistresses; flatterers are a very base race of men; twenty ships, the fleet of the Romans, were impelled by the wind; Pompey, our dear friend, will come; Corinth, the sun of all Greece has been raised; death is the end of all things; Carthage, Corinth, most opulent cities, were overturned; not the sword gold conquered the Lacedaemonians, the bravest of mortals; I apply the discoverer of truth, is also the guide of character discipline.

Page 363, col. 2, vol. II.—ENGLISH-LATIN.

Thebae, Boeotiae caput, sitae sunt sub monte Cithaerone; dnum Angliae est caput; magistra Angliae est Londinum; a virtutum generatrix est fragrantia; Scythi, bellicosissimi homines vescuntur; omnium mortalium bellicosissimi sunt Scythi; caput erat Roma; Athenae olim artem erat domicilium, et philosophiae ac eloquentiae.

Page 364, col. 2, vol. II.—LATIN-ENGLISH.

I have taken up that defence which first offered itself there are the opinions respecting friendship; we declare against thee, O Roman youth (not a comma after tibi after romana); my life is as dear to me as thine to thee; are you able to cure yourselves; how long will that in thine elude us? he trusts in this letter of mine that he received by thee, a benevolent man; that notorious C lies east on the ground; this Marcellus here, our sent at the conversation; Catullus was instructed in a fashioned way, but after the way we pursue; a better than a hoped-for victory; the former is in the hands of the gods; sloth weakens it; the former produces a premature death; a long youth; in which of us does not the famous Minondas dying at Mantinea, excite delight; the famous Medea is said to have formerly fled from her country of Pontus; three hundred of us formed these faults of character belong to old age; Epicurus (light) denies that any one can live happily who honours; Taebes, which is the chief city of Boeotia, great confusion; the united abodes which we call Athens and the man I sing who first came to Italy; friends that are known in ordinary life; of the men were consuls during those years, many are dead; our native land affords us delight; I who cannot give myself any; the spot on which I called Troy; I have received the water which alone have the regulation of those very violent nature produced; in the same year C. C. C. a full moon—a season which commonly renders in the sea; Caesar was aware that the day we corn must be supplied to the soldiers; I hope and temperance, that you now, as we wish

Page 365, col. 1, vol. II.—ENGLISH.

Trecenti conspirare; floret Londinum Athenae, Graeciae caput, deletae sunt; qui pilatus est accipit; Wellingtonus (Wellington) jacet; qui honesto vivit, vivit jucunde; omnem tibi do dedoque pecuniara; mali id quod expe indictam intulit multa; quo tibi moriendum; qui alios docet te docere non potes; sol creavit Deus potestatem habent homines; a Deo creata animalia; apud te, virum honestum gratissimum spero; quas ad te misi literas mater misit literas pater accepit.

Page 382, col. 2, vol. II.—LATIN-ENGLISH.

I prefer Cato Pompey to all men that ever existed, and P. Lentulus (I prefer) to myself, and naturally love themselves; Junius put himself to death; I know that these things were said as I declare (them); thou art the person who hast often done me honour; I am the person to think it better to yield to Caesar than for battle to be joined (the standards to be brought together); let that same wise man pass over to protect the republic; who had been a diligent scholar of Carneades himself; those are ridiculous who endeavour to teach others that which they themselves have never learned (by experience) and do not know; that person himself confessed (it); that same (character), the tyrant, is a most disgraceful species (of men); those who obey the divine laws live according to nature; he cannot be called a magnanimous man, who hesitates to unite his own safety with the safety of the republic; I reproach myself; often those who please themselves most, most displease others; whatever is honourable is also useful; those very men at that all things I have said are true; musicians who formerly were also poets; I a brave man, as well as a philosopher, have conferred a very delightful thing; that was a splendid as well as humorous speech; I shall ask of you to consider that what I say is not of myself but of the (character of the) orator; I do not and in content as to console thee when I am unable to console myself; ignorance of these things, from which (ignorance) terrible fears are often born; Themistocles was banished by his countrymen; Fabius is loved by me on account of his very humanity; I know God from his works; God is known from his works; Cicero hears not what posterity says respecting him; Cicero does not affirm that posterity will say much evil of

Page 382, col. 2, vol. II.—ENGLISH-LATIN.

Confessi sunt; qui confessus sum mortem exspecto; amicus Lentulus et idem te maxime diligit; tu es ille sapiens ego ipse, et nos omnes audire cupimus; ipse se vituperant; pios vituperant, sapientes evadere possunt; quicquid bonum, et utile, et stultus idemque benignus te ut ipsum curas a ipsum consolare; me consolari sunt et idem sunt miseri; a suis civibus pulsus est patria; Aristides et dives ejus ut Helles; ancilla deripuit togam, qua operuit sororis mariti, togā deripit, cadaver ejus combussit mulier; ipsi orones; ipse me amo; haud sapienter amant se qui in se ipsi curant.

CORRESPONDENCE.

MATHEMATICAL CURIOSITIES.

HENRY HALLETT, *Bridport*, calling himself has sent us the following Arithmetical we insert for the sake of some of our der to set them a-thinking.

from 1 to 5 in five little squares, as diagrams, and you will find that by generally, their sums will be the same; 10 in fig. 2.

Fig. 2.

3	2	1
5	4	3

3+2+1=6, Here, 1+2+3+4+5=15, 2+1+3=6, And, 2+5+3=10.

middle figure in these squares, and you will find them diagonally, their numbers will still be 6 in fig. 1, and 6 in fig. 2. For, 1+5=6, 1+4+2=7.

the 9 digits in a square form, fig. 3, each in and you will find that by adding the numbers horizontally in the middle row, and vertically in their sum, will be the same, namely, 15

Fig. 3.

