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INDIA AND ITS RESOURCES.

Humboldt and Ritter long ago pointed out the importance of a thorough geographical exploration of India, in its bearing on the science of comparative geography. There is no country designed on a grander scale, none which affords greater contrasts, both of physical configuration and of climatic elements, than India,—a country in which the highest mountain chain of the world starts from the vast Gangetic and Indus plains, and in which are found alike rainless deserts, far-stretching fertile table-lands, and luxuriant deltas. In like manner as the Andes are the typical country of the active volcanic forces, and as Australia and Polynesia in their coral reefs afford the best opportunity for the study of the organic agencies at work in the production of new geographical features, so India may be regarded as the country in which it is possible to study with the greatest advantage the surface-changing forces of climate and water, in the extremes of cold and heat, of dryness, of moisture, and of rainfall;—a striking example of the influence of the latter being found in that spot in the Khasia Hills in which, during five days, a down-pour of 30 inches in each of the successive periods of 24 hours was measured by Dr. Hooker, and in which the yearly rainfall frequently exceeds 600 inches. In such a country all the phenomena of the denudation and erosion of mountains, hills, and table-lands, of the formation of alluvial plains, and the growth of deltas, take place with a rapidity and on a scale of magnitude elsewhere unexampled.* The study of all these processes is important alike to geography and geology, as showing in actual operation those very forces, to the long continued action of which must be ascribed most of the geological changes.

The practical importance of geographical and meteorological studies in India, both to Government and to the business classes, is easily made apparent. The great surveys which bear on this subject were originally undertaken with the object of providing the civil administration and the Military Department with a correct outline of the country. In fact, the revenue district maps and the military march-routes were the first materials at hand. That commerce and other provincial interests must benefit by a correct knowledge of the geography of the country, is obvious. In all public works, such for instance as railways, it is the general map which indicates to the engineer the main direction, and he restricts his own more detailed surveys to the one or more routes indicated to him by the general features of the country recorded in the map.*

As regards meteorology, the practical object in prosecuting meteorological inquiries in India is threefold: first, in order to study the influence of the seasons on agriculture, especially with regard to indications of drought and distress, and to serve as a guidance in the carrying out of irrigation works; secondly, as one of the most important elements for determining the sanitary condition of the

* The report on the Moral and Material Progress of India for the year 1872-3, by Mr. Markham, cites an instance which shows the practical value of accurate surveys on scientific principles. The agent of the Bombay and Baroda Railway entirely changed the line of route for the Katiwar branch on receiving the new sheets of the Katiwar series of the Trigonometrical Survey, which corrected the great inaccuracies of the former maps.

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country; and thirdly, as a means of preventing shipping disasters by a study of storms and cyclones, which might lead eventually to a system of storm warnings and signalling.

The general importance of a full knowledge of the products and manufactures of India is too universally acknowledged to need more than simple mention here. India occupies an important position in the commerce of the world. It has the almost exclusive supply of certain articles such as indigo and jute, whilst the efforts which have been made to promote in it the cultivation of some important raw products, the supply of which is at present too much restricted to special localities, is of far more than of mere local importance to India, or to England only. By widening the area of supply, the stability throughout the world of all the trades depending on the article is increased, as they are rendered more independent of the political or climatic vicissitudes which may at any time affect the general supply, if restricted to one country. Cotton, tea, and chin-chona are the most instructive examples of this kind.

Whilst a knowledge of the country, of its products, its agriculture, and its arts and manufactures, supplies the physical basis for government, a knowledge of the character, customs, manners, and religious and philosophical aspirations of the various races inhabiting India, supplies the means of obtaining a moral hold upon them. The practical importance of this latter knowledge is thus quite as great as that of the former, although it is not capable of being weighed, measured, or expressed in a money value. The administration of India has been placed on a rational basis only from the time when Elphinstone in Bombay and Thomason in the North-West Provinces began to look for guidance, not to abstract rules of political science and political economy, or to English precedents, but to a conscientious study of the people, of their social organization, and of their ideas of right and justice. Since then the conviction has more and more been gaining ground that all legislation and administration should take into account the local and traditional habits and feelings of the people, in so far as these do not interfere with the political necessities of our position, or with those higher ideas of morality and justice which it is our duty to foster.

The study of India from the ethnological point of view is of the highest interest to general science. The extraordinary variety of its races, and the remarkable effects of a series of political conquests or religious convulsions, in their mutual relations, all combine to make India a field in which observations of the greatest value may be made—observations correcting and supplementing in many essential particulars the ethnological deductions from other countries. India affords many instructive examples of the difference between the linguistic and the anatomical landmarks. As regards also the operation of forces which aggregate the population into distinct political individualities, it is an example of a country where nationalities in the European sense of the word, that is territorial units concentrated together by common language and political institutions, are hardly known. The Hindu, the Mohammedan, and the Buddhist are the most prominent, and the language are subordinated to religion, which in both cases is metropolitan in its character.

The influence of historical studies on India may be considered from

two points of view: firstly, as bearing on the past history of the country, on its old literature, science, and mythology; and secondly, as bearing on the historical development of institutions, of economical features, or of administrative arrangements which influence the present condition of the country. From either point of view it may be held that historical researches have indirectly exercised a very beneficial practical influence on the course of Indian affairs. The study of the old languages and the old literature, even apart from the assistance which it has afforded in disclosing the character of the ancient laws and institutions of the country, has shown that the natives of India include among them intellectual races capable of the highest form of civilization. This study has engaged in favour of India the sympathies of the whole civilized world, and probably in some degree has indirectly contributed to make prevalent in England those principles of justice to the natives which at present at any rate are the only publicly recognized basis of the policy of England in India. The other kind of historical studies, those directed towards the elucidation of actual conditions by tracing their historical development have an immediate practical importance, as no problem of policy, commercial or other, or of administration, can be properly understood without an historical investigation.

Not less than their political importance is the value of these studies to general science. Modern philology derives some of its main discoveries from Indian studies; and though the original idea that Sanskrit was the parent tongue from which all the other Aryan languages were derived has been exploded, the study of this language continues to be, as heretofore, the cornerstone of comparative philology. Of equal value with the study of Sanskrit is the study of the literature opened up by it, the study of the old mythology, history, and science of the country, which supplies to the general history of civilization some very essential links, in consequence of the light which it throws on the growth and development of religious beliefs, on the formation of the stock of legendary traditions, imaginative tales, and the proverbial philosophy common to all Aryan nations. Of equal moment to history is the branch of studies recently brought into prominent notice by Sir Henry Maine, showing how an examination of the Hindoo village communities, as still existing in all their vigour over a considerable part of the country, supplies analogies and data which enable us to understand many stray remnants of similar institutions in Europe, and to trace the obscure origins of the social organization and political constitution of primal society.

The political history of India is likewise full of instruction, whilst in dramatic interest it is unsurpassed by the history of any other country. Apart from its earlier history under native rulers, it may be held that the English administration of India is one of the boldest political achievements of any time, and that many of the changes which have been peacefully accomplished and consolidated since the country, under English guidance, emerged from the chaos into which it had been plunged during the latter part of the past century, are, if apparently less striking, in reality perhaps more profound and lasting than the most startling political changes. The transformation which India has experienced under English rule is much greater than would appear on a superficial view. The transfer of the point of gravity from the interior to the seaboard, the change of a large num-

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lecturing population into an agricultural one, the disarmament of the country, the supreme establishment of peace and law, the suppression of barbarous practices, and the development of the means of communication, are among the more obvious changes. But while the physical and legal obstacles to a free intercourse between the different parts of the country have been levelled, the English rule has tended to produce greater social and national differences between the different provinces than ever before existed. In consequence of English legislation a vast body of proprietary rights have sprung up everywhere; moulded in almost every province by a different legislation. At present, Bengal, under the permanent settlement, Madras, under the ryotwar settlement, and the Punjab and North-Western Provinces, with their dependent communities, are socially far more different from each other than they were a century ago. Another cause is also operative in the same direction. The disengagement of the old dominant languages, and the great attention paid to the local vernaculars, tends to develop the many distinct nationalities previously submerged by their Persian, Hindustani, or Mahratta speaking conquerors, whilst English is rapidly becoming the "lingua franca" of the country.* All these changes, however, are almost thrown into the background by the gigantic attempt to introduce European education throughout India, an attempt which in its proportions has no other historical parallel than perhaps the latinization of the conquests of Rome under its emperors, or the more modern instance of the spread of classical education in Europe during the renaissance period.—*Dr. J. Forbes Watson.*

PHYSICAL EDUCATION:

(A Sketch of a Physical Course for Common Schools.†)

THE educational system pursued in our Common Schools has been greatly wanting in scientific breadth, and not less so in scientific method. It has been almost solely the growth of tradition, and not the result of investigation into the nature of being that is to be educated. Large sections of our nature have been neglected in our school economy. The æsthetic faculties have been altogether untrained; the moral have received only very slight attention, as far as they are touched by so-called religious knowledge; intellectual training has been very partial and one-sided, being almost exclusively confined to the acquisitive powers, and too little applied to the perceptive and reflective; and systematic physical education has been altogether ignored, until quite recently, in our Common Schools. But there are good signs that we are beginning to entertain more correct notions of what education is. We begin to have a feeling that the training of children should be broader than it has been, and

* On the importance of the establishment of English as the "lingua franca" of India, see a paper by Sir Erskine Perry in vol. IV. pp. 289, of the Journal of the Bombay Branch of the Royal Asiatic Society, entitled, "On the Geographical Distribution of the Principal Languages of India, and the Feasibility of introducing English as a Lingua Franca."

† Abridged from a paper read before the Social Science Association, by W. Jolly, Esq., H. M. Inspector of Schools.

that it should embrace all the faculties of a child, which should be trained systematically and symmetrically.

It is to one of the parts of our nature ignored in our Common School education that I would seek to direct the attention of the Association, the training of the physical powers. The neglect of Physical Education and of the physical principles that ought to regulate our school premises, furniture, organisation, and studies, medical men tell us, with strong and concurrent testimony, has resulted in many and grave evils to our children and our people. It has given rise, they show us, to the bent forms, the slovenly gait, the unequal shoulders, the contracted chest, and the general want of full physical development so observable in the mass of our people; and it is the source, they conclusively demonstrate, of graver evils and serious diseases, as bent and curved spines, short and unequal sight, various chest complaints, pains and permanent disorders in after-life as well physical exhaustion and want of physical and mental vigour during the period of youth.

But it is pleasing to note the growing attention that is being paid to this important subject, and we have to thank our medical men more than our educationists and teachers, for the interest they have roused in it through their advocacy of its necessity in a thorough system of education, if our children are to be rightly developed and these evils to be prevented. Many works have lately appeared on the subject, text-books have been written on it, our schoolmasters have passed resolutions in its favour, and attempts have been made in some places toward its systematic teaching.

The subject of Physical Education as applied to our schools is much more extensive than might at first sight appear. I can only very briefly indicate the field it includes, and make rapid suggestions in regard to its teaching. These I shall endeavour to make as practical as possible. I shall chiefly confine my remarks to what can and should be done in our Common Schools towards giving the children of the mass of the people Physical Education; and one aim in bringing the subject before the Social Science Association at this time is to lead, if possible, to early practical effort, to have thorough physical training carried on in all our Common Schools, especially now that, in Scotland, we are beginning a new national system of education, and erecting new and superior premises for the education of our children. Our projected educational scheme in Scotland, as sanctioned by Government, includes many elements as necessary parts of our Common School education formerly ignored in elementary education or relegated to higher schools and subjects; and the present is an opportune important, and it is to be hoped favourable time for securing the recognition of Systematic Physical Education in our Common Schools.

Thorough Physical Education may be divided into three parts:—

- I. Physical Cleanliness.
- II. Physical Development, by training or exercise.
- III. Physical Government, or the regulation of the bodily functions.

I. PHYSICAL CLEANLINESS.—This is a first requisite in all Physical Education, and a necessary condition of its being carried on. Our

children should be trained to scrupulous cleanliness in person, dress, and habits. To encourage and secure this, there should be a daily, careful inspection of the children by the teacher in all our schools, much of the same nature as that carried out in all "Hospitals" for boys and girls. At this inspection, as regards the person, the state of the skin, hands, head, nails, hair, ears, nose, and teeth should be examined; in dress, the state of the clothes and boots, and the manner of their putting on looked to, defects pointed out, suggestions made for improvement, and care taken that these are acted on the following day. The aim should be to train to cleanliness at home, as the improvement effected in school would be merely superficial where the home practice continues bad. The great endeavour should be to generate a love and spirit of cleanliness that will pervade the school and influence all its members. Dirty children should be sent to the lavatory until reformed habits are secured. But cleanliness of the whole body should be fostered, not merely of the exposed parts, the children being trained to wash regularly all over. To secure this, bathing should be encouraged, and the teacher should occasionally, and if possible periodically, take the children to the neighbouring sea, river, or loch, to see it done, and to practise swimming, which should be an accomplishment of all our children. Perhaps some day, when education in all its breadth is understood and secured, we shall have baths for swimming and bathing in connection with all our Common Schools.

Few things require to be impressed more on the nation than the "gospel of soap," and the best pulpit from which to preach it, as also the best field for its exercise and the best centre from which it can spread to the nation, is the schoolroom, and the best evangelists of this important truth are the teachers of our Common Schools.

II. PHYSICAL DEVELOPMENT. *The Exercise of the Muscular System.*—An essential part of Physical Education is the exercise of the muscular system; and the more systematic, regular, and scientific this training is, the more perfect the Physical Education given.

(1) *Games and Amusements.*—There is one kind of muscular exercise common in all schools, and practised, no doubt, since "boys were boys," that is the exercise given by the games and amusements of the play ground, the street, and the field. This is a very important part of Physical Education, and should be valued and encouraged more than it is in our Common Schools. It is not mere "play," it is education of a valuable kind. It is recommended by our medical men as important for physical development, and by educationists as having good mental and moral results. Instead of being curtailed in our advancing education, as there is a tendency of its being by some ignorant Boards and overzealous teachers, it should be extended, by increased facilities, for its being more thorough than it is. As is well stated by Mr. Maclaren, of Oxford, one of the best advocates of Physical Education,—"Nothing should be taken from playtime, and nothing should be introduced into playtime but play." The great value of games as exercise, if rightly conducted, lies in the spontaneous, self-conducted exertion, and they are, therefore, largely self-educative in firmness, decision, self-unsustained effort and arrangement, and like manly qualities. They increase courage and the power of bearing pain. Being spontaneous and pleasant, they produce a racy and healthy flow of the nervous and animal "spirits," which

is greatly conducive to health. They have, also, certain important moral results; they exercise in the "give and take," and the thousand elements of social body life, which become very good training for the tear and wear of the greater social life of society and the world.

This suggests another important matter—the time spent in the play-ground. This should not be grudged; it will not, by a wise teacher. The intervals allowed during the day should be frequent and regular. I advocate an interval of five minutes at the end of every hour. I was educated under the system, and look back with pleasure on the wise and happy practice. It is an excellent system. It gives invigoration and freshness for the next hour's work, which is all the better and brighter, and will be longer retained, from the romp under the blue heavens in the life-giving air. The oxygen inhaled becomes literally transmuted into physical strength and intellectual and moral life and sweetness, which amply repay what may seem lost time to men that have not tried it. I hope to see the system universal in our schools.

(2) *Class Drill.*—There is another kind of physical exercise which is carried on more or less in all schools, which I may designate as Class Drill. It includes many elements, such as the attitudes of the children at all times, movements in and out of seats and on the floor, class arrangements for all purposes, marching, walking, positions in reading, writing, singing, &c., and the general bearing of the pupil. It is to be observed, that this is not military drill, which, I think, should be avoided in all class work. Class drill should be governed entirely by the laws of natural action and taste, and should aim at producing the style and deportment of good breeding and good society. Mistakes are often made in this matter by teachers, and military constraint and unnaturalness substituted for naturalness and ease in manner and movement. I cannot name any book on this important part of Physical Education which affects school so greatly. A special text-book should be written on the subject. There is abundant material, and it is to be hoped that some competent teacher or other educationist will set himself to furnish it. It would do much good in making our general class movements more easy, orderly, healthy, and graceful, in producing greater alacrity, physical and mental, and in saving much valuable time. It should give full directions as to the general attitudes of the children at all times and in all work: in standing, walking, marching, facing, class-forming, and in reading, regarding which there are certain well-defined principles that are constantly violated; in writing and singing, neglect of physical laws in these exercises leading to certain evils and even diseases; the proper movements in marching, drilling, facing, going in and out of seats, the attitudes at desks and on seats, bad attitudes producing grave evils pointed out by medical men—a special part being a full directory for varied and beautiful infant school and gallery exercises, which should be done to music.

(3) *Military Drill* is another means of physical training, and one to be greatly commended for its many good effects in school. It exercises certain muscles, produces an erect bearing, trains to movement at command and to regularity and simultaneity of action, and produces general smartness and activity. Its effects are not only physical, but mental and moral. I have observed, with pleasure, and not seldom with surprise, the brightening and enlivening effects,

especially on country children, where military drill has been begun by new teachers. It is peremptory in English schools under inspection, and one is glad to see even this much of physical training demanded by Government. It is not asked in Scotch schools as yet, and no grants are offered for it there.

(1) *Systematic Physical Training*.—But military drill is very incomplete as representing physical training. It gives only a very partial exercise of the great muscular system, and almost exclusively of the legs and lower trunk. The extension motions connected with it certainly do exercise other muscles, but they do this only partially at the best. This is the opinion of those able to judge of the system. If physical training is to be scientific and thorough, it must give graduated and efficient exercise and training to every muscle, and this exercise should be "regular, continuous, and progressive," and should extend over the whole time a child is at school; and this training should be as carefully given, and marked for, as any other. It should, in short, exercise all parts of the body gradually, fully, and scientifically, and so develop the full physical powers of children into manhood and womanhood. There are several expositions of the subject in English. Dr. Roth, of London, has earnestly and persistently advocated Systematic Physical Education for above twenty years, and has written very good text-books expounding the great system of Ling, of Sweden, the founder of Modern Scientific Gymnastics. The exposition which is best known to me, and which seeks to do all this, is that of Mr. Machren, of the Oxford Gymnasium, in his "Physical Education," published in the Clarendon Press series. It aims at the scientific, gradual, uniform, and universal training of the physical powers by skilfully arranged exercises during the whole school course. (To be continued.)

APPOINTMENTS, &c.

Under Section 5, Act XXVII of 1857, His Grace the Governor in Council has been pleased to re-appoint the Honorable Lewis Charles James, one of the Judges of the High Court of Judicature, to be Vice-Chancellor of the University of Madras.

The Director of Public Instruction has granted leave of absence to N. Davesikamony Madalliar, Deputy Inspector of Schools, Vellore Circle, for 40 days, from the 1st June 1876, under Section 12, Supplement F, of the Civil Leave Code. This carries the notification on page 775 of the Fort St. George Gazette.

The Director of Public Instruction has granted leave of absence to S. Atchayalinga Mudaliar, Deputy Inspector of Schools, Salem Circle, for one month, from the 12th June 1876, under Section 12, Supplement F, of the Civil Leave Code.

MISCELLANEOUS.

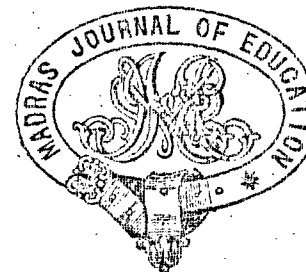
A second edition of the Rev. Dr. Caldwell's 'Comparative Grammar of the Dravidian or South Indian Family of Languages' has appeared and as the work is intimately connected with the progress of Dravidian philological investigation, it may prove interesting to mark, as reflected in it, the immense strides science has of late years made in that direction. The first edition of Dr. Caldwell's Grammar appeared in 1856—eighteen years ago. It was quickly exhausted, half of the copies composing it having been taken up by the then Court of Directors of the East India Company. Though frequently urged to do so, Dr. Caldwell found no leisure for bringing out a second edition of his work, so fast even then was the progress of compara-

tive philology. Twelve years passed by, during which time Dr. Caldwell assisted in the revision of the Tamil Bible, and also in the revision of the Tamil Book of Common Prayer, of which latter book, thirty years before, he had been one of the translators. At length Dr. Caldwell determined to set about his 'Comparative Grammar' again; but the revision of it has occupied quite four years of severe labour. Before we speak of the results of this labour, and several of the discoveries Dr. Caldwell has made, it may be as well to mention that quite one-third of the present book is composed of new additional matter. The Introduction has been largely extended, historical and topographical questions, relating to Southern India, being discussed at length therein. The chapter on Pronouns and Demonstratives has been completely re-written,—so also with regard to the greater portion of the chapter on Numerals. Much additional matter has also been added to the Appendix. With regard to topographical questions, Col. Yule, the learned interpreter of Marco Polo, has rendered Dr. Caldwell every assistance, and Dr. Gundert has also given his aid in every department of the book.

Dr. Caldwell has, in the present edition of his work, devoted considerable further attention to the history of Dravidian literature, its chronology, and especially the epochs of the principal periods of literary activity. The Dravidian languages thus treated, and grammatically compared with the Celtic, Ural-Altaic, and other languages, are the Tamil, Telugu, Canarese, Malayalam, Tulu, Coorg, Tuda, Kora, Goud, Ku, Rajmahal, and Orson,—and Brahui, which latter, though not itself a Dravidian tongue, has in its composition a large Dravidian element. One important item in the new edition of the 'Comparative Grammar' is to be found in that part of it in which Dr. Caldwell enters minutely into the proportionate numbers of those speaking the different Dravidian languages. In all the number is computed to be slightly more than 48,670,000 persons.

The most remarkable portion of the second edition is probably that in which Dr. Caldwell treats of Greek topography, namely, of places in Southern India mentioned by Greek writers during a period extending over nine centuries. Dr. Caldwell has examined afresh all the references to Southern India occurring in Greek and Latin writers, from the time of Ctesias (B.C. 400), to that of Kosmas Indicopleustes (A.D. 535). Amongst many other discoveries, Dr. Caldwell has succeeded in identifying a number of places on the Coromandel Coast of India with those named in Ptolemy, and especially with those recorded in the Ptolemaic Tables.—*London Athenæum*.

INDIAN TEA AND COFFEE.—Nature has the following regarding the cultivation of coffee and tea in India:—The cultivation of coffee in India is steadily progressing, and although the introduction of the plant into the eastern portion of the country is of ancient date, it is only within the last twenty years that much attention has been given to its production. The principal plantations are situated in Mysore and the Neilgherry Hills, at an elevation of 3,000 to 4,000 feet above the level of the sea. The climate of these districts, besides being well adapted to the cultivation of the coffee plant, is not so injurious to the health of Europeans as many other parts of the country, and it is probable that the industry will be largely developed. In 1842, the value of coffee exported from British India, was 74,937. Ten years later it had advanced to 84,206; in 1862 to 462,380, till in 1872 it had increased to 1,330,410. At the same time, the cultivation of tea is advancing even more rapidly, though its introduction is much more recent. The Assam tea is celebrated for its fine quality. The existence of this tea-producing country was only recognized in 1834, when Lord Bentinck introduced some Chinese growers, and the trade became firmly established. In 1842, the value of tea exported was 17,244; in 1852, 59,220; in 1862, 192,242, and in 1872, 1,482,186.



ROSSI ON HAMLET AND LEAR.—I am told, that I make Hamlet a sheer madman from beginning to end; that I paint him as an impulsive Southern and not a meditative Northern; and that I do not infuse enough of the courtly prince in the impersonation. Secondly, my Lear is mad too early, and lacks the dignity of a monarch, and, in the view of some, the pathos of a fond father cruelly wounded in his dearest affections.

My answer to the first charge is that it astounds me beyond measure, in so far as the character of Hamlet is said to be exhibited by me in the light of an extravagant madman throughout, my view being that he cannot be taxed with insanity at all in the common acceptation of the word. Even in assuming madness, his acute faculty of reason will not permit the supposed disarrangement of his thought to be without a method in its madness, which Polonius, the most impressed with the idea of Hamlet's madman notions at once, and after witnessing the maddest passage in all Hamlet's doings, the King, refuses to consider him insane. As regards the ethical question—whether or no Hamlet was purposely painted by Shakespeare, with a view to representing a type of Northern character as opposed to an inhabitant of any other clime, there is no evidence extrinsic or internal to prove. I have ever regarded Hamlet as a type of humanity at large, when, under certain conditions of temperament, natural or acquired, there is a conflict between the reflective and intellectual powers and the active principle, between the impulse to act and the perfect concurrence of thought and resolve to produce action. Such a temperament, in which the lymphatic disposition retards and overhears the suggestions of a sanguine and nervous organisation, producing doubt, hesitation, and finally despair—whelming in its black waves even the strong principle of love—may exist under any clime, is not more a product of Scandinavia than of Italy, and may be expressed as regards detail of gesture, facial expression, vocal accent, in any way congenial to the artist's natural mode of conveying emotion. There are vivacious northern and heavy apathetic southern. The point is to seize the character of the mad Hamlet and express it as the artist, whatever his own temperament may be, would express the emotional incident to such a character were they his own. This is my general view of Hamlet, and if I have conveyed the impression that I consider him affected with positive insanity, the impression is so erroneous that I cannot believe it to originate in myself, but in some such foregone conclusion as that openly expressed by one of my critics when he condemns my future impersonations beforehand. For my exposition of the character of Lear, as to which I accept the interpretation put upon it, namely, that he is shown somewhat crazy from the commencement, I plead the warrant of the very nature of his actions from his first appearance on the stage. In dispossessing himself of his kingdom to enjoy a life of ease, allotting it in shares among his daughters in return for fulsome expressions of affection, and obstinately closing his heart against the modest truthfulness of Cordelia, whom he professes to love above the others; he exhibits a near approach to the very limits of a sound understanding. These are already the acts of a dotard, and in the next scene he is shown having cast off all thought of kingly or fatherly care, exclaiming for his dinner and impatiently anxious for the solacing company of his fool. How far these scenes are consistent either with sober sanity of intellect or true regal dignity, in the modern sense, especially when the portraiture is that of a semi-lunatic monarch, I leave to candid reflection to determine. It is not till subsequently, when the loss of his regal power is fully realised in all its bitterness even amidst the overthrow of his reason that he shows himself impressed with a sense of his kingly dignity, and while decking himself with mock trappings of royalty he proclaims himself "every such a king."

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THE MONTH.

WE give elsewhere the revised Scheme of Studies for Government Schools. It will be seen that it attaches much importance to Handwriting and Translation, subjects which have both been hitherto too much neglected. In the lower classes, the copy-book system is to be more strictly enforced, and in the higher classes exercise books are to be produced for the Inspector's Examinations.

The study of English History is to be retained in the fourth, fifth and sixth classes.

In the sixth class in Algebra, in addition to the portion presented for the Matriculation course, Surds are to be studied.

An attempt is made to encourage the private reading of popular books out of school hours. By the Fifth Class, *Ali Baba and the Forty Thieves* is to be read without help from a teacher as a holiday task. We do not, however, see how this task is to be tested. If the boys are to be examined upon it, they will seek help from their teacher, who will also be sorely tempted to give it.

The appointment of a long passage of English Poetry to be learnt by heart and recited in the Fifth and the upper Fourth Classes is, we think, a mistake. It is all very well for English school-boys, who naturally discriminate between forms of poetical expression and those of ordinary prose composition, to commit to memory such pieces; but to the young Hindu student of English, they are, as far as the formation of style goes, misleading and injurious. We have no hesitation in saying that it is to this practice that we owe most of the grotesque and inflated pedantry that in after life characterises the composition of so many of our Hindu pupils. We would go so far as to say that

no English poetry should be read at all by pupils in classes lower than the fifth, and we much question whether it is judicious, even in the Matriculation classes, to allow any but the very best boys to commit English poetry to memory.

We regret that, apparently by an oversight, no instruction in Physics is laid down for the Fifth Class in the new scheme. Boys who commence this study in the Matriculation Class go up for Examination at the end of the year with knowledge very meagre and ill digested, and are quite unprepared for the rather severe test they are expected to undergo. We think that some instruction on the properties of matter should be given in a popular and pleasing style in the Fourth and also in the Fifth Classes.

We have been requested to draw the attention of Inspectors of Schools, Deputy Inspectors and Head Masters to the small district Manuals of Geography published by the School-Book Society in the Vernacular languages. The accounts are taken from the larger book entitled *A Short Account of the Madras Presidency*, each district being published separately to suit the wants of small schools working under the "results" system. Besides the Geography of the particular district, each tract contains a prefatory Sketch of the whole Presidency. Most of these little district Geographies, we learn from the Society's Report, are now ready for delivery at the low price of from four pices to six pices each.

We further learn from the same Report, that to supply a want long felt by Students of Telugu, the Committee of the School Book Society have agreed to purchase the MS. of one completed by Sitarama Charlu Garu, Telugu Pandit of the Government Normal School, Madras, for Rupees five thousand. The work has cost the compiler many years' labour, and has received most favourable mention by very competent critics. It is now being printed, and the Committee trust that it will eventually prove a most valuable addition to Telugu Literature. For some time the Committee were led to hope that Mr. Sitarama Charlu's work would be enriched by the incorporation of portions of the MS. Telugu Dictionary left by the late Chinnia Suri Garu, but the negotiations for the loan of it for that purpose fell through.

We give the number of Male and Female Candidates registered for the approaching Examination for Teachers' Certificates:—

SCHOOLMASTERS.		SCHOOLMISTRESSES.	
<i>Fourth Grade.</i>		1st Grade English ... 37—	
English ...	4	Do. English and Tamil 1	53
English and Uriya ...	2		
Do. and Telugu ...	30	2nd Grade English ... 60	
Do. and Hindustani ...	2	Do. English and Malayalam ... 2	
Do. and Tamil ...	65	Do. Tamil ... 12	
Do. and Malayalam ...	11	Do. Telugu ... 1	
	115	Do. English and Tamil 4	97
<i>Fifth Grade.</i>			
Uriya ...	8		
Telugu ...	57	3rd Grade English ... 164	
Hindustani ...	1	Do. Tamil ... 79	
Tamil ...	93	Do. Telugu ... 14	
Malayalam ...	23	Do. Canarese ... 3	
Canarese ...	10	Do. Malayalam ... 5	
	197	Do. English and Tamil 1	263
<i>Method.</i>			320
1st Grade ...	1		
2nd Grade ...	2		
3rd do ...	35		
	38		
	359		

We have received some numbers of the *Vedarthayatra* "An Attempt to interpret the Vedas," being a Marathi and an English Translation of the Rig Veda, dedicated to "all his Aryan Brothers and Sisters" by the Translator.

The plan and object of the publication will be seen from the prospectus which we quote below. We wish the projector every success in his spirited and patriotic undertaking:—

The *Vedarthayatra*, which will be published in monthly parts of 64 pages each, is intended to give to the public especially that of India as accurate an idea as is possible in the present state of philological research, of the contents of the Veda, which is known by name to all people in this country but about the meaning of which not one perhaps in a million among the vast multitudes who believe in its revelation possesses any notion beyond this that it contains all and everything that is good, great and divine, and that it is the final authority for all ordinances, restrictions, and prohibitions both religious and social, which form the present faith of my Aryan countrymen.

Among the numerous movements of reform both religious and social now on foot in different parts of India, the importance of unfolding to the public the true contents of the Veda in a shape that shall be intelligible to it cannot be overstated. With this view is undertaken a translation into Marathi and English of the four Samhitas of the R̥gveda, the Yajurveda, the Samaveda and the Atharva Veda, of which the R̥gveda Samhita being the most important has been taken up first. The double translation will be given in juxtaposition with each verso of the original, which is printed in both what is called the Samhita-patha and the Pada-patha, or the text with the words united and the text with the words separated. Besides this double form of the Vedic text, the language of which is well-known to be an archaic and obsolete Sanskrit dialect, is given in a Sanskrit form modernized as far as possible, or in other words in the shape of classical Sanskrit, paraphrased in prose order.

The translation is based on the authority of scholars Eastern and Western both ancient and modern, so that advantage is taken in its preparation of the most recent results of philological research and enquiry into Vedic studies.

Copious notes in Marathi are given, explanatory and critical, and especially such as comment upon the supposed authority of the text for particular rites, ceremonies, observances, customs, ordinance and prohibitions that we meet with among the modern Aryas of India. Unavoidable circumstances prevent at present the addition of similar notes in English, but it is hoped the English translation which will for the most part be as close as the English idiom will permit will be intelligible to the non-Marathi Native reader without such notes, however desirable these may be, especially to a foreigner.

There are even at present thousands of priests who know the texts of the Veda by heart, not unfrequently in their entirety. Such priests are by no means the least influential persons in our society to maintain that those texts authorize all that is enjoined and all that is prohibited and contain all that is believed under Hinduism as it exists at present. And these very prodigies of memory-learning are in most instances themselves entirely ignorant of the purport of the text they repeat. To such persons for, such persons, and against such persons, the translation printed in juxtaposition with the text, with authorities for the former quoted at length in the notes will, it is hoped, be highly useful.

The *Dayan Prakash* of Poona while commenting on the conduct of the Matriculation Examination, calls the attention of the Examination of the local University to the removal of all causes of complaint. It says "The sudden raising of the standard, the freaks and fancies of individual examiners, the carelessness and

the systematic obstinacy in appointing such gentlemen as examiners, who have shown themselves ignorant of the real objects and aims of the University examinations are, in our opinion, some of the points to which the University should direct its attention. We are aware that the working of the vast machinery, defects will ever defy remedy and detection. Yet it is the duty of those who guide the educational interests of the best portion of young India to remedy the crying evils as far as it lies in their power. We hope to see our University a model to sister Universities of the country as far as the conduct of the several examinations is concerned."

It will be remembered that some weeks ago there was an undergraduate outbreak in the Deccan College. Sixty-six of the students sent a petition to Government, complaining in very improper language of the incompetence of two of the college professors, upon which, in anticipation of the action of Government, the Director of Public Instruction ordered the college authorities to rusticate the senior students among the rebels for the period of 12 months, and to consider them incompetent for the term of their natural lives to hold any college scholarship, prize or free studentship; while the juniors were to be declared incapable of holding scholarships and other prizes for 18 or 12 months, according to their standing in the college. His Excellency in Council has now, however, thought it expedient on a resolution on the whole case to bind up the wounds of the discomfited undergraduates,—*first*, by removing absolutely the disabilities under which the senior students had been placed, and by shortening their period of rustication by one half; and *secondly*, by greatly reducing and in certain cases wholly remitting the punishment inflicted upon the juniors.

INJURY BY LIGHTNING.—The Committee of the British Association for the Advancement of Science—re-appointed at the Meeting at Bradford to investigate the efficacy of lightning-conductors, to give suggestions for their improvement, and to report upon any case in which a building professedly protected by a lightning-conductor has been injured by lightning—consisting of James Glaisher, Esq., F. R. S.; Lieutenant-Colonel A. Strange, F. R. S.; Professor Sir William Thomson, F. R. S.; Charles Brooke, Esq., F. R. S.; Charles V. Walker, Esq., F. R. S.; M. De Fonvielle, of Paris; Professor Zenger, of Prague; and Dr. Mann (Secretary), desires to have as much information as possible regarding accidents from lightning. But, in order that information of this class may possess scientific value, it is essential that all statements communicated should be clearly and definitely expressed; that they should be carefully authenticated, and that the address, as well as the name, of the observer should be given, to allow any further inquiry to be instituted that may be found to be desirable in the circumstances. The Committee has consequently drawn up the following memorandum to define the nature of the information it seeks, and earnestly requests that any person who may chance to know of accidents from lightning, or who may be able to give practical assistance in this inquiry, in the sense and particulars suggested by the memorandum, will address such communications as they may be in a position to make on these subjects to the Chairman of

the Permanent Committee on Atmospheric Electricity and Lightning-rods, Meteorological Society, 30, Great George Street, Westminster, London.

Memorandum of information required in any case of accident from lightning.

1. The day, hour, and place of the occurrence.
2. The exact nature of the occurrence, especially specifying any unusual appearance or sound that has attended the discharge of lightning.
3. A minute and precise description of any damage that may have been produced by the discharge.
4. Record of any visible traces of electrical action that may have been left in the tract of the discharge.
5. The names and addresses of any persons who may have witnessed the actual discharge producing damage, or who may have suffered in any way from its effects.
6. The existence or non-existence of a lightning-rod in any form in the immediate neighbourhood of the accidents, and an exact description of the rod when any such appendage has been ascertained to be near, especially as to—
 - (a) the nature of the metal of which the rod is composed;
 - (b) the size of the rod;
 - (c) the character of the conductor, whether it has the form of a solid cylinder, of a tube, of a flat strip, of a chain, or of a wire-rope;
 - (d) the actual continuity of the conductor from end to end;
 - (e) the character of the termination above, and the distance to which it extends there beyond any building or solid structure;
 - (f) the character of the termination below; whether in dry or moist ground, how it runs into the ground, and how the earth-contact is ultimately made;
 - (g) the manner in which the conductor is connected with any building, and especially whether there are any masses of metal in the building near, and whether such masses are or are not placed in metallic communication with the conductor.
7. Allusion to the fact whether the injurious discharge did or did not form part of an ordinary thunder-storm in progress at the time.
8. In case of the occurrence of a thunder-storm in progress at the time of the discharge, a description of the character of the storm as to intensity, duration, fall of rain, and apparent movement over the locality.
9. Any subsidiary or incidental observations that may have been made, and that may seem to bear practically upon the physical conditions and circumstances of the phenomenon.