1	2	3
4	5	6
7	8	9

Here, 1+5+9=15, 3+5+7=15, 4+5+6=15, And, 2+5+8=15.

Also, leaving out the middle figure, the same result will take place; for 1+9=3+7=4+6=2+8=10. Moreover, the product of the middle figure by the figure at the end of the first row, is the same as the former sum, namely 15; for 3×5=15; and the square of the figure at the end of the first row is equal to the figure at the end of the last row; for 3×3=9.

3.—Place all the numbers from 1 to 25 in a square form, fig. 4, each in little squares, and you will find that by adding these numbers diagonally, horizontally in the middle row, and vertically in the middle column, their sum will be the same, namely 65 either way.

Fig. 4.

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25

Here, 1+7+13+19+25=65, 5+9+13+17+21=65, 11+12+13+14+15=65, And, 3+8+13+18+23=65.

Also, leaving out the middle figure, the same result will take place; for, 1+7+19+25=5+9+17+21=65, the sum being 52. Moreover, the product of the middle number by the number at the end of the first row is the same as the former sum, namely, 65; for 5×13=65.

The ingenious student is left to prosecute this subject for himself, in relation to the square forms, commencing with units, and terminating in the squares of the odd numbers, viz., 49, 81, &c.; and he will find that the same results will take place, so that he will be able to draw general rules or conclusions regarding all such squares; these rules will ultimately assist in the higher inquiries relating to the formation of magic squares of the odd numbers.

4.—Place all the numbers, from 1 to 4, in a square form, fig. 5, in little squares, and you will find that when the numbers are added diagonally, their sum will be the same, namely 5.

Fig. 5.

1	2
3	4

There is no middle number here to multiply by the figure at

the end of the first row; but if you take the mean of those placed diagonally either way, that is, of 1 and 4, or of 3 and 2, viz., $2\frac{1}{2}$, and multiply it by the figure at the end of the first row, the product will be equal to the former sum, namely 5; for $2\frac{1}{2} \times 2 = 5$.

5.—Place all the numbers, from 1 to 16, in a square form, fig. 6, in little squares, and you will find that by adding the numbers diagonally, either way, their sum will be the same, namely 34. As in the square form, commencing with unity and terminating in the squares of even numbers, there is no middle row taken horizontally, and no middle column taken vertically; if you take the mean of the sums of the two middlemost rows taken horizontally, and of the two middlemost columns taken vertically, you will find these means the same as the sums of the diagonal rows, namely 34.

Fig. 6.

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

Here, $1 + 6 + 11 + 16 = 34$,
and $4 + 7 + 10 + 13 = 34$;

Also, $5 + 6 + 7 + 8 = 26$,
and $9 + 10 + 11 + 12 = 42$, } mean 34

Likewise, $2 + 6 + 10 + 14 = 32$,
and $3 + 7 + 11 + 15 = 36$, } mean 34.

As there is no middle number in this square, it must be treated like the preceding one; take the mean of those numbers placed diagonally around the middle point, either way, and multiply it by the number at the end of the first row, and you will find the product the same as the former sum, namely 34; for, $\frac{1}{2}(6 + 11) = 8\frac{1}{2}$; or $\frac{1}{2}(7 + 10) = 8\frac{1}{2}$; and $4 \times 8\frac{1}{2} = 34$.

6.—Place all the numbers, from 1 to 36, in a square form, fig. 7, in little squares, and you will find that by adding the numbers diagonally, either way, their sum will be the same, namely 111. For the same reason, as before, take the mean of the sums of the two middlemost rows taken horizontally, and of the two middlemost columns taken vertically, and you will find these means the same as the sums of the diagonal rows, namely 111.

Fig. 7.

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

Here, $1 + 8 + 15 + 22 + 29 + 36 = 111$,
and $6 + 11 + 16 + 21 + 26 + 31 = 111$.

Also, $13 + 14 + 15 + 16 + 17 + 18 = 93$, } mean 111;
and $19 + 20 + 21 + 22 + 23 + 24 = 129$, }
Likewise, $2 + 9 + 15 + 13 + 27 + 33 = 108$, } mean 111.
and $4 + 10 + 19 + 22 + 28 + 34 = 111$, }

Taking the mean of the numbers placed diagonally around the middle point of the square, as before, we have $\frac{1}{2}(15 + 22) = 18\frac{1}{2}$; or, $\frac{1}{2}(16 + 21) = 18\frac{1}{2}$; whence $18\frac{1}{2} \times 6 = 111$, the same sum as before.

The student will, in the case of the squares commencing with unity and terminating in the square of the even numbers, as 64, 100, &c., find the same results as have just been shown, so that he will be able to draw general conclusion regarding all such squares; and these rules will in like manner assist him in the inquiries relating to the formation of squares of the even numbers.

In the preceding account of Mr. Hallett's discovery to himself, but not to mathematicians, we have made additions as will render the subject easier and more interesting to the younger and more ingenious classes of our readers.

ANSWERS TO CORRESPONDENTS.

Neaving, (Cambridge): We are thankful for the expression of opinion, and will give his suggestion our best consideration.

Los Angeles (Baufl): Spanish would be a useful language to it is our intention, at some future time, to publish lessons in it. *New Method of Learning Spanish* is very good. Italian might be service. A very superior series of lessons in that language is at commenced immediately in our pages. We recommend our readers still to study French and German, as they are the two most useful languages, and cannot be acquired without long practice.

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