THE EDUCATIONAL REPORT.

On the 19th of June last, the local Government reviewed the Report of the Director of Public Instruction for 1874-75. We make the following extracts from the Order of Government:—

The number of schools in connexion with the Department increased during the year by 936, and the number of scholars by 24,917. Except in the case of East Indians, an increase is observable under every head. Of the 19,582 girls, 6,395 attended mixed schools. It is observed that among the Hindus, girls under instruction are to boys about as one to twenty, that among Mahomedans they are about as one to thirty, and that among Native Christians they are about as one to two.

With regard to the different languages studied the most noticeable features are the small increase in the number of boys learning English, the decrease in girls learning English, which may perhaps be connected with the falling off among the East Indians, and the almost total extinction of Arabic. The decrease in learning English has perhaps arisen from measures taken to repress that study in Elementary Schools; the Director might express an opinion in his next report. As to the abandonment of Arabic, it is noticed that while Arabic was studied in 1871-72 by not more than twenty boys, the number of students rose to 726 and 1,428, respectively, in each of the two following years; on the 31st March 1877 however the number again fell to twenty-four, or nearly what it was three years ago. It appears that this rise and fall is due to the fact that when the Moplah Schools in Malabar were first taken under inspection the boys all studied the Arabic Kurān exclusively; but that since that time secular education in Malayalam has supplanted the Arabic. The proportion of students to population in the different districts varied from 1-38th in Madras and Chingleput to 1-328th in Vizagapatam, the proportion in these districts in the previous year having been 1-44th and 1-356th. Of that section of the population which is of school-going age, or about 15 per cent., only 56 per cent., attended schools connected with the department. The number of pupils who presented themselves for the Matriculation Examination of the Madras University was 1911 against 1704 in the previous year, and the number who passed was 784 against 626. Two satisfactory features in connexion with this examination are that the ratio of passed to examined candidates rose from 36·7 to 41 per cent., and that the number of Matriculates in the first class increased from 63 to 120. At the First Examination in Arts 312 candidates appeared for examination, 183 of whom passed, against 125 out of 285 in the previous year. As in the case of the Matriculation Examination there was a satisfactory increase in the number of those who passed in the first class. For the B. A. degree eighty-five candidates were examined and fifty-five passed, against eighty-eight examined and fifty passed in 1874, the increase being due apparently to the influx of a large number of students unconnected with the colleges. A single candidate was examined for the M. A. degree in English and Sanskrit, and was successful. A suggestion has been made that the examination for the M. A. and other more rarely sought degrees should be held only once in two years, but the Senate did not consider a change necessary. Of sixteen candidates who were examined for the B. L. degree nine passed. Attendance at lectures being now

compulsory, all these graduates were necessarily members of the Presidency College Law Class. Two candidates appeared for the B. C. E. Examination and passed. The only examination in the Faculty of Medicine held in 1874-75 was the preliminary scientific in which two candidates passed out of three. Of the eight Collegiate Schools in this Presidency there are Government Institutions and four are Private Schools. Of the former the Provincial School at Calicut takes the lead. The Government Schools continued during the past year to be more successful than Private Schools in the University Examinations. The Bellary Provincial School was uniformly reported on, and the ill-effects of the rivalry between the Government School and a Private School at the station in question was pointed out. The question of competition, however, is one into which the Government have always been reluctant to enter; there are probably certain ill-effects arising from such a state of things, but on the other hand there are many obvious advantages to be derived from a competitive stimulus, and it is desirable to keep the latter in view. The maximum cost to Government per scholar in the Government Collegiate Schools was Rupees 41-0-2 at the Rajahmundry Provincial School, and the minimum, Rupees 22-14-5 in the Bellary Provincial School. Amongst Aided Schools of the same grade the maximum cost to Government per pupil was Rupees 22-5-11 at the Noble Institution, Masulipatam, and Rupees 7-13-9 at St. Joseph's College at Negapatam. The highest average daily attendance at the Government Collegiate School was 210 at the Calicut Provincial School; the lowest 167 at the Bellary Provincial School. As Private Collegiate Schools the highest average daily attendance was 597 at the Society for the Propagation of the Gospel's School at Trichinopoly; the lowest 123 at the Noble Institution at Masulipatam. The total amount of salary grants given to Colleges in 1874-75, exclusive of the School Departments, amounted to Rupees 11,530-8-8. The highest rate of monthly fee charged in a Government Institution was Rupees 5 at the Presidency College; the lowest Rupee 1 in the Provincial Schools at Calicut and Mangalore. The total cost to Government on account of Colleges and Collegiate Schools was Rs. 1,52,110-7-2. The highest cost was in the case of the Calicut Provincial School Rupees 7,312, the lowest Rupees 5,491 in that of the Bellary Provincial School. Of Private Institutions of the same class, the highest cost to Government was in the case of the S. P. G. School at Tanjore, or Rupees 8,418; the lowest or Rupees 3,035 was at St. Joseph's College, Negapatam. Turning to Higher-class Schools, and taking the First Division, it appears that the number of pupils on the 31st March 1875 on the roll of the Government Zillah School at Berhampore was 211 against 193 in 1874; the total charges were Rupees 6,820; the fees collected amounted to Rupees 2,999. Seven pupils from this school passed the Matriculation Examination against one in the previous year. There was an average attendance of 189 pupils in the six Higher-class Private Schools in this Division. The schools were maintained at a net cost to Government, excluding fees of Rupees 11,478-11-7, and thirty pupils passed the Matriculation Examination against eighteen in 1874. Taking the Second Division, it appears that the number of pupils in the Government Zillah School, Karnool, in 1875 was 165 against 155 in 1874, and that in the Zillah Schools at Cuddapah 143 against 161. The total charges on account of the

former amounted to Rupees 5,507 with a collection of Rupees 1,977 as fees; the total charges on account of the latter amounted to Rupees 6,942 with a collection of Rupees 2,643 as fees. Five pupils passed the Matriculation Examination in 1875 against three in 1874. At the two Private Institutions in the Second Division there was an average attendance of 98 pupils, and their cost to Government after deducting fees amounted to Rupees 6,218. Nineteen pupils passed the Matriculation Examination in 1875 against eight in the previous year.

Under the Third Division, the number of pupils in the Government Zillah School, Cuddalore, was 181 in 1875 against 162 in 1874, and the number in the Local Fund School, Saldapett, was 192 against 157. The total charges to Government on account of these schools amounted to Rupees 5,731 and 7,205 respectively. The fees collected in the former amounted to Rupees 2,755; in the latter to Rupees 2,711. Eight scholars passed the Matriculation Examination, being double the number that passed in 1874. There was an average attendance of 245 pupils in the fifteen Private Institutions in the Third Division. The fees collected aggregated Rupees 44,780, and the cost to Government was Rupees 45,967, the total charges being Rupees 1,31,371. One hundred and thirty-five pupils passed the Matriculation Examination against eighty-six who passed in the preceding year.

Under the Fourth Division, the number of pupils in the Government Zillah Schools at Chittoor and Salem on 31st March 1875 was 372 and 349 respectively, against 357 and 345 in 1874. The total charges on account of the former amounted to Rupees 9,192, and on account of the latter to Rupees 8,391. The fees collected in the Chittoor School amounted to Rupees 5,130, and in the Salem School to Rupees 5,579. Thirteen pupils from the former, and nine pupils from the latter, passed the Matriculation Examination as against seven and three, respectively, in the previous year. There was an average attendance of 227 pupils in the three Private Schools in this Division. The total charges amounted to Rupees 15,399-10-3, and the cost to Government, excluding fees to Rupees 5,308-8-0. The suggestion at paragraph 74 regarding a building for the Chittoor Zillah School, and that at paragraph 75 regarding the teaching of two languages at Salem, will doubtless be followed up. Taking the Fifth Division, the attendance at the Government School at Madura in 1875 was 361 against 250 in the previous year; the fees collected amounted to Rs. 5,499, and the net cost to Government was Rupees 2,764. Eighteen pupils passed the Matriculation Examination against seven in 1873. In the two Private Schools in the Fifth Division there was an average attendance of 326 pupils at a net cost to Government of Rupees 8,484-12-8, the fees collected having amounted to Rupees 11,895-12-3. Thirty pupils passed the Matriculation Examination against twenty-two in 1873.

Taking the Sixth Division, the attendance at the Zillah School, Tellicherry, in 1875 was 137 against 173 in the preceding year, and 162 against 152 at the Local Fund School at Palghat. The net cost to Government in the case of the former school was Rupees 4,556, the fees collected having been Rupees 2,416. The latter school is a charge on Local Funds.

The maximum cost to Government per scholar in a Government

Higher-class School was Rupees 39-15-6 in the Zillah School at Tellicherry, and the minimum Rupees 10-1-10 in the Zillah School, Salem. Among Private Schools of the same grade the maximum cost to Government per pupil was Rs. 62-5-1 at the Sullivan's Garden Seminary, and the minimum Rupees 1-11-6 at St. Joseph's Institution, Cuddalore. There was an increase of under 5 per cent. in the number of pupils attending Higher-class Schools. The total amount of Salary grants given during the year to Higher-class Schools amounted to Rs. 1,07,716-5-0. The highest average daily attendance at a Government School of this grade was 297 at the Zillah School, Chittoor, and the highest average daily attendance at a private school was 406 at Patchaappah's High School, Black Town. The highest rate of monthly fee charged in a Government Institution was Rupees 2½ at the Zillah Schools in Berhampore, Kurnool, Cuddalore, Chittoor, Salem, Madurai and Tellicherry, the lowest Annas 4 at the Zillah School, Berhampore. The highest cost to Government of a Higher-class School was Rupees 2,192-11-5 in the case of that at Chittoor; the lowest Rupees 8,300 in the case of the Local Fund School at Palghat. The total cost to Government on account of Higher-class Schools in 1874-75 amounted to Rupees 61,357-5-8. The number of schools of the middle class rose from 455, and the number of scholars from 21,912 to 26,330. With the exception of the Onslow Institution in Ganjam, which has steadily declined since 1871, and the Zemindary School at Paria Khedy, all the middle-class Schools in the district showed an increase of strength as compared with the previous year. The seven Results Grant Schools in Ganjam had 252 pupils, and earned Rupees 1,218. In Vizagapatnam it is noticed that the School at Bimlipatnam which made sound advance in 1873-74 had again fallen off. The Maharajah of Vizianagaram's Branch Schools were not favorably reported on. The three Results Schools in the Vizagapatnam District contained 203 boys, and earned Rupees 663-8-0. In the Godavery District the Local Fund Board Schools were not successful, and were all to be placed in the lower class. The thirteen Results Grant Schools in this district earned Rupees 1,917 during the year, and had 455 boys on the rolls at its close. The Local Fund Board Schools in the Kistna District are described as costly and indifferent; four hundred and thirty-one boys attended the fourteen Results Grant Schools, the total grant being Rupees 2,314. In the town of Bellary there was only one Results Grant School of the Middle-class with forty-five boys on the rolls, which earned a grant of Rupees 133. An Educational Darbar was held in Nellore for the second time in December 1874. Of the Middle-class Schools in Tanjore the Rajah's Chattram Schools had all declined in strength and were unfavorably reported on. A noticeable fact in connection with the Malabar District was the appearance for the first time of a Mapilla Middle-class School opened at Kallar near Mabié. The report on the Payroli School is very unsatisfactory. The two Middle-class Schools on the Nilghiris are the Lawrence Asylum and the Brooks' Memorial School. It is observed that it is in contemplation to raise the latter to the status of a fully developed High School.

His Grace the Governor in Council agrees with the Director of Public Instruction (paragraph 105) that viewed as a whole the condi-

tion of Middle-class Schools and quality of Middle-class education are, with notable exceptions, very unsatisfactory, and this is more especially the case in the Northern Circars and Ceded Districts. He is aware that the Director of Public Instruction has been turning his attention to this matter, and he trusts that throughout the department special exertion will be made to raise the condition and efficiency of this important class of schools.

The number of Lower-class Schools of all grades in 1874-75 was 8,303, showing an increase of 881 over the number in the previous year, with an attendance of 1,69,797 pupils, or 22,106 more than were under tuition in 1873-74. The maximum cost to Government per scholar in a Government Lower-class School was Rs. 20-9-8, and the minimum Rs. 0-2-1. Thirty-two Lower-class Schools were supported from Provincial Funds at a charge of Rs. 13,032-7-8 per annum. The Governor in Council notes the unsatisfactory condition of the Malajah Schools, and trusts that measures have already been taken to bring up the standard. Endeavours should be made to amalgamate unsuccessful Mahomedan Schools with existing institutions. He observes with satisfaction signs of educational progress amongst the Moplahs of Malabar. The Collector will point out to Ali Rajah of Cannanore the unreasonableness of his opposition.

The number of Lower-class Schools supported entirely by Local Funds and Municipalities is given at 494, showing an increase of ninety three Schools as compared with the previous year. The gross cost on account of Lower-class Local Fund Schools was Rupees 1,23,437, and on account of Lower-class Municipal Schools Rupees 25,488. There was a gross attendance of 15,874 pupils at the Local Fund Schools and of 3,418 pupils at Municipal Schools. The maximum and minimum cost per pupil in Local Fund and Municipal Schools cannot be ascertained from the statements as yet submitted. Rupees 2,036-12-0 were given as grants-in-aid to private schools of the Lower-class during 1874-75. His Grace the Governor in Council has noticed with interest the observation made on the various systems pursued by Local Fund and Municipal Boards in the management of their Schools (paragraphs 110 and 111), and appreciates the advantage of experimental variety for the present; but is surprised to find that in two divisions there are no Municipal Schools at all, and that otherwise both as regards Schools and expenditure action is unequal and generally inadequate.

The Draft Rules which have been prepared for improving the system of Results grants are now under the consideration of Government. Mr. Thompson suggests that instead of examining each Private School separately such Schools should be examined in groups of not less than four or five, and not more than ten, according to circumstances, but the practicability of the scheme seems open to question except in Municipalities where the system might be extensively adopted. The Government agree with him in thinking that much benefit would attend the application of the principle of the Educational Darbar at Nellore to Lower-class Schools. Mr. Thompson's remarks regarding the relative merits of the Combined and Results Grant systems, as applied respectively to middle and Lower-class education, will doubtless receive consideration by the various Education Boards in the Provinces. During the year under review Municipalities and Local Fund Boards were

relieved from all charges on account of Elementary Girls' Schools. In the majority of cases these charges were in connexion with Salary and Residue grants, but eight Girls' Schools which were entirely supported by Municipalities are now Government Institutions. The total number of Girls' Schools increased by thirty-two, and the number of girls attending them by 713. The total number of girls under instruction in Schools connected with the Department rose in the same period from 17,113 to 19,382, giving an increase of 2,469.

The returns of girls under instruction show a steady increase for the last five years, the numbers being for 1869-70, 9,445; 1870-71, 10,185; 1871-72, 11,567; 1872, 14,830; 1873-74, 17,113; and 1874-75, 19,382. It appears from these figures that in five years the numbers have more than doubled. With regard to the castes of girls under instruction there was an increase of 780 Hindus over the number of that caste attending Schools in the previous years. As regards Mahomedan girls the number more than doubled itself, being 625 against 305 last year. On the whole female education is still in a very backward state. Of a female population of upwards of two millions of school-going age less than 20,000 (one in 100) are receiving instruction in Schools within the cognizance of Government, the bulk being under tuition in Mission Schools. Upwards of 15,000 of the whole attend Schools of the lowest and most elementary character; 4,191 are in Middle-class Schools. The proportion in which different classes send their girls to School as compared with their boys is worthy of note. Mahomedans and Hindus send very few girls to Schools, while East Indians and Native Christians appear fully to appreciate the value of education, and secure it also for their girls. The question of Capitation grants for the attendance of girls (paragraph 24) should form the subject of early special report by the Director of Public Instruction.

The year under review was the first complete year during which the Government Normal School, Madras, was at work under its revised organization, according to which professional training only is given to students. Nineteen students were examined in December, all of whom passed. The Inspector's remarks on this School are on the whole favorable, except as regards the black-board, which is said not to be used with judgment. The Palghat Normal School was opened during the year with the special object of improving the class of Pal Schoolmasters, the intention being that the men after training should return to their Schools. This School is purely vernacular. The Normal School at Vizagapatam is for the future to be confined to training teachers as far as the higher grades are concerned, but it will continue to educate as well as train fourth and fifth grade candidates. This School sent up six students to the last Matriculation Examination and all passed; out of twenty-five candidates for Teachers' Certificates twenty-two were successful.

In March 1874 the Government of India reviewed Mr. Lawrence's Report on Schools for European and Eurasian children, and called on the Local Government for further information. The inquiry was accordingly prosecuted during the course of the year. The opening in November of an Industrial School in Black Town showed that the interest which the discussion on this subject had evoked was not without some immediate fruit. The Government understand that there are forty boys attending this School, who are being taught

reading, writing, and arithmetic to be a part of the education. The rest of the time are put to the use of the hands in handicrafts. At the Ootacamund Lawrence Asylum, the attention is given to the several industries connected with the institution was specially noticeable during the past year.

In conformity with the recommendations made by the Committee appointed to report on the question of reorganizing the School of Arts, that institution was placed under the charge of a Military Officer. The entire cost of the School on the new footing is to be Rupees 2,205 per mensem, showing an increase of Rupees 320.

The total charges of the Book Department, including those provided for in the Budget, were Rupees 63,526-10-3, and the net proceeds of sales paid into the treasury Rupees 65,185-7-5 leaving a balance in favor of the Department of Rupees 1,658-13-2. But as the value of the stock remaining on hand on the 31st March 1875 exceeded by Rupees 2,713-11-3, that of the stock at the corresponding period of the previous year, the total gain of the Department amounted to Rupees 4,376-8-5. A considerable saving was effected this year by purchasing printing paper from the Stationary Depot instead of leaving the printers to supply their own paper. The account for the last six years show that Department has become fully self-supporting. In the case of English books imported, an addition ranging from 20 to 25 per cent. is made to the published price. In the case of Indian books locally purchased 10 per cent. is added to the published price. With regard to books printed for the Department 25 per cent. is added to the cost price in the case of editions of new books, and 50 per cent. in the case of fresh editions of old books. The former charge includes the amount paid to the author or compiler, while the latter secures a larger margin of profit without any addition to the price first fixed.

Order have been passed in separate Proceedings on the proposals of the Committee appointed to report on English, Tamil, and Telugu text books used in Government Schools.

The fees realized during the year in both Government and Private Institutions amounted to Rupees 6,06,634, which with an attendance of 203,894 pupils, gives an average fee of Rupees 2-8-6 per pupil. During the previous year the receipts were Rupees 6,11,102, and the attendance 2,39,820, so that the average was Rs. 2-10-4. The percentage of fees to total cost during 1874-75 in the case of Government Colleges was 14.9, and in the case of Private Schools of the same grade 18.4. In higher class Government Schools the percentage was in the Schools maintained from Provincial Funds 10.4, and in Schools kept from Local and Municipal Funds 10.2. In private similar institutions the percentage was 33.5. In Government Middle-class Schools the percentage was 42.9 and in Local and Municipal Schools of same class 14.5 against 21.2 in Private Schools of the same grade. In Government Lower class Schools the percentages were 10.5, and in Local and Municipal Schools, 10.6 against 53.8 in Private Schools. Private Colleges are more self-supporting than Government Colleges, while Government High Schools surpass Private Schools of the same grade by 11.9 per cent., Local Fund Board Schools exceed Private Schools by 1.7 per cent. Middle class Schools maintained by Prop-

vincial Funds are more than twice as self-supporting as Private Schools, Private Schools of the Middle-class exceed Local Fund and Municipal Schools by 67 per cent. In Lower-class Schools the percentages of the two kinds of Government Schools are practically the same. The average cost to Government of each pupil under instruction has hitherto been calculated upon the average number of pupils on the rolls. The Government of India have directed the cost to be calculated on the average attendance. The statistical returns of 1874-75 have been prepared upon this principle.

The total expenditure from Provincial Funds during 1874-75 on Government Educational Institutions of all kinds was Rs. 4,32,837, the net expenditure after deducting fees being Rupees 3,23,354. The expenditure on grants-in-aid was Rupees 2,42,044 from Provincial Funds and from Local Funds Rupees 1,94,470, showing in the former case a decrease of Rupees 32,832, and in the latter an increase of Rupees 24,915 as compared with 1873-74. The gross expenditure on Education from public funds during 1874-75 appear to have been by Government Rupees 19,79,019-14-2, by Local Fund Boards Rupees 3,11,079-15-9, by Municipalities Rupees 49,593-15-2, by private agency Rupees 10,44,626-8-7; total Rupees 24,84,350-5-8. If there is added the amount expended from charitable funds by Government or Rupees 83,443-11-1, the total becomes Rupees 25,67,794-6-9.

With a view to the numerous changes which have taken place in the Educational Department since its first constitution, and to the further changes which may shortly occur under the proposals of the Committee appointed by the Government of India to revise educational statistics, the Governor in Council desires that the opportunity of the next yearly report may be taken for giving an account of the Department as it stands with reference to its present administrative and financial constitution. The yearly reports of the Educational Department have given an excellent account of each year's operations; but they necessarily fail to give much information regarding the internal constitution of the Department, its nomenclature, mode of working, financial system, and similar matters of administrative detail. The Governor in Council desires that this may be put on record on the occasion of the next report sent in to Government.

THE REVISED SCHEME OF STUDIES.

By order of the Director of Public Instruction, revised copies of the scheme of study prescribed for Government Schools have been circulated for general information and guidance.

Many of the text books named will be gradually superseded by the English and Vernacular Readers and other books which are now under preparation, but due notice will be given of such changes and from time to time the list will be republished in a complete form. Any suggestions for improving the scheme should be submitted in separate letters and not embodied in inspection reports, which may be lost sight of when the time for revision comes.

In the schemes hitherto in force for Zillah and Taluk Schools specific portions of books have not been generally prescribed, and although some of the Inspectors and Headmasters have endeavoured to supply this defect, it has happened that in many schools the pupils have been promoted from one class to another after reading very small portions of their text books. This has been particularly the case with regard to English Readers in Anglo-Vernacular and Taluk schools and in these schools especially it will be necessary for the Inspecting Officers to satisfy themselves that the work of the year is done in the year.

The late Comparative Examination showed that even in Provincial and Zillah Schools dictation is not properly attended to. Much of the bad spelling which is so common is probably due to the neglect of dictation. Special attention is therefore drawn to this subject in the present scheme.

Translation is also a very important subject which has not received the attention which it deserves. The books now in use do not contain any graduated course of exercises, and until this want is supplied, the best plan seems to be to adopt the arrangement which prevails in Mr. Marden's division, where the pupils translate into English the Vernacular Reader used in the class below.

Constant complaints have been made for many years regarding the hand-writing of pupils who pass the University Examinations, and an examination in writing and spelling has now to be undergone by young men who have matriculated. Every pupil must be required to produce his copy books in the lower classes and his ordinary exercise books in the upper classes. If his hand-writing in these classes is found to be below the standard required he must be set to copy writing again, although copy writing may not form a part of the curriculum of his class.

Geography in all the classes must be understood to include map drawing.

The standard of the first or lowest class has been made to correspond with the third standard under the revised results rules now under the consideration of Government. No pupils should therefore be admitted into the first class who has not reached the second standard. He must be able to read any book equal in difficulty to the second part of the first book of Lessons, to write short sentences dictated from any such book, to repeat the Multiplication table to 10 times 10 and to work sums in the four simple rules with Vernacular figures.

Most of the above remarks apply chiefly to middle class schools. In the Matriculation class it will be observed that the standard laid down in Arithmetic and Algebra is that which is reached in the Provincial College of Combaconum and rises somewhat beyond that prescribed by the University. English History is also a subject which is not required for the Matriculation Examination, but it was retained by the late Director, and it seems undesirable to discontinue it.

SCHEME OF STUDY FOR GOVERNMENT SCHOOLS.
FIRST CLASS.

Subject.	Text Book.	Portion.	Remarks.
English Reading ...	First Book of Reading of the Madras School Book Society ...	The whole ...	The pupil must be able to construe any passage put before him. His reading will be tested in some book of equal difficulty not previously studied. A full copy book to be submitted, each page to be dated.
English Writing ...	Morgan's or any series of copy books or copy slips sold at the Central Book Depot	Large Hand ...	.....
English Dictation ...	The reading book in use ...	Words from any portion ...	.....
English Grammar ...	Oral lessons	Nouns, Adjectives and Verbs ...	.....
Tamil or Telugu Reading ...	Second Book of Lessons P. I. P. ...	80 Pages ...	The pupil must be able to answer questions on the meaning and subject-matter of the portion prescribed. His reading will be tested in some book of equal difficulty not previously studied.

Tamil or Telugu Writing ...	Copy slips ...	Round hand ...	A full copy book to be submitted, each page to be dated and signed by the pupil.
Tamil or Telugu Dictation.	Any book not read in the class equal in difficulty to the reading book in use.	Short passages from any portion 100 lines ...	The pupil must be able to recite the portion prescribed and to answer questions on the meaning and subject-matter.
Tamil or Telugu Poetry ...	Anthology, No. I. ...	Pages 1—25. ...	The pupil should be able to make easy applications of the rules to the reading book.
Tamil Grammar ...	Pope's, No. I. ...	Pages 1—14. ...	.....
Telugu Grammar ...	Sextayya's ...	Reduction and Compound Rules. Simple Rules. ...	.....
Arithmetic ...	Tamil or Telugu translation of Colenso, Part I. ...	Districts, chief towns, principal rivers and mountains. ...	.....
Do. ...	Mental ...	Introduction and District in which the school is situated. ...	.....
Geography ...	Orally from the map of the Madras Presidency ...	Chapter I—VI. ...	.....
Do. ...	Tamil or Telugu Short Account of the Madras Presidency ...		
History ...	Tamil or Telugu translation of Morris's History of India ...		

SECOND CLASS.

Subject.	Text Book.	Portion.	Remarks.
English Reading ...	Second Book of Reading of the Madras School Book Society ...	The whole ...	The pupil must be able to construe or translate any passage put before him. His reading will be tested in some book of equal difficulty not previously studied.
English Writing ...	Morgan's or any series of copy books or copy slips, sent at the Central Book Depot ...	Round Hand ...	A full copy book to be submitted, each page to be signed and dated by the pupil.
English Dictation ...	The reading book in use ...	Sentences from any portion ...	The pupil must be able to make easy applications of what he has learnt to the reading book.
English Grammar ...	Oral lessons ...	The remaining parts of speech ...	.....
English translation ...	Sentences from Tamil or Telugu first book of Lessons, P. I. P. ...	Part I, ten pages ...	.....

Tamil or Telugu Reading...	Second Book of Lessons ...	Page 61 to the end ...	The pupil must be able to answer questions on the meaning and subject-matter of the portion prescribed. His reading will be tested in some book of equal difficulty not previously studied. A full copy book to be submitted, each page to be dated and signed by the pupil.
Tamil or Telugu Writing...	Copy Slips ...	Small hand ...	.....
Tamil or Telugu Dictation.	Any book not read in the class equal in difficulty to the reading book in use.	Passages from any portion ...	The pupil must be able to recite the portion prescribed and to answer questions on the meaning and subject-matter.
Tamil or Telugu Poetry ...	Anthology, No. I ...	The next 200 lines ...	.....
Tamil Grammar ...	Rules, No. I. ...	Page 26-55 ...	.....
Telugu Grammar ...	Seshayya's ...	Page 15-55 ...	.....
Arithmetic ...	Tamil or Telugu Translation of Colenso ...	Miscellaneous examples in Reduction and the Compound Rule, Greatest Common Measure, Least Common Multiple, Vulgar Fractions ...	.....

Subject.	Text Book.	Portion.	Remarks.
Arithmetic ...	Mental ...	Bazaar transactions ...	.....
Geography ...	Tamil or Telugu translation of Duncan's Introduction to the Geography of the World ...	Part I, Introduction and Asia ...	.....
History ...	Tamil or Telugu translation of Morris's History of India ...	Chapter VII—XII ...	.....

THIRD CLASS.

English Reading ...	Chambers's Moral Class Book ...	Page 1—48 ...	.....	The pupil must be able to construct or translate any passage put before him. His reading will be tested in some book of equal difficulty not previously studied.
English Writing ...	Morgan's or any series of copy books or copy slips sold at the Central Book Depot	Small hand ...	.....	A full copy book to be submitted, each page to be signed and dated by the pupil.

English Dictation ...	The reading book in use ...	Short passages read ...	.....	Books of school exercises to be exhibited, each page to be dated and signed by the pupil.
English Grammar ...	Dr. R. Morris's (Macmillan's Primer series.) ...	Page 1—40 ...	.....	.....
English translation ...	Fables from Tamil or Telugu Second Book of Lessons, P. I. P. ...	Twelve pages ...	.....	.....
Tamil or Telugu Reading ...	Brief Sketches of Europe.	Page 1—67 ...	.....	.....
Tamil or Telugu Writing ...	Any book, not read in the class, equal in difficulty to the reading book in use ...	.....	.....	.....
Tamil Poetry ...	Anthology, No. II. ...	Passages from any portion ...	.....	.....
Telugu Poetry ...	Nala Charitram ...	Stanzas 1—59 ...	.....	.....
Tamil Grammar ...	Mahalingiah's ...	Page 1—13 ...	.....	.....
Telugu Grammar ...	Venkaiah's ...	Page 1—40 ...	.....	.....
Arithmetic ...	Tamil or Telugu translation of Colenso ...	Page 1—18 ...	.....	.....
Geography ...	Tamil or Telugu translation of Duncan's Introduction to the Geography of the World ...	Decimal Fractions with revision of previous rules ...	.....	.....
History ...	Tamil or Telugu translation of Morris's History of India ...	Part II, Europe ...	.....	.....
		Chapter XIII—XXV ...	.....	.....

LOWER FOURTH CLASS.

Subject.	Text Book.	Portion.	Remarks.
English Reading ..	Chambers's Moral Class Book	Page 40—109	Books of school exercises to be exhibited. Each page to be dated and signed by the pupil.
English Writing ..	.....	" .. ..	.....
English Dictation ..	The reading book in use ..	Passages from portion not read ..	.....
English Grammar ..	D. R. Morris's (Macmillan's Primer series) ..	Page 41—117 .. ..	.....
Translation into English ..	Tamil or Telugu Brief Sketches of Europe ..	Ten pages .. ..	.....
Translation into Tamil or Telugu ..	Chambers's Moral Class Book	Passages not previously studied, ten pages .. ..	.....
Tamil or Telugu Reading ..	Brief Sketches of Europe ..	Page 68—132 .. ..	.....
Tamil or Telugu Dictation ..	Poetical Anthology, No. 1 ..	Passages from any portion ..	.....
Tamil Poetry ..	Anthology, No. II. ..	Stanzas 63—138 .. ..	.....
Tamil Grammar ..	Nala Charitram	Page 13—30 .. ..	.....
Telugu Grammar ..	Mahalingiah's	Page 41—70 .. ..	.....
Telugu Grammar ..	Venkatiah's	Page 19—36 .. ..	.....
Arithmetical ..	Barnard Smith's	Practice and Simple Proportion with revision of previous rules ..	

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Geometry ..	Euclid	Book I to the end of the 26th Proposition in the Vernacular or to the end of 16th Proposition in English	
Geography ..	Clyde's Elementary Geography	Asia .. ..	.....
Do. ..	Duncan's Geography of India	Page I—54 .. ..	.....
History ..	Morris's History of India ..	Chapter I—IX .. ..	.....

UPPER FOURTH CLASS.

English Reading ..	Supplement to the Fourth Book, Irish series ..	History of James Ferguson—Insatiable love of their young in the brute and feathered creation—Artificial migration of bees—The food of ants—Islands produced by insects—The Mantis—Anecdotes of a Voyage round the World—Invention of the Microscope and the Telescope—A Mirage—Dependence of men upon each other—Adventures of four Russian Sailors—The grateful Turk—Language of animals—Perseverance	Books of school exercises to be exhibited. Each page to be dated & signed by the pupil.
English Writing ..	.....	.....	.....

UPPER FOURTH CLASS—(Continued.)

Subject.	Text Book.	Portion.	Remarks.
English Dictation ... English Poetry ...	The reading book in use ... Selections, No. I, P. I. P.	Passages from portion not read ... Cromwell—The Love of the Royal George—Father William—Goliath—The Turkey and the Ant—Migration of the Grey Squirrels—Way to find out plants—Beauties of Creation—Adam and Eve—The Sinner's Creed—Creation and Providence—A Story—Saves—Saves 4 Story—Use of flowers ...	 Two hundred lines to be recited.
English Grammar ...	Sullivan's Abstracts to Grammar—English Grammar ...	Page 1—120 ...	.....
Translation into English ...	Read Book of Lessons ... P. I. P.	Twelve pages ...	.....
Translation into Tamil or Telugu ...	Supplement to the Fourth Book ...	Passages not previously studied, twelve pages ...	.....
Tamil or Telugu Reading ...	Third Book of Lessons ... P. I. P.	Page 1—64 ...	.....
Tamil or Telugu Dictation ...	Poetical Anthology, No. I ...	Passages from any portion ...	.....
Tamil Poetry ...	Anthology, No. II ...	Stanzas 139—249 ...	.....
Telugu Poetry ...	Nala Charitram ...	Page 61—62 ...	.....

Tamil Grammar ...	Mahalingam's ...	Page 71—99 and general revision.	.....
Telugu Grammar ...	Venkiah's ...	Page 37—47 and general revision.	.....
Arithmetic ...	Barward Smith's and Bradshaw's ...	Compound Proportion and Simple Interest with revision of previous Rules ...	.....
Algebra ...	Todhunter's Algebra for Beginners ...	To the end of Fractions ...	.....
Geometry ...	Euclid ...	Book I ...	.....
Geography ...	Clyde's Elementary Geography ...	Europe ...	.....
Do. ...	Duncan's Geography of India ...	Page 54—106 ...	.....
History ...	Morris's History of India ...	Chapter X—XVIII ...	.....
Do. ...	Cutler's Smaller History of the British Empire ...	To the end of the Plantagenet period, omitting chapters relating to Scotland and Ireland ...	.....

FIFTH CLASS.

English Reading Prose ...	Letchbridge's Easy Selections ...	Installation of Yudhishtira—The Battle of Hastings—Friendship of Animals—Structure and Habits of Quadrupeds—Macbeth—Structure and Habits of Birds—Queen Philippa—King Lear ...	To be read in the usual way.
Do. ...	.....	All Baba and the Forty Thieves ...	To be read without help from a teacher, as a habit task.

FIFTH CLASS.—(Continued.)

Subject.	Text Book.	Portion.	Remarks.
English Writing ...	.....	.....	Books of school exercise to be exhibited. Each page to be dated and signed by the pupil.
English Dictation ...	The reading book in use ...	Passages from portions not read...	.....
English Reading Poetry...	Leithbridge's Easy Selections ...	The Shepherd and the Philosopher—The Lion, the Tiger and the Traveller—The Wild Bear and the Ram—The Eagle and the assembly of Animals—The Miser and Plutus—The Lion, the Fox and the Geese—Boadicea—Rome's Farewell ...	.....
English Grammar...	Sullivan's Attempt to Simplify English Grammar... Third Book of Lessons, P. I. P. ...	Page 121—216 ...	250 lines to be recited.
Translation into English...	Leithbridge's Easy Selections ...	15 pages. ...	.....
Translation into Tamil or Telugu ...	Text books prescribed by the University ...	Passages not previously studied, 16 pages ...	.....
Tamil or Telugu Reading...		About half ...	.....

Tamil Dictation ...	Practical Anthology, No II.	Passages ... on any portion ...	.....
Telugu Dictation ...	Nala Charitram ...	Do. ...	.....
Tamil Grammar ...	Nannool ...	Letters and Sundhi ...	.....
Telugu Grammar ...	Chinniah Sarri's Bala Vakaranam ...	Pages 1—31 ...	.....
Arithmetic ...	Barnard Smith's and Bradshaw's ...	Compound Interest, Extraction of the Square Root, Square and Cubic Measure, and revision of the previous rules ...	.....
Algebra ...	Todhunter's Algebra for Beginners...	To the end of Simple Equations and Problems involving them ...	.....
Geometry ...	Euclid ...	Books I and II, with easy deductions ...	.....
Geography ...	Clyde's Elementary Geography ...	Africa, America and Oceania ...	.....
Do. ...	Duncan's Geography of India ...	Pages 106—171 ...	.....
History ...	Morris's History of India...	Chapters XIX—XXV ...	.....
Do. ...	Collier's Smaller History of the British Empire ...	To the end of the Stuart Period, omitting chapter relating in the History of Scotland ...	.....

SIXTH CLASS.

English Prose and Poetry...	Books prescribed for the Matriculation Examination...	Portions prescribed by the University	Three hundred lines of the poetry to be recited.
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SIXTH CLASS.—(Continued.)

Subject.	Text Book.	Portion.	Remarks.
English Dictation ...	Any prose of the Matriculation standard ...	Any portion ...	...
English Grammar ...	Bain's ...	The whole of the large print, and some of the small print, omitting the more advanced portions ...	...
Translation into English...	Third Book of Lessons, P. I. P. ...	Twenty pages ...	...
Translation into Tamil or Telugu ...	Prose and Poetry prescribed for the Matriculation Examination ...	Passages not previously studied. 29 pages ...	...
Tamil and Telugu Prose and Poetry ...	Prose and Poetry prescribed for the Matriculation Examination ...	Portions prescribed by the University ...	...
Tamil and Telugu Dictation and Grammar ...	Do. do. ...	Any portion ...	...
Telugu Grammar ...	Nannool ...	Nouns ...	...
Arithmetic ...	Chinniah Sani's Bala Vysakaram ...	Pages 32-66 ...	...
Algebra ...	Barnard Smith's and Bradshaw's ...	The whole subject ...	...
	Todhunter's Algebra for Beginners ...	Revision of the whole of the portion required for the Matriculation Examination with the addition of ...	...

Geometry ...	Euclid ...	Pooks I, II and III, with deductions ...	...
Geography ...	Clyde's Elementary Geography ...	Revision of the whole ...	...
Do. ...	Duncan's Geography of India ...	Do. do. ...	...
Do. ...	Geikie's Physical Geography (Primer) ...	The whole ...	...
Physics ...	Balfour Stewart's (Primer) ...	Pages 1-67 ...	Supplemented by private reading of portions from some larger History in the School Library ...
History ...	Morris's History of India ...	Revision of the whole ...	...
Do. ...	Collier's Smaller History of the British Empire ...	The Greek Period ...	...

ALGEBRA.

Solutions of Miscellaneous Examples from Chapter XXV.

of Todhunter's Larger Algebra.

(Continued from page 254.)

$$16 \quad \frac{x+1}{x-1} + \frac{x+2}{x-2} = 2 \frac{x+3}{x-3}$$

$$1 + \frac{2}{x-1} + 1 + \frac{4}{x-2} = 2 \left(1 + \frac{6}{x-3} \right)$$

$$\therefore \frac{1}{x-1} + \frac{2}{x-2} = \frac{6}{x-3}$$

$$\frac{1}{x-1} = \frac{6}{x-3} - \frac{2}{x-2}$$

$$\frac{1}{x-1} = \frac{4x-6}{(x-3)(x-2)}$$

$$(x-3)(x-2) = (4x-6)(x-1)$$

$$x^3 - 5x + 6 = 4x^2 - 10x + 6$$

$$\text{Therefore } 3x^2 - 5x = 0;$$

$$\text{that is, } x(3x-5) = 0$$

$$\text{whence } x = 0, \text{ and } x = \frac{5}{3}$$

$$17 \quad \frac{4}{x^3-2x} = \frac{2}{x^2-x} + x^2 - x$$

$$\frac{4}{x^3-2x} - \frac{2}{x^2-x} = x^2 - x$$

$$\frac{2x^2}{(x^3-2x)(x^2-x)} = \frac{2}{(x-2)(x-1)} = x^2 - x$$

$$\therefore \frac{2}{(x-1)(x-2)} = (x-1)^2 + (x-1);$$

$$\text{that is, } \frac{2}{(x-1)^2 - (x-1)} = (x-1)^2 + (x-1)$$

$$\therefore 2 = (x-1)^4 - (x-1)^2;$$

$$\text{whence } (x-1)^2 = \frac{1 \pm \sqrt{1+2}}{2} = \frac{1 \pm 3}{2}$$

$$= 2 \text{ or } -1$$

$$\therefore x-1 = \pm \sqrt{2} \text{ or } \pm \sqrt{-1}$$

$$\text{whence } x = 1 \pm \sqrt{2}, \text{ or } 1 \pm \sqrt{-1}$$

$$18 \quad \left(x - \frac{1}{x}\right) \left(x - \frac{4}{x}\right) \left(x - \frac{9}{x}\right) = (x-1)(x-2)(x-3)$$

$$\left(\frac{x^2-1}{x}\right) \left(\frac{x^2-4}{x}\right) \left(\frac{x^2-9}{x}\right) = (x-1)(x-2)(x-3)$$

$$\frac{(x-1)(x+1)(x-2)(x+2)(x-3)(x+3)}{x^3} = (x-1)(x-2)(x-3)$$

Now since $(x-1)$, $(x-2)$, and $(x-3)$ are common factors, we have evidently the following equations

$$\left. \begin{aligned} x-1 &= 0 \\ x-2 &= 0 \\ x-3 &= 0 \end{aligned} \right\}; \text{whence } x = 1, 2, 3$$

Dividing off by the product

$(x-1)(x-2)(x-3)$, we obtain

$$\frac{(x+1)(x+2)(x+3)}{x^3} = 1$$

$$\text{thus, } x^3 + 6x^2 + 11x + 6 = x^3$$

$$6x^2 + 11x = -6;$$

$$\text{whence } x = \frac{-11 \pm \sqrt{(-23)}}{12}$$

19.

$$\begin{array}{r|l} & x^2 - 4x - 2 \\ \hline & x^4 - 8x^3 + 12x^2 + 16x - 16 \\ x^4 & \\ \hline 2x^2 - 4x & -8x^3 + 12x^2 \\ & -8x^3 + 16x^2 \\ \hline 2x^2 - 8x - 2 & -4x^2 + 16x - 16 \\ & -4x^2 + 16x + 4 \\ \hline & -20 \end{array}$$

Thus we obtain by extracting the square root;

$$x^4 - 8x^3 + 12x^2 + 16x - 16 = (x^2 - 4x - 2)^2 - 20.$$

$$\therefore (x^2 - 4x - 2)^2 - 20 = 0;$$

$$\text{that is, } x^2 - 4x - 2 = \pm 2\sqrt{5}$$

$$x^2 - 4x = 2 \pm 2\sqrt{5};$$

$$x = 2 \pm \sqrt{6 \pm 2\sqrt{5}}.$$

19. From the equation

$$x = 2 \pm \sqrt{6 \pm 2\sqrt{5}}, \text{ we have}$$

$$x = 2 \pm (\sqrt{5} + 1) = 3 + \sqrt{5} \text{ or } 1 - \sqrt{5};$$

and from the equation

$$x = 2 \pm \sqrt{6-2\sqrt{5}}$$

we obtain $x = 2 \pm (\sqrt{5} - 1)$

$$= 1 + \sqrt{5} \text{ or } 3 - \sqrt{5}$$

Thus $x = 1 \pm \sqrt{5} \text{ or } 3 \pm \sqrt{5}$

20. See the hint at the end of the Algebra.

21. Multiply both sides by 2 and refer to the hint at the end of the Algebra.

$$22. \{ \sqrt{(a+x)} - \sqrt{a} \} \{ \sqrt{(a-x)} + \sqrt{a} \} = nx$$

$$\therefore \{ \sqrt{(a-x)} + \sqrt{a} \} = \frac{nx}{\sqrt{(a+x)} - \sqrt{a}}$$

$$= \frac{nx \{ \sqrt{(a+x)} + \sqrt{a} \}}{\{ \sqrt{(a+x)} - \sqrt{a} \} \{ \sqrt{(a+x)} + \sqrt{a} \}} = \frac{nx \{ \sqrt{(a+x)} + \sqrt{a} \}}{x}$$

$$\text{thus } \sqrt{(a-x)} + \sqrt{a} = n \{ \sqrt{(a+x)} + \sqrt{a} \}$$

By transposition

$$(1-n)\sqrt{a} = n\sqrt{(a+x)} - \sqrt{(a-x)}$$

$$(1-n)^2 a = n^2 (a+x) + (a-x) - 2n\sqrt{a^2-x^2}$$

$$(1-n)^2 a - (1+n^2)a - (a^2-1)x = -2n\sqrt{a^2-x^2};$$

$$\text{that is } -2na - (n^2-1)x = -2n\sqrt{a^2-x^2}$$

Squaring we have

$$4n^2a^2 + 4na(n^2-1)x + (n^2-1)^2x^2 = 4n^2a^2 - 4n^2x^2$$

$$\therefore \{ (n^2-1)^2 + 4n^2 \} x^2 + 4na(n^2-1)x = 0;$$

$$\text{that is } (1+n^2)^2 x^2 + 4na(n^2-1)x = 0;$$

$$\text{whence } x = 0, \text{ and } \frac{4na(1-n^2)}{(1+n^2)^2}$$

C. W. B. L.L.B.

EXAMINATION PAPERS.

SHAKESPEARE'S MERCHANT OF VENICE.

1. Describe the contents of the three caskets, without quoting the inscriptions on the scrolls.

2. How does Shakespeare keep up the interest of the play after Shylock's last exit?

3. Carefully trace what part is taken by Antonio in this play.

4. Illustrate from the Bible Shakespeare's use of the following words, viz.—presently—knapped—divers—thoroughly—reader—it is meet (i. 3. 177; iii. 1. 10, 118; iv. 1. 173, 201, 401).

5. Illustrate from the Bible the following allusions and expressions, viz.: (a) The devil can cite Scripture for his purpose:—(b) By Jacob's staff:—(c) that fool of Hagar's offspring:—(d) Gilded tombs do worms

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EXAMINATION PAPERS.

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unfold:—(e) How far that little candle throws his beams! So shines a good deed in a naughty world, (i. 3. 99; ii. 5. 36, 41; 7. 69; v. 1. 90.)

6. What is the story of the Golden Fleece? What of Hercules and Lichas? Of Thisbe? and of Medea and Æson? (i. 1; ii. 1; v. 1.)

7. What is meant by—"If I can catch him once upon the hip"? (i. 3.)

8. Explain Lancelot's phrase—"I will try confusions with him." (ii. 2.)

9. What does the prince of Morocco say about angels? In what sense does Shakespeare use "fancy"? What was the "posy" of a ring? (ii. 1; iii. 2; v. 1. 148.)

10. What does Shakespeare say was the opinion of Pythagoras? (iv. 1. 131.)

11. Parse all the words in the line—Why, I were best to cut my left hand off (v. 1). Discuss the expression—I were best.

12. In what sense does Shakespeare use the following words:—argosies, vailing, prest, caulings, doit, sand-blind, fill-horse, baned, fratten, patines? (i. 1. 9, 28, 160; 3. 80, 141; ii. 2. 33, 160; iv. 1. 46, 77; v. 1. 59.)

3.1. Give the etymology of sand-blind, fill-horse, baned, and patines.

S.P. G. HIGH SCHOOL, TANJORE.

VIII CLASS.

Physics:

I. (a) What are the principal uses of cohesion?

(b) How does chemical attraction differ from cohesion?

II. (a) If at the distance of 2 ft. the force of attraction be 9 lbs, what is it at the distance of 4 feet and 6 feet respectively?

(b) Show clearly that the difficulty of overturning a cylindrical column diminishes directly as the area of the base and inversely as the height.

III. Describe the air-pump and its action.

IV. State any experiments with the air-pump, serving to prove (1), the pressure of the air; (2), the resistance of the air to bodies moving in it, and (3), the elasticity of the air.

V. Draw a four-sided figure with unequal sides, and describe an experimental method of finding its centre of gravity.

A straight lever 20 inches long, weighs 15 oz. Where must the fulcrum be placed, that the lever may be in equilibrium when a weight of 16 oz. is hung at one end, and a weight of 9 oz. at the other end?

VI. (a) A rectangular vessel 10 inches long, 8 inches wide and 6 inches

deep, is exactly filled with water. Find the total pressure in lbs. on the bottom, given that a cubic foot of water weighs 62.5 lb.

(b) What would be the height of the mercurial barometer, if the cup containing the mercury were placed in the bottom of such a vessel?

VII. A body floats in one fluid with $\frac{1}{4}$ of its volume immersed, and in another with $\frac{1}{2}$ immersed. Compare the specific gravities of the two fluids.

A bottle weighs 520 grains when empty; when filled with water it weighs 2,020 grains; and when filled with alcohol, it weighs 1,708 grains. Find the specific gravity of alcohol in decimals.

VIII. (a) Upon what physical conditions do the loudness and pitch of a sound depend?

(b) Explain the phenomenon of Echo.

IX. (a) What is the effect of heat on the elastic force of air or gas?

(b) What is specific heat? Explain clearly what is meant by the latent heat of steam and water.

(c) Explain why it is difficult to heat water from its upper surface.

THE EDUCATIONAL DEPARTMENT.

* LIST OF GRADED OFFICERS FOR 1876.

The Educational Service in India is organized upon the following system:—

Five Directors of Public Instruction—one for each of the Presidencies of Bengal, Madras, and Bombay, and one each for the North-West Provinces and the Punjab, and Graded Officers as follows:—

	Bengal.	Madras.	Bombay.	Others.	Total.
Officers of Grade I.....	2	2			4
" " II.....	6	3	3	7	19
" " III.....	12	5	5	9	31
" " IV.....	17	6	6	8	37
	37	16	16	27	96

* We are much indebted for the careful compilation of this list to the Bombay Educational Record—Ed. M. J. of E.

Directors of Public Instruction under the minor Administrations are included in Grades I. and II. Discrepancies between this abstract and the list are caused by vacancies not filled up at the date of making the return.

The Pay and Furlough to which these officers are entitled may be shortly stated thus:—

Pay.—The first three Directors draw Rs. 2,000 per mensem rising to Rs. 2,500 in ten years; the other two 2,000 rising to 2,250, and 1,500 rising to 2,000, respectively.

Officers in Grade I. Rs. 1,250 rising to Rs. 1,500 in three years.

" " II. " 1,000 rising to " 1,250 in " "

" " III. " 750 rising to " 1,000 in four years.

" " IV. " 500 rising to " 750 in five years.

Travelling Officers, i.e., Directors and Inspectors, draw travelling allowances in addition to their pay.

Furlough.—The same rules as those for Covenanted Officers in the Revenue and Judicial branches of the Civil Service, with a maximum absence allowance of £500 per annum.

(Note.—It has been thought proper to mention only University Honours of the highest class, e.g., First Classes in Final Schools or Triposes, Senior Moderatorships, and the like.)

Name.	Degree and University.	Substantive Appointment.
DIRECTORS OF		
<i>Ranking with Civilians of 20 years'</i>		
H. Woodrow	M.A., Camb	D. P. I., Bengal
Col. R. M. Macdonald	.....	D. P. I., Madras
E. M. Chatfield	B.A., Oxford	D. P. I., Bombay
M. Kempson	M.A., Camb	D. P. I., N. W. Provinces
Major W. B. M. Holroyd	.....	D. P. I., Punjab
OFFICERS IN		
<i>Ranking with Civilians of 12 years'</i>		
J. Sutcliffe	M.A., Camb	Principal, Presidency College
R. Thwaytes	M.A., Camb	Principal, Hoogly College
E. Thompson	M.A., Camb	Principal, Presidency College
J. T. Fowler	.....	Inspector of Schools
IA.-Col. T. Waddington	.....	Educational Inspector, Central Division
W. Wordsworth	B.A., Oxford	Principal, Elphinstone College
R. Griffith	M.A., Oxford	Principal, Benares College
C. A. R. Browning	M.A., Camb	Inspector-General of Education
Nārāyan Bhāi Dandekar	.....	Director of Public Instruction
OFFICERS IN		
<i>Ranking with Civilians of 12 years'</i>		
H. F. Blandford	School of Mines	Professor, Presidency College
C. B. Clarke	M.A., Camb	Inspector of Schools, N. Circle
C. H. Tawney	M.A., Camb	Professor, Presidency College
J. A. Hopkins, B.L., C.S.	.....	Inspector of Schools.
A. W. Croft	M.A., Oxford	Inspector of Schools, Behar
H. Farley	M.A., Camb	Inspector of Schools
E. C. Caldwell	.....	Do
W. A. Porter	M.A., Camb	Principal, Provincial College, Combaconum.

Date of first Appointment.		Government under which serving.	Remarks.
To Graded Service.	To Present Grade.		
PUBLIC INSTRUCTION.			
standing and Colonel's.			
10th March 1854	15th Jan. 1876	Bengal	Formerly Fellow, Gains Coll., Camb. Wrangler.
Feb. 1856	27th March 1875	Madras	Inspector of Sch. Feb. 1856.
20th March 1866	6th Nov. 1874	Bombay	First Class, Final Classical School, 1864.
.....	.....	N. W. P.	
.....	.....	Punjab	
GRADE I.			
standing and Lieut.-Colonels.			
20th Aug. 1852	7th Feb. 1855	Bengal	Wrangler, 1847.
.....	15th Jan. 1876	.....	.....
19th Oct. 1862	April 1871	Madras	Head Master, Provincial School, Calcutt, 25th April 1856.
26th Jan. 1859	1st April 1872	"	Principal, Madras Normal School, 2nd Dec. 1855.
25th Feb. 1863	1st March 1870	Bombay	.....
9th July 1861	6th Nov. 1874	"	First Class, Final School of Law and Med. Hist. 1859.
1853	1st April 1873	N. W. P.	Officiating D. P. I.
July 1862	Oct. 1873	C. P. I.	Wrangler; D. P. I. in Oudh July 1870.
14th Nov. 1875	14th Nov. 1875	H. A. D.	Draws a fixed salary of Rs. 1,000.
GRADE II.			
standing and Lieut.-Colonels.			
.....	11th Jan. 1866	Bengal	Under Government of India
Dec. 1865	3rd Nov. 1866	"	Formerly Fellow, Queen's Coll., Camb.; Wrangler.
23rd Nov. 1864	2nd June 1871	"	Formerly Fellow, Trin. Coll. Camb.; Bracketed Senior Class. 1860.
11th Dec. 1872	11th Dec. 1872	"	.....
25th Jan. 1866	25th Jan. 1875	"	.....
Dec. 1857	April 1871	Madras	Wrangler, Head Master, Provincial School, Combaconum, Sept. 1854.
29th Oct. 1857	7th Jan. 1874	"	Head Master, Provincial School, Combaconum, Jan. 1856.
15th April 1867	April 1875	"	3rd Wrangler. Do. May 1866.

Name.	Degree and University.	Substantive Appointment.
J. G. Bühler	Ph.D., Göttingen	Educational Inspector, N.D.
T. Cooke	M.A., J.L.L.B., Dub.	Principal, Civil Engineering College, Poona.
R. G. Oxlford	M.A., Oxford	Principal, Deccan College, Poona.
E. T. Constable	M.A., Camb.	Inspector, 1st Circle
R. A. Lloyd	B.A., Camb.	Ditto, 2nd Circle
A. S. Harrison	B.A., Camb.	Principal, Muir Central College.
C. W. W. Alexander	B.A., Camb.	Inspector of Schools
D. Pearson	M.A., Camb.	Inspector of Schools
J. C. Nesfield	M.A., Oxford	Director of Public Instruction
P. Hordern	B.A., Oxford	Director of Public Instruction

OFFICERS IN

Ranking with Civilians of 8 years

R. Hand	M.A., Edin.	Professor, Presidency College
J. W. McGrindle	M.A., Edin.	Principal, Patna College
G. Beckett	M.A., Oxford	Principal, Beaumont College.
A. Pedler	School of Mines	Professor of Chemistry, Presidency College.
G. Watts	M.D., Aberdeen	Professor, Hoogley College
Ramesh Mukerji		Inspector of Schools, W. Circle
W. Robson	M.D., Edin.	Professor, Presidency College
L. Lathbridge	M.A., Oxford	Professor, Krishnagar College
H. Blochman	M.A., Munich	Principal, Calcutta Madrasah
A. Rabank	M.A., Camb.	Professor, Patna College
A. W. Garrett	M.A., Oxford	Principal, Dacca College
John Elliott	B.A., Camb.	Professor, Presidency College
T. Maiden	B.A., Camb.	Inspector of Schools
T. Bartholomew		Ditto
W. A. Russell	M.A., Oxford	Educational Inspector, S.D.
Koro L. Chatterjee		Professor of Mathematics, Deccan College.
T. Kielhorn	Ph.D., Leipzig	Professor of Oriental Languages, Deccan College.
W. Draper	M.A., Aberdeen	Educational Inspector, S.E.D.
S. Cooke	M.A., L.C.E., Dub.	Professor of Chemistry and Geology, Poona C. E. College

Date of first Appointment.		Government under which serving.	Remarks.
To Graded Service.	To Present Grade.		
10th Feb. 1863	15th May 1872	Bombay	Senior Moderator, Experimental and Natural Science, 1859.
5th June 1865	5th June 1865	"	
9th Sept. 1863	6th Nov. 1874	"	N. W. P. Officiating Principal, Bareilly College. Wrangler.
1862	1870	"	
1864	1870	"	
1867	1st July 1872	"	
		Panjab	Oudh British Bahamah
22nd Jan. 1867	12th Jan. 1874	"	
1st March 1862	16th Dec. 1867	"	GRADE III. standing and Majors.
		"	
	1st July 1865	Bengal	22nd Jan. 1867
	31st Jan. 1867	"	
	25th Oct. 1868	"	27th May 1873
	27th May 1873	"	
18th Nov. 1873	13th Nov. 1873	"	17th Dec. 1867
	4th Jan. 1875	"	
27th Oct. 1868	2nd Feb. 1875	"	27th Oct. 1868
	2nd Feb. 1875	"	
1st July 1865	20th April 1875	"	9th Dec. 1868
	Oct. 1875	"	
	15th Jan. 1876	"	1st March 1876
	1st March 1876	"	
21st Nov. 1862	21st Nov. 1862	Madras	April 1869
	7th Jan. 1874	"	
19th Nov. 1869	1st March 1870	Bombay	1st Jan. 1865
	1st March 1870	"	
27th Feb. 1866	11th June 1872	"	1st Nov. 1854
	3rd April 1874	"	
27th Dec. 1868	31st July 1875	"	Head Master, Zilla School, Cuddalore, April 1857. Deputy Inspector of Schools, April 1859.
		"	

Name.	Degree and University.	Substantive Appointment
K. Deighton	B.A., Camb	Principal, Agra College
Rajah Siva Prasad, C. S. I.	.....	Inspector of Schools, 3rd Circle
W. H. Wright	B.A., Camb	Principal, Bareilly College
A. Gough	B.A., Oxford	Professor, Muir Central College.
C. R. Cooke	B.A., Camb	Principal, Delhi College
J. Sims	B.A., Camb	Inspector of Schools
H. B. Jacob, Capt., R.S.C.	.....	Inspector of Schools
E. Chandul	.....	Inspector of Schools, N. C.
A. Thompson	.....	Inspector of Schools

OFFICERS IN

Ranking with Civilians of 4 years.

J. K. Rogers	.....	Professor, Patna College
R. Parry	.....	Professor, Presidency College.
S. F. Downing	B. A., Dublin	Professor, Civil Engineering Dept., Presidency College.
W. Griffiths	M.A., Camb	Ditto ditto
F. J. Rowe	M.A., Camb	Professor, Hooghly College
J. Willson	M.A., Dublin	Professor, Patna College
Prasanna Kumar Sarbadhikari.	.....	Principal Sanskrit College
E. D. Archibald	B.A., Oxford	Professor, Dacca College
A. M. Nash	B.A., Oxford	Professor, Presidency College.
W. T. Webb	B.A., Camb	Professor, Dacca College
J. S. Slater	.....	Professor, Civil Engineering Department, Presidency College.
Untsch Datta	.....	Professor, Krishnagar College
A. C. Jackson	B.A., Oxford	Professor, Presidency College.
W. R. Kerchaw	B.A., Dublin	Inspector of Schools
F. S. Evans	M.A., Oxford	Professor of Mathematics Presidency College.
D. Duncan	M.A., Edinburgh	Professor of Logic and Moral Phil., Presidency College.
G. Oppert	Ph.D., Halle	Professor of Sanskrit, Presidency College.
W. H. Wilson	Ph.D., Heidelberg, F.R.S., F.G.S.	Professor of Physical Science, Presidency College.
J. Bradshaw	M.A., Dublin	Professor of History, Presidency College.

Date of first Appointment.		Government under which serving.	Remarks.
To Graded Service.	To Present Grade.		
1862	1st April 1863	N. W. P.	
1856	13th Dec. 1870	"	
1867	1st July 1872	"	Officiating Inspector, 1st Circle.
1868	1874	"	
.....	.....	Panjab	
26th June 1869	April 1871	C. P. I.	
4th Oct. 1872	4th Oct. 1872	"	
13th July 1866	1st April 1870	Oriss	
GRADE IV.			
standing and Captains.			
23rd July 1862	23rd July 1862	Bengal	
6th March 1863	6th March 1863	"	
15th Sept. 1869	15th Sept. 1869	"	
20th Jan. 1870	20th Jan. 1870	"	Wrangler.
15th June 1870	15th June 1870	"	
13th March 1873	13th March 1873	"	
18th March 1874	18th March 1874	"	
6th April 1875	6th April 1875	"	
6th April 1875	6th April 1875	"	First Class in Final School of Mathematics and Physics.
6th April 1875	6th April 1875	"	
22nd Nov. 1875	22nd Nov. 1875	"	
23rd Nov. 1875	23rd Nov. 1875	"	
23rd Feb. 1876	23rd Feb. 1876	"	
7th Jan. 1874	7th Jan. 1874	Madras	Head Master, Provincial School, Bellary, 2nd Dec. 1855.
7th Feb. 1863	7th Feb. 1863	"	First Class, Final School of Mathematics, 1862.
20th May 1870	20th May 1870	"	First Class, Philosophy, 1866-67.
14th Nov. 1872	14th Nov. 1872	"	
4th Feb. 1875	4th Feb. 1875	"	Senior Moderator, History and English Literature, 1867; Head Master, Provincial School, Mangalore, and Acting Inspector of Schools, 31st Dec. 1870.
1st April 1875	1st April 1875	"	

Name.	Degree and University.	Substantive Appointment.
J. T. Hawthornthwaite	M.A., Camb	Professor of Mathematics, Elphinstone College.
P. Peterson	M.A., Edinburgh	Professor of Oriental Languages, Elphinstone College.
H. Ghes	B.A., Oxford	Professor of History, Elphinstone College.
H. B. Kirkham	University College, London.	Professor of English Literature, Elphinstone College.
J. Scorgie	.....	Professor of Mechanics and Applied Science, Poona C.E. College.
R. Shute	B.A., Oxford	Professor of Logic and Moral Phil., Deccan College.
W. A. Stack	.....	Professor, Bareilly College.
W. A. Boutflower	B.A., Camb	Professor, Muir Central College.
J. Elliott	B.A., Camb	Do.
J. Kibbla	M.A., Oxford	Professor, Benares College.
C. Dodd	.....	Professor, Agra College.
G. Thibaut	Ph.D., Heidelberg	Anglo-Sanskrit Professor, Benares College.
J. Dearden	B.A., Camb	Inspector of Schools, E. Circle.
G. Thompson	B.A., Queen's University, Dublin	President, High School, Jubulpoor.
Munshi Durga Prasad	.....	Inspector of Schools, W. Circle.

Date of first Appointment.		Govern-ment under which serving.	Remarks.
To Graded Service.	To Present Grade.		
4th Oct. 1872	1st Oct. 1872	Bombay	Wrangler.
2nd Jan. 1873	2nd Jan. 1873	"	First Class, Classics, Edinburgh, 1866-67.
14th May 1873	14th May 1873	"	First Class, Final School of History, 1872.
10th Nov. 1873	10th Nov. 1873	"	Appointed to Service by Sec. of State, 21st June 1862. Principal, Elphinstone High School, 20th Nov. 1866.
6th Feb. 1875	6th Feb. 1875	"	
20th June 1875	20th June 1875	"	First Class, Final Classical School, 1872.
1st March 1868	1st March 1868	N. W. P.	
1st April 1870	1st April 1870	"	Wrangler. Officiating Inspector.
1st July 1870	1st July 1870	"	Wrangler.
1st July 1870	1st July 1870	"	Officiating Professor, Benares College.
1874	.....	"	
Sept. 1870	Sept. 1870	C. P. I.	
1st April 1870	1st April 1870	"	This appointment is peculiar, as the pay is fixed instead of progressive Officiating Inspector.
1st April 1870	1st April 1870	Oudh	

CORRESPONDENCE.

POPULAR NATIVE PREJUDICES CONNECTED WITH
NATURAL HISTORY.

(TO THE EDITOR OF THE "INDIAN DAILY NEWS.")

SIR,—I shall here take occasion to catalogue a few popular though erroneous beliefs, connected with the animal kingdom, which the unenlightened classes cherish, and to which they cling, in spite of their absurdity, with a degree of tenacity characteristic of the conservatism of superstition—from the Himalays to Comorin.

1.—The nyghau (the *porcus picta*, or painted antelope of naturalists) which is a bovine antelope is said to be a solidungulus, unlike its cloven footed congeners. I once made a wager with a zemindar in the Gangpore District on the subject, and when I had the good fortune to bowl over a nyghau (which being interpreted signifies a blue cow) the zemindar stoutly held out that I had not got the right animal. In the Raipore District the male is known as the *dhuma*, while the female goes under the appellation of *rajni*. By strange and perverse combination of superstition and ignorance of the congruous laws of nature, the natives admit that the female parts the hoof, while they stoutly contend that the male is a solidungulus, like equine animals. In respect of the male of this species, the natives evidently mean some such fabulous animal as the unicorn, &c.

2.—It is said that the peafowl does not pair sexually, but that the hen picks up the seminal fluid shed by the gorgeous cock bird while dancing.

3.—It is believed that procreation in the bear species does not result by the natural process of parturition; but that the she bear vomits clots of blood, which are subsequently hatched, shapen, and developed into perfect animals by the warmth of the body of mother.

4.—The common porcupine is regarded as an animal of ill omen, and a quill stuck into the roof of a house is considered sufficient to ensure domestic discord.

5.—The common water-snake—the most harmless of all Indian ophidians—is said to be extremely venomous on certain days of the week. Friday for one, and on those days only.

6.—The *keatia* (black cobra), the most deadly of Indian serpents, is said to be the hybrid offspring of the *pudilo ghokra*, male, another venomous snake, and the *dhamin*, female, commonly known as the whip snake. In fact the *dhamin* is not regarded as a distinct species, but only as the female of which the *pudilo ghokra* is the male.

7.—That the *dhamin* is now guiltless of the charge of being venomous, but that when provoked, it will seize the ground with its teeth and flog its assailant with its tail. It is likewise affirmed that the portion thus whipped gangrenes and drops off piece-meal. The *dhamin* is said to have stood at the head of the list of innocent reptiles in days of yore, and its present freedom from that stigma is thus accounted for in the following legend:—A youth, while tending kine in a pastoral country, was seated on an ant-hill, discoursing sweet music with his reed in true Arcadian strains. The ant-hill was tenanted by a *dhamin*, and the reptile becoming encouraged at the intrusive freedom of the swain, emerged from the ant-hill, and

bit him in the foot. Death was instantaneous, and the snake retired into the ant-hill. Presently a passing gust of breeze caused the reed to send forth a note which so chagrined the reptile, who concluded that the rustic was still alive, that she forswore venom, then and for aye, and has ever since lived free from that reproach.

8.—The common green tree snake called by the natives *wardanka*, and known to us to be quite harmless, is nevertheless regarded in some parts of lower Bengal, as very venomous. A curious story, indicative of the funeral rites of the Hindoos, is attached to this snake. It is said that after biting a person the snake ascends to the topmost branch of the loftiest tree in the neighbourhood, and there establishes a look-out and refuses to descend until he beholds the curling wreathings of smoke from the funeral pyre of his victim; of course, those who are acquainted with this feature in the habits of this animal, proceed to light a fire in the neighbourhood the moment one is bitten, and with the descent of the snake abates also the baneful consequences of its bite, and the patient recovers.

9.—It is also alleged that when two venomous serpents are in *coitu* if it be contrived so to throw a newly washed cloth that the serpents shall pass over it with out being disturbed, that piece of rag becomes possessed of a talismanic virtue which, like the fœtor of the fluid ejected by the skunk, or the fixed odour of double-distilled otto of roses, resists even the sturdy operations of the laundry. All that the fortunate possessor of this much envied rag has to do, if he happens to be a suitor, is to walk into court with an upright carriage and look his legal opponent boldly in the face, for he is certain of victory.

10.—That the sting of a scorpion introduced into the umbilic or naval of a newly born infant renders the child innocuous to the bite or sting of venomous reptiles or insects.

11.—That riding on the back of a bear secures to one an immunity from that very undesirable affliction termed itch.

We may add here that these absurdities are literally legion. The following, however, are worthy of notice, since there is some show of reason in them, though I have never had the opportunity of verifying their accuracy.

12.—The natives affirm that in tracts where the tiger is found, the common red headed, goldenbacked Indian wood pecker (*picus* something) is a constant attendant on that animal, and invariably raises a cry and alarm when any one approaches. Whether the tiger takes it as a good turn or a bad one, and whether the cry is meant to warn the tiger of impending danger or to alarm an approaching and possible victim, is shrouded in some mystery.

13.—The last and most generally known instance of popular beliefs which draw a little on our credulity that I shall cite here is that the tiger is always attended by an animal called a *phao* (but which I take to be nothing else but a superannuated jackal, whose dismal and solitary howls may often be heard in the outskirts of our own city) a kind of nasty, awkward customer, who is always getting into the tiger's way and warning off his intended victims. Certain it is, and as true as I am now living, and sooner or later must die, that once when I was called upon to shoot a tiger which had taken refuge in a *dall* field, after killing a plump bullock (by the way, a tiger is an excellent Judge of beef, and generally selects the best

conditioned animal of the flock), I was startled by the cry of the phao, and the next moment the animal emerged from the dull field, followed by the tiger.

This occurrence took place in Raipore; the phao this time was nothing but a jackal, and at the time I regarded it as simply a coincidence. Apropos of tigers, I may state here that I have been told by native *shikarees* that the animal is in the habit of approaching the foot of a tree in which there are monkeys and counterfeiting death. As the chattering crew become re-assured, they come down by twos and threes, and chatter around the tiger, who lies motionless, exposing his ivories, with a multitude of flies buzzing about him. Presently the curious creatures approach for a nearer inspection, until one unwarily coming near enough, the ruse succeeds. Now, Sir, I have told you all I know on this head, and since the knowledge of individuals varies with their experience and opportunities of observation, I hope others will keep the stone rolling, until we shall have exhausted the fund of popular prejudices, in connection with natural history, of which there must be a goodly store I trow.—Yours &c.

S. R.

THE SCIENCE AND ART OF EDUCATION.

(Continued from page 286.)

Having reached this point, and gained a general notion of a Science of Education, we go on to consider the Art of Education, or the practical application of the Science. We are thus led to examine the difference between Science and Art, and between Nature and Art. Science tells us what a thing is, and why it is what it is. It deals therefore with the nature of the thing, with its relations to other things, and consequently with the laws of its being. Art derives its rules from this knowledge of the thing and its laws of action, and says, "Do this or that with the thing in order to accomplish the end you have in view. If you act otherwise with it, you violate the laws of its being." Now the rules of Art may be carried out blindly or intelligently. If blindly, the worker is a mere artisan—an operative who follows routine, whose rule is the rule-of-thumb. If intelligently, he is a true artist, who not only knows what he is doing, but why this process is right and that wrong, and who is furnished with resources suitable for guiding normal, and correcting abnormal, action. All the operations of the true artist can be justified by reference to the principles of Science. But there is also a correlation between Nature and Art. These terms are apparently, but not really, opposed to each other. Bacon long ago pointed out the true distinction when he said, *Ars est Homo additus Naturæ*—Art is Nature with the addition of man—Art is man's work added to (not put in the place of) Nature's work. Here then is the synthesis of Nature and Man which justifies us in saying that natural education is the type or model of formal, or what we usually call, without an epithet, education, and that the Art of Teaching is the application by the teacher of laws of Science, which he has himself discovered by investigating Nature. This is the key-stone of our position; if this is firm and strong, all is firm and strong. Abandon this position and you walk in darkness and doubt, not knowing what you are doing or whither you are wandering—at the mercy of every wind of doctrine.

The artist in education, thus equipped, is ready not only to work himself

but to judge of the work of others. He sees, for instance, a teacher coldly or sternly demanding the attention of a little child to some lesson, say in arithmetic. The child has never been led up gradually to the point at which he is. He has none but confused notions about it. The teacher, without any attempt to interest the child, without exhibiting affection or sympathy towards him, harshly gives him some technical directions, and sends him away to profit by them as he may—simply "orders him to learn," and leaves him to do as alone. Our teacher says,—"This transaction is inartistic. The element of humanity is altogether wanting in it. It is not in accordance with the Science of Education; it is a violation of the Art. The great educator, in his teaching, presents a motive and an object for voluntary action; and therefore excites attention towards the object by enlisting the feelings in the enquiry. He does not, it is true, show sympathy, because he acts by inflexible rules. But the human educator, as an artist, is bound not only to excite an interest in the work, but to sympathize with the worker. This teacher does neither. His practice ought to exemplify the formula, *Ars = Natura + Homo*. He leaves out both *Natura* and *Homo*. His *Ars* therefore = 0."

Another case presents itself. Here the teacher does not leave the child alone; on the contrary, is continually by his side. At this moment he is consciously "imparting his knowledge" of some subject to his pupil, whose aspect shows that he is not receiving it, and who therefore looks puzzled. The matter, whatever it is, has evidently little or no relation to the actual condition of the child's mind, in which it finds no links of association and produces no intellectual reaction, and which therefore does not cooperate with the teacher's. He patiently endures, however, because he cannot escape from it, the downpouring of the teacher's knowledge; but it is obvious that he gains nothing from it. It passes over his mind as water passes over a duck's back. The subject of instruction, before unknown, remains unknown still. Our artist-teachers, looking on, pronounce that this teaching is inartistic, as not being founded on Science. "The efficiency of a lesson is to be proved," he says, "by the part taken in it by the pupil; and here the teacher does all the work, the pupil does nothing at all. It is the teacher's mind, not the learner's, that is engaged in it. Our great master teaches by calling into exercise the learner's powers, not by making a display of his own. The child will never learn anything so as to possess it for himself by such teaching as this, which accounts the exercise of his own faculties as having little or nothing to do with the process of learning."

Once more; our student, informed in the Science of Education, watches a teacher who is giving a lesson on language—say, on the mother tongue. This mother tongue the child virtually knows how to use already; and if he has been accustomed to educated society, speaks and (if he is old enough to write) writes it correctly. The teacher puts a book into his hand, (the first sentence of which is, "English grammar is the art of speaking and writing the English language correctly.") The child does not know what an "art" is, nor what is meant by speaking English "correctly." If he is intelligent he wonders whether he speaks it "correctly" or not. Also the meaning of "art," he is altogether at sea. The teacher is aware of the perplexity, and desiring to make him really understand the meaning of the word, attempts an explanation. "An art," he says (getting the definition from a dictionary), "is a power of doing something not taught by Nature." The child stares with astonishment, as if you were talking Greek or Arabic. What can be meant by a "power"—what by "being taught by Nature"? The teacher sees that his explanation has only made what was dark before darker still. He attempts to explain his explanation, and the fog grows thicker and thicker. At last he gives it up, pronounces the child stupid, and ends by telling him to learn by rote—that is, by hardy-gurdy grind—the unintelligible words. That at least the child can do (a parrot could be taught to do

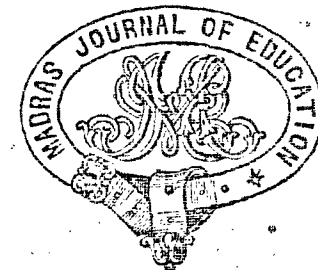
the same), and he does it; but his mind has received no instruction what ever from the lesson—the intelligence which distinguishes the child from the parrot remains entirely uncultivated.

Our teacher proceeds to criticise. "This is," he says, "altogether fantastic teaching. Our great master does not begin with definitions—and indeed gives no definitions—because they are unsuited to his pupil's state of mind. He begins with facts which the child can understand, because he observes them himself. This teacher should have begun with facts. The first lesson in Grammar (if indeed it is necessary to teach Grammar at all to a little child) should be a lesson on the names of the objects in the room—objects which the child sees and handles, and knows by seeing and handling—that is, has ideas of them in his mind. "What is the name of this thing and of that?" he inquires, and the child tells him. The ideas of the things, and the names by which they are known, are already associated together in his consciousness, and he has already learned to translate things into words. The teacher may tell him (for he could not discover it for himself) that a name may also be called a noun. "What then," the teacher may say, "is a noun?" The child replies, "A noun is the name of a thing." He has constructed a definition himself—a very simple one certainly—but then it is a definition which he thoroughly understands because it is his own work. This mode of proceeding would be artistic, because in accordance with Nature. There would be no need to commit the definition to memory, as a mere collection of words, because what it means is already committed to the understanding which will retain it, because it represents facts already known and appreciated. Thoroughly knowing things is the sure way to remember them."

In some such way as this, our expert brings the processes commonly called teaching to the teachings of his Science, the Science which he has built up on his observation of the processes of Nature.

I am afraid that, in spite of my illustrations, I may still have failed to impress you as strongly as I wish to do with the cardinal truth, that you cannot get the best results of teaching unless you understand the mind with which you have to deal. There are, indeed, teachers endowed with the power of sympathising so earnestly with children, that in their case this sympathy does the work of knowledge, or rather it is knowledge unconsciously exercising the power proverbially attributed to it. The intense interest they feel in their work almost instinctively leads them to adopt the right way of doing it. They are artists without knowing that they are artists. But, speaking generally, it will be found that the only truly efficient director of intellectual action is one who understands intellectual action—that is, who understands the true nature of the mind which he is directing. It is this demand which we make on the teacher that constitutes teaching as a psychological art, and which renders the conviction inevitable that an immense number of those who practise it do so without possessing the requisite qualifications. They undertake to guide a machine of exquisite capabilities, and of the most delicate construction, without understanding its construction or the range of its capabilities, and especially without understanding the fundamental principles of the science of mechanics. Hence the tiring, cramming, the endless explaining, the rote learning, which stupefy and deaden the native powers of the child; and hence, as the final consequence, the melancholy results of instruction in our primary schools, and the scarcely less melancholy results in schools of higher aims and pretensions all of which are the legitimate fruit of the one fundamental error which I have over and over again pointed out.

(To be continued.)



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THE MONTH.

THE Examiners for the approaching University Tests have been appointed by the Syndicate. By the courtesy of the Registrar of the University, we are enabled to give the following list. Except in one or two cases, the gentlemen nominated have already accepted the appointment. It will be observed that there are several new names in the list.

MATRICULATION EXAMINATION.

ENGLISH

...The Rev. G. M. Rae, M.A.
J. B. Bilderbeck, Esq., B.A. } General.
C. D. Maclean, Esq., Mus. Doc.

The Rev. T. E. Slater.
W. J. M. LeFanu, Esq. } Text.
T. Marden, Esq., B.A.

OPTIONAL LANGUAGES

...S. Seshayya, Esq., B.A.
P. Vijayaranga Madh, Esq. } Tamil.

The Rev. J. Clay
S. Rangayya Chetti, Esq., B.A. } Telugu.

MATHEMATICS

- ...The Rev. W. Leeming, M.A.
 P. Krishnaswami Chetti, Esq.,
 M.A. } Geometry.
 J. T. Margoschis, Esq., F.R.G.S.
 P. S. Evans, Esq., M.A.
 Capt. W. H. Conker, R.E. } Arithmetica.

- The Rev. J. H. Walton.
 W. Ross, Esq., M.A. } Algebra.

GENERAL
KNOWLEDGE

- ...W. A. Porter, Esq., M.A.
 W. H. Wilson, Esq., Ph. D. } Physics.
 G. Duncan, Esq. } Physical Geo-
 graphy.
 J. Creighton, Esq.
 G. Oppert, Esq., Ph. D.
 R. Harvey, Esq., M.A. } Indian His-
 tory.
 The Rev. J. Macmillan, M.A.
 " " J. Sharp, M.A. } General Geo-
 graphy.

F. A. & B. A. EXAMINATIONS.

ENGLISH

- ...Capt. W. H. Hallett.
 The Rev. O. Cooper, M. A.
 H. B. Grigg, Esq., B.A.

OPTIONAL
LANGUAGES

- ...The Rev. H. Bower, D.D.
 J. M. S. Velu Pillai. } Tamil.
 V. Sandararama Aiyar, M.A. } Telugu.

MATHEMATICS

- ...T. P. Metcalfe, Esq., M.A.
 W. A. Willock, Esq., B.A.
 R. Seshayya, Esq., M.A. } (F. A. Exami-
 nation only.)

LOGIC AND
PSYCHOLOGY

- ...J. A. V. Bindon, Esq., M.A.
 W. R. Weld, Esq., B.A.

PHYSICAL
SCIENCE AND
PHYSIOLOGY

- H. King, Esq., M.A., M.B.

HISTORY

- ...W. R. Kershaw, Esq., B.A.
 D. Sinclair, Esq., M.A.

MATRICULATION, F. A. & B. A. EXAMINATIONS.

SANSKRIT

- ...M. Seshagiri Sastri, M.A.

LATIN AND
GREEK.

- F. Brandt, Esq., B.A.

PERSIAN AND
HINDUSTANI

- Cel. F. H. Tyrrell.

CANARESE

- ...M. Clapham, Esq.
 S. Venkatavada Aiyangar, M.L.

MALAYALAM

- ...The Rev. J. H. Bishop, B.A.
 V. Achuta Panikkar.

WE understand that the Examiners for the Teachers' Certificate Examination have sent in their marks to the Tabulator, and the results are expected to be published shortly. The Examination papers, on the whole, seem fair, notwithstanding the severe criticism that the papers set to the female candidates have been subjected to in the Madras papers. Much of this criticism, it appears to us, is made in a captious spirit, the objectors appearing to think that the Examination should be brought down to a level so low that it may be passed by girls of eight or ten years of age who are then to be declared qualified as School-mistresses! The Examination, it should however be remembered, is not intended as an examination for ordinary school-girls, but for Teachers. Looking at the papers carefully, and allowing for some misprints and a few mistranslations that may be found in them, we think that they are such that no fairly qualified candidate would fail to pass in.

The errors that have been pointed out in the Tamil question papers are, with one exception, *viz.*, that in the rendering of Question VI. in the Third Grade Arithmetic, so superficial that they would not mislead any intelligent candidate.

The School Fee Committee have arrived at the conclusion that for the present it is inexpedient to make any addition to the rate of fees in the Presidency generally, but they consider that it is both possible and desirable to enhance the rate in certain favorably situated localities; *viz.*, 1. Madras, 2. Combaconum, 3. Trichinopoly, 4. Tanjore, 5. Negapatam, 6. Coimbatore, 7. Tinnevely and Palamcottah, 8. Saidapett, 9. Nellore.

The scale of fees proposed by the Committee is given below. Head Masters of Schools are invited to express their views with reference to the proposed increase. From the first class to the upper fourth, no change has been made beyond prescribing a fee for the lower fourth class, which did not exist in 1871. In the Preparatory Matricu-

lation class and Matriculation class the fees have been slightly raised. In the College Department, no change has been made in the B. A. classes, but the fee for the F. A. classes has been raised to the B. A. rate.

Class.	Madras.		S. Mofussil Towns.	
	Government.	Aided.	Government.	Aided.
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
B. A.	5 0 0	3 8 0	4 0 0	3 0 0
Preparatory B. A.	5 0 0	3 8 0	4 0 0	3 0 0
P. A.	5 0 0	3 8 0	4 0 0	3 0 0
Preparatory F. A.	5 0 0	3 8 0	4 0 0	3 0 0
Matriculation	3 8 0	2 8 0	3 0 0	2 0 0
Preparatory do	3 0 0	2 0 0	2 8 0	1 12 0
Upper Fourth	2 8 0	1 12 0	2 0 0	1 8 0
Lower Fourth	2 0 0	1 8 0	1 8 0	1 0 0
Third	1 8 0	1 0 0	1 0 0	0 12 0
Second	1 0 0	0 12 0	0 12 0	0 8 0
First	0 8 0	0 8 0	0 8 0	0 6 0

We learn that the Head Masters of the Provincial and Normal Schools at Calicut are engaged upon an "Advanced Translator" to be issued in three parts adapted to the requirements of the Upper Fourth, Fifth and Sixth Classes.

At the late examination for the Special Test, one of the candidates at the Government Normal School was discovered to have brought into the room already prepared a *precis* of the same letters and proceedings that had been selected by the Examiner as a test. It appears that the Candidate, a clerk in the office of the Revenue Board, hearing that the Secretary to the Commissioner for the Uncovenanted Civil Service Examination had asked that certain volumes of records should be forwarded to him, had shrewdly guessed that some of these records would form the subject of the exercise in *precis* writing. He accordingly made an analysis of a series of papers that seemed most likely to be chosen by an examiner, and this analysis he took with him into the Examination room. We hear that the delinquent has been summarily dismissed from Government service.

The undermentioned Candidates have passed in method at the late Teachers' Certificate Examination:—

Order of merit.	Name.	Institution.	Grade.
<i>First Class.</i>			
1	K. Lakshminarayana.....	Normal School, Vizagapatam	Third
2	R. Lakshminarayana.....	Normal School, Vizagapatam	do
3	Palunkipati Subbarow ...	Teacher C. M. S. Training Institution, Masulipatam	do
4	P. A. Krishna Menon ...	Normal School, Calicut...	Second
5	K. Visvanathan	do do Vizagapatam	Third
<i>Second Class.</i>			
1	A. B. Ananta Krishna Nayyan	Normal School, Calicut...	Second
2	K. Sitarannachendradu...	do do Vizagapatam	Third
3	M. Krishnan Nayar	do do Calicut.....	do
4	K. Govinda Menon	do do do	do
5	G. Varugissu Cheriyan...	do do do	do
6	P. Mahathevum.....	do do Vizagapatam	do
7	V. Sreenivasa Iyengar...	Central College, Bangalore	do
8	N. Paidayya.....	Normal School, Vizagapatam	do
9	V. Subramania Aiyar ...	Teacher, L. F. School Boochireddipalliam.....	do
10	P. Krishna Menon.....	Normal School, Calicut...	do
11	R. S. Subramannaiyyan...	do do do	do
12	M. Chappu Menon.....	do do do	do
13	K. P. Lakshmana Pattar...	do do do	do
14	A. Bappoo Row.....	Provincial College, Combaconum.....	do

In future all F. A. and Matriculation Students who are being trained in Normal Schools will be examined together, at the period prescribed for the Examination of the Madras Normal School.

LEAVE RULES.—The higher officers in the Government Educational service have been much exercised by various recent orders of Government regarding their right to the more favorable leave rules. It was generally believed, when these officers were

"graded" some five years ago, that every one in the graded list was entitled to the more favourable rules; that, in fact, his being placed in that list was a register of his claim. This now turns out to be a delusion. The claim rests on what, in sporting phrase, would be termed "the double event," and against the coincidence necessary for this to happen, the odds, as every body knows, are considerable. To be entitled to the more favorable rules, an officer must be in the graded list, and must also have been appointed by, or with the special sanction of, Her Majesty's Secretary of State for India. Now it happens that, in this Presidency, the nine or ten men at the head of the Educational Department (after the Director) were appointed—most of them from England—before there was any Secretary of State, under the system then in force, and by the "double event" ruling all these are excluded, though they are in the Graded list. We cannot but conclude that this needs but to be clearly represented to be set right. In the Rules published in the *Fort St. George Gazette* of the 11th April, the Secretary of State expresses his readiness to consider any further list that may be submitted.

One of the strangest things in the business is the fact; as stated in Proceedings of the Government of Madras, that only about one-tenth of the names it submitted of persons entitled to the more favorable rules, appear to have been forwarded to the Secretary of State by the Government of India—a terrible slur on this Government, if not the result of some oversight. Then there is the wonderful fact, also vouched for by Government, that not one Madras Educational Officer's name is included in the lists attached to the despatch of the Secretary of State!! As, however, this authority has expressed his readiness to consider any supplemental list, and so invited its submission, it can hardly be that the hardship will be allowed long to continue—meantime it may bear heavily on some officers anxious to avail themselves of leave.

We observe it stated in one of the Government Orders on this matter that the Governor in Council is not aware that any additional nominal list for this Presidency is to be framed, which strengthens our convictions that the matter still needs placing before Government in a clear light. It would be interesting to know how it stands in other Presidencies and Provinces. Perhaps our friend the *Record* will give us the facts for Bombay.

SCHOOL PUNISHMENTS.—Yesterday, at the Town Police Court, before Mr. Srinivasa Row, Shammagum, a pupil attending the Hindu Proprietary School, applied for a summons against Mr. J. D'Vaz, the Head Master of that Institution, charging him with assaulting him by giving him two cuts on the hand with a rattan. The application was refused.

Almost the whole of Bishop Corrie's Grammar School was yesterday in the Town Police Court. Mathew Alexander Gotting, a pupil of the school,

charged Mr. J. H. Peck, an ex-schoolmaster of the institution, with having brutally caued him on the 10th August last. On the whole, his Worship held that there had been a wanton and cruel assault on the part of the defendant, who had abused his privilege as a schoolmaster in treating a little boy so cruelly. It was well, as had appeared incidental, from the evidence that had come before the Court, that the managers of Bishop Corrie's School had adopted such measures as led to the defendant disconnecting himself with the institution, for there was nothing that was calculated to be more ruinous to the interests and well-being of a school than its having a school-master who would use his privileges to gratify private revenge. His Worship sentenced the defendant to pay a fine of twenty-five rupees, with twenty-five rupees costs.

Such are two paragraphs that appeared in the local *Times* of the 31st August. In each case, the decision will command the assent of schoolmasters generally. Than cruel punishments, inflicted rather to satisfy the anger of the inflictor, than to meet the demands of good discipline, nothing is more strongly to be condemned; and a man who inflicts them is unfit to be a Schoolmaster. On the other hand, that, for a boy's own good, and in the interests of the School, corporal punishment is sometimes necessary, few will deny. Of the merits of the case at the Proprietary School, the paragraph says nothing; but "two cuts on the hand with a rattan" cannot be described as "severe," much less "excessive punishment; and if a head master is not to be upheld when he considers necessary the infliction of such a punishment, his occupation, as far as enforcing the requirements of discipline are concerned, may be considered gone. It is satisfactory to find that Mr. Srinivasa Rao took a sensible view of the case, and refused the summons.

EDUCATION OF COURT OF WARDS' MINORS.—The recent change in the law, extending the minority of minors—Act IV. of 1875, Government of India—under the jurisdiction of the Court of Wards from the completion of eighteen years to the completion of twenty one, induced the Court to consider what changes for the better could be made to secure efficient education for young men entrusted to their care, the owners of landed property in several districts of the Presidency, and consequently destined to exercise a great influence amongst their fellow-countrymen. The result has been a proposal that has met with the favorable consideration of Government, and may be expected to be carried out shortly. The Court consider the present circumstances propitious to the introduction of an improved system, which will be available to all wards who are not exempted, for sufficient reasons, by the Court from resorting to Madras for their education, during the latter years of their pupillage. Reference is succinctly furnished in their present report to Government to the previous correspondence on the subject of the education of the Court of Wards' minors, particularly from the year 1859, when the question

was, for the second time since the passing of Act XXI of 1855 (which vests the control of the education of all male minors in the Collector of the District, acting under the Court) specially raised. After having carefully weighed the arguments for and against the various schemes which have presented themselves, the Court have come to the conclusion that, however valued in theory the plan for establishing a certain institution modelled upon the principle of an English public school may be, it would be impossible for the present, at all events, to give it practical effect.

The Court then propose to engage at once, either in this country or in England, a competent English gentleman as tutor to such of their wards as from time to time they may be disposed to place under his care. He should reside in Madras in a separate bungalow, his pupils being accommodated (two or three together, where unobjectionable, or separately where necessary,) in suitable bungalows in the same compound or in the immediate vicinity. The Court think it would not be difficult to secure several adjacent or nearly adjacent bungalows of a suitable description in or about the Luz or Mylapore, which will probably be the most desirable locality. The expenses of lodging, board and attendance should be apportioned to the individual means of the wards; those entailed by the entertainment of the tutor should be distributed over all. It is not proposed that the scholastic education of the minors should be entirely, or even chiefly, conducted by the gentleman to be appointed. His duties would, of course, include supervision of studies, but the lads would attend such classes at the Presidency College or the other Government Schools as he, in communication with the Court, might direct. The tutor would watch progress and stimulate exertion, and by intimate association with his pupils out of school endeavour to establish a manly, healthy tone, and develop and encourage an intelligent interest in general affairs. It is with these broader ends prominently in view that the Court consider the careful selection of an English gentleman of so much importance. The Court would allow a salary of Rupees 500 a month, to be increased by degrees to Rupees 700, and would enter into an agreement for five years.

His Grace the Governor in Council is of opinion that the scheme generally sketched by the Board of Revenue may be adopted. He is, however, decidedly of opinion that the Superintendent should be selected out here, where the persons eligible are all well-known, are accustomed to the climate, and acquainted with native character. Amongst other candidates it is probable that many Staff Corps officers would apply; a recognised position in the local service would be an additional advantage. Teaching power, as remarked by the Board, is abundant at the Presidency; the benefits to be looked for from the Superintendent would mainly arise from the intimate association of an honorable, manly, and liberal-minded English gentleman with the young Zemindars, out of school. His Grace considers it would be necessary to provide him with a native assistant, a graduate of the University of Madras, whose salary should not, it is supposed, be less than from Rs. 150 to Rs. 200 a month. It is obvious that without this subordinate much that the Superintendent should be informed of would never come to his knowledge respecting the conduct of the young men. His own salary the Governor in Council is of opinion, should be not less than a clear Rs. 1,000 a month. To offer less

would be to limit the choice, and would lead to frequent changes, which are very undesirable.

We have received a copy of a Telugu translation of Shakspeare's Play of Julius Cæsar. The translator is Varitāla Vasudeva Sastri, an Assistant Master in the Rajahmundry Provincial School; he deserves great credit for the careful way in which he has endeavoured to render the sense of the original. This we believe is the first attempt to translate a play of Shakspeare's into Telugu.

A DEFENCE OF AIDED EDUCATION.

The Secretary of the Doveton Collega Committee a short time ago addressed the following letter to the Director of Public Instruction.

We give the letter as the comparisons drawn in it may interest teachers generally whether in Aided or in Government Institutions:—

SIR,—I am directed by the Committee of the Doveton Protestant College to bring to your notice the fact that Mr. Barrow, the late Acting Inspector of Schools, in his Report on the Doveton Boys' School, dated July 26th, 1875, made several serious errors with regard to the financial condition of the Institution which he reported on. The Committee have considered the subject carefully, and I have now the honor to submit to you the minute which they have drawn up on the subject.

1. Mr. Barrow, in paras. 14, 15 and 16 of his Report on the Doveton College and Boys' School, enters, 1stly, into a calculation concerning the cost of the Institution to the Government and the Society respectively; and 2ndly, he draws a comparison between the cost to Government of the "large and flourishing" Provincial School of Calicut, and the amount paid by Government towards the support of the Doveton Institution; the object of which is to show "that aided schools are by no means such educational economies, as they are supposed to be."

With regard to the first point, Mr. Barrow has made some very grave mistakes, and the conclusion he draws from the comparison made between the Doveton Institution and the Calicut School is, as will be shown, entirely erroneous. The Committee therefore consider it only right that Mr. Barrow's errors should be corrected, and that the interests of aided education should be defended from an unjust attack.

2. According to Mr. Barrow (para. 15) the total cost of the Institution, after deducting a sum of Rs. 555-8-0 formerly spent in the Vernacular Department, is Rs. 20,591-4-1 for a year. Mr. Barrow has taken this from the statement of accounts published in the Report of the Doveton Institution for 1874; but he has curiously omitted from the same account Rs. 1,535 paid for Scholarships in the College Department, and Rs. 3,523-1-8 for charges incurred in connection with the College and Girls' School.

Of the 'atter sum one-fourth may fairly be charged to the Girls' School; and so Mr. Barrow should have added to the cost, amounting to.....Rs. 20,591 4 1 mentioned by him, the following sums:—
 Scholarships.....Rs. 1,535 0 0
 Three-fourths of other items amounting to.....Rs. 2,522-1-8 „ 2,642 4 0
 4,177 4 0

Total cost for the year 1874.....Rs. 24,768 8 1
 Thus the monthly cost is in round numbers Rs. 2,063, and not as Mr. Barrow asserts Rs. 1,716.

3. From the sum of Rupees 1,716 just referred to Mr. Barrow deducts

Fees	Rs. 745 0 0
Government Grant..... „	651 4 0
	Rs. 1,396 4 0

Hence he finds that "the very small amount of Rs. 320 per mensem is all that the Society has really to pay from its own funds."

Mr. Barrow has taken the items for Fees and Grants from this year's accounts. It does not in this particular case make much practical difference; but the Committee believe that it is unusual in financial matters of this kind to set the receipts of one year against the Disbursements of another. At all events if such calculations are to form the data of important conclusions, it is desirable that the usual procedure should be followed.

4. Referring then to the Report for 1874, the Committee find that the Government Grant amounted to Rs. 8,296-5-1. As, however, Mr. Barrow has in his calculation of the total cost of the Institution, deducted the sum of Rs. 555, being the expenditure incurred on account of the Vernacular Department—a department now abolished; so also the sum of Rs. 500, which was a special grant for Mr. Bindon's passage money, should be deducted from the sum of Rs. 8,296-5-1, which is credited as Grant-in-aid in 1874. Thus an approximately equal sum is deducted from both sides of the account. The ordinary grant for the year under review was Rs. 7,796-5-1. The amount realized by fees in 1874 was Rs. 3,480-8-0, making a grand total of Rs. 16,276-13-1, or a monthly income of Rs. 1,356-6-5. Deducting this from the monthly expenditure of Rs. 2,063, the balance which the Society has to pay from its own funds, is Rs. 706 per mensem, and not "the very small sum of Rs. 320," as calculated by Mr. Barrow. Thus the conclusion drawn in para. 16 is quite erroneous. To this might fairly be added the interest on the capital sunk in buildings. Speaking generally, about 50,000 Rs. were spent. At 4 per cent. this would give an additional Rs. 2,000 per annum, and thus add Rs. 166 per mensem to the sum already paid by the Society, making the Society's total expenditure Rs. 872 per mensem.

5. Mr. Barrow, in para. 15, draws a comparison between 'the cost to Government of the Calicut Institution and that of the "large and flourishing school of Calicut," and asserts that the former costs Government Rs. 51-4-0 per mensem, more than the latter. On this

the Committee would remark, that no comparison can justly be drawn between the cost of a Provincial School working up only to the F. A. Standard, and that of a College working up to the B. A. Nevertheless if the comparison is to be made, it should be done as follows. We have shown (para. 4) that the Doveton Institution costs Government Rs. 7,796 or Rs. 650 monthly, against this must be set the probable cost of the Calicut School, if it were raised to the B. A. standard. Probably it would be as follows:—

The cost of teachers for two new classes	
at least	Rs. 700 0 0
Additional salary to the Principal	300 0 0

Total Rs. 1,000 0 0

From this might be deducted fees, which at a liberal estimate would not exceed... ..	Rs. 150 0 0
--	-------------

Rs. 850 0 0

Thus the additional charge on the item of salaries alone, to the account of the Calicut School, were it working to the same standard as that of the Doveton, would be more than the total grant now paid by Government to the latter Institution. Let the Calicut School be placed in the same position, and its cost would probably be in salaries only Rs. 1,450, thus:—

The present cost... ..	Rs. 600 0 0
Additional cost	850 0 0

Rs. 1,450 0 0

To this must be added, according to the principle laid down by the Government of India, Financial Department, 25 per cent. as the charge on account of pensions and furlough allowances, which on Rs. 1,450 will amount to Rs. 362-8. Thus the total charge to Government of the Calicut School, when it is in a position to be compared to the Doveton College, would be Rs. 1,812-8 per mensem, or about three times the cost incurred by the public revenues in supporting an aided Institution.

6. We have no means of knowing the monthly cost to Government of the repairs of the Calicut School, as we believe this is charged to the P. W. Department: but no doubt this is an important addition to its expenditure. Nor do we calculate the interest of the money spent on buildings. Putting aside these two important items, we think that we have sufficiently shown that the calculations of the Acting Inspector are incorrect, his comparisons untenable, and his conclusion unwarranted. As his statements, if allowed to pass unchallenged, would tend to damage aided education, the Committee respectfully request that if Mr. Barrow's remarks are allowed to appear in the Annual Report of the Director of Public Instruction, they may appear accompanied by this correction and protest.

I have the honour to be, &c.,

EDWARD SELLE, Secy., D. P. C.

MANGAMMAL RANI.

Intimately associated with the traditions of our native fellow-subjects in South India is the name of MANGAMMAL. Do you see a venerable Choultry and enquire who built it? You are told Mangammal. Do you enquire who gave these houses and lands to the Brahmins? You are told Mangammal. Do you ask who made this fine road? Again you are told Mangammal. It may then perhaps be of some interest to our readers, if we answer the next question which naturally suggests itself. *Who was Mangammal?* She was a lady whose fate was as tragical, and whose fair fame was as far compromised, as our own Fair Rosamond's. But though her good deeds appear to have been more numerous than those of the English frail daughter of Eve, her sad fate has called forth far less sympathy from her countrymen, in spite of the many works of charity which perpetuate her memory. Yet as we read her history, we cannot but conclude that she was more sinned against than sinning; and we think that the evil repute in which she is held by the Hindus, must be not a little owing to the prejudice which they feel against any lady who mixes herself up with politics; for there is scarcely a single Rani of modern days who has interested herself in affairs of state, and has been able to escape the venomous tongue of slander. At present, when any occurrence which excites popular odium is deprecated, it is usual to say "such a thing might have been expected in the days of Mangammal." Contempt however for female government may perhaps have as much to do with the origin of the saying, as any of the acts of the poor Rani, whose history we will now lay before our readers.

Mangammal was the daughter of the Raja of Chandragiri Duplekal, and was given in marriage to Choka Natha, King of Trichinopoly and Madurai. She was a woman of considerable ability, and in this respect a great contrast to her apathetic husband to whom she was ever a devoted wife. On the death of her husband in 1682, her son Ranga Krishna Muttu Virappa succeeded to the throne, he being then in his fifteenth year. Under the able guidance of his mother he comported himself so well, that he gained the respect of even his enemies. An anecdote illustrative of the spirit with which he resented the indignities which his kingdom had long suffered at the hands of the Mahomedans, forms an interesting episode in the history of Trichinopoly, and will not perhaps be out of place here. We take it from the graphic history of Madurai found in Mr. Nelson's Volume, which we have chiefly consulted in the preparation of this article. "It seems that the Badisha in all the insolence and pride of power, adopted the practice of sending round his slipper to the various countries subject to him. The slipper was borne along with great pomp and magnificence in a lofty howdah on a royal elephant, escorted by a numerous body of troops and preceded by bands of musicians. On its arrival within the boundaries of a country the King and his ministers were expected to come forth and humbly abase themselves before it, and having escorted it to the palace, place it reverently on the throne and do obeisance as if to their Lord Paramount. Tribute was then collected, or at all events promised; and the Moghul's representative passed on towards a neighbouring country. As the slipper was always accompanied by an army, the requir-

ed ceremonies were performed by most tributaries without demur: but when it came one day to the boundary north of Trichinopoly, and the young king came to know what was expected of him, he became furious with rage and resolved to teach the Badisha a lesson which would not soon be forgotten. Accordingly he directed some of his servants to pretend that he was too sick to come out to meet the slipper, and to contrive to inveigle the officers in charge of it inside the fort. The Badisha's emissaries were very much annoyed at the king not making his appearance and disbelieved the excuses made in his behalf. But there was no help for it; and they were compelled to enter the fort of Trichinopoly, their troops of course remaining outside the walls. When they were ushered into the presence of the King, after some little delay and with an absence of deference on the part of the gentlemen ushers which astonished and angered them not a little; the Nabobs found the King seated on a gorgeous throne, splendidly arrayed and resplendent with jewels; and surrounded by a brilliant staff of Ministers and Courtiers skilfully grouped together with a view to scenic effect, whilst the hall of audience had been magnificently furnished and decorated for the occasion. Scandalized at this presumptuous conduct on the part of a mere tributary, they advanced with rude and indecent haste towards the throne, expecting every moment that the king would rise and make his obeisance. But in this they were disappointed; and when they reached the throne his majesty was still seated. Upon this they angrily thrust the slipper before his face, and made a gesture to him indicative of their desire that he should do his duty. The King now rose slowly from his seat, and with a voice of thunder bade them place the slipper on the floor. Alarmed by his threatening demeanour, the Nabobs did as they were bidden: and pushing his foot into the slipper, the King asked them imperiously where was its fellow? What meant they by bringing as a present to so great a King as him but one odd slipper? The astonished Mahomedans were then well-beaten with rattans and turned out of the fort. And at the same time the King put himself at the head of some troops, and sallying forth against the Badisha's army defeated it with great slaughter, and drove the survivors in headlong haste out of his country."

A fine young fellow and a promising. But alas! he had never been vaccinated; and just about the time when the English King James II. was taking himself off to France, poor Virappa was attacked by small-pox, and carried out of this troublesome world. His Rani Mussammal, was *enchanté*, but the sorrows of the bereaved wife over-powered the hopes of maternity. She resolved to become a Sati, and to follow her lord to the world of spirits. Mangammal, like a sensible woman, protested against this piece of folly on the part of her daughter-in-law, and prevailed upon her so far as to gain her consent to wait till the child was born. She gave birth to a son and heir, but four days after, she died; and there were not wanting ill-natured persons to attribute her death to the effects of poison administered by Mangammal who was forthwith proclaimed Regent till such time as her infant grandson should come of age. And well she governed during her long Regency. As Mr. Nelson remarks "she was certainly a woman of great spirit and enterprise, and it seems probable that whilst she held the reins

of government, the Madura Kingdom occupied almost the position in the eyes of the world that it had occupied in its palmy days under the great Tirumala." She was the last worthy Sovereign of the Telugu dynasty which had so long ruled in the heart of the Tamil country. When the people of Travancore took advantage of the opportunity which a female governor on the throne of Madura seemed to afford, and refused to pay the usual tribute, she sent against them a large army which gained a complete victory over them; and returned to Trichinopoly laden with spoil and trophies. Not only was she famous in war, but she was as famous for her internal administration. She seems to have paid much attention to irrigation, and the people of Trichinopoly at the present day, attribute to her the construction of the Channel commonly known as the Weyrcondan. The tradition is that after she had begun the work, the obstacles were found to be so many, that it was feared the workmen would have to abandon the undertaking. The queen in distress, sought the assistance of her favourite deity, who, the same night appeared to her in a dream, and graciously informed her that on the morrow a serpent should appear and by its trail should point out the course which the Channel should take. Next day the serpent appeared as had been foretold, and the labourers following its direction, met with no further difficulties, and the Channel was speedily completed. This, the people still say, accounts for the winding course of the stream, and also for the two other names which it bears in addition to the name it derives from the temple of Weyrcondan; viz., *Sarpa* or Serpent River, and *Sappana* or Dream River.

On another occasion, when the irrigation of the Trichinopoly and Tanjore country was prevented by the order of the Rajah of Mysore who diverted the course of the Kaveri River, the Queen at once concluded a treaty with the Tanjore Rajah by which the two Sovereigns bound themselves to compel the Rajah of Mysore to restore the River to its wonted Channel.

Numerous were the other benefactions of this munificent Princess. Churches, temples, tanks and noble avenues affording grateful shade to the wearied traveller still bear her name. She is indeed said to have made a road from Rameswaram to Kasi, the sacred route yearly traversed by thousands of Hindu devotees. The statement is not perhaps so romantic as at first it appears, for even if she did not construct the road, she probably considerably improved it, and certainly founded numerous shrines along the line of march.

In the face of so many good deeds, it seems hard to account for the popular infamy which still attaches to the name of Mangammal; but the fact appears to be that the Brahmins never forgave her for the violation of the ceremony of Sati on the death of her husband Choka Natha. She was one of the few among the queens who had ever dared to set at defiance the rule which the Brahmins so strictly enjoined; and though she endeavoured to make amends by charitable deeds, her priestly enemies remained unsatisfied. Perhaps, too, they resented the vigour and independence of her personal character, and longed for the influence which they acquired in the state immediately upon her deposition and during the reign of her weak-minded successor. They spread a scandal throughout her country that she was leading a loose life and was secretly trying to

prevent the accession of her grandson. They were thus enabled to excite the people against her and she was seized and imprisoned.

All authorities agree that at length she suffered death by slow starvation; but there is some difference in the detail of the tragedy. Mr. Nelson says that her sufferings were aggravated by food being periodically placed near the bars of her prison window, at such a distance, that she could see and smell the viands which she was unable to reach. He further informs us that the place of her confinement is still pointed out at Madura; but he admits that the whole story rests upon oral tradition, though there are a few clearly apparent facts which seem in some measure to confirm it.

The Trichinopoly Legend affirms that Mangammal died in that town; and a room in the old palace in the Fort is said to have been the place of her death. She was starved to death; and to add to her torments, a particular kind of food was daily brought her to eat. By a refinement of cruelty this was made to consist of boiled rice mixed with salt in equal or greater proportions. This story is still repeated and believed; but we think it not unlikely that the fate of Mangammal has been in some way confounded with that of the unfortunate Minakshi who came to a tragical end in the same city about thirty years later.

The character and history of the remarkable lady whose career we have briefly sketched in this article, seems deserving of further elucidation. It is difficult on any other theory than the one we have enunciated to conceive how she could have been so famous and yet so infamous, so enterprising and charitable, and yet so licentious and unprincipled.

CORRESPONDENCE.

[The Editor is not responsible for Correspondence.]

TO THE EDITOR OF THE MADRAS JOURNAL OF EDUCATION.

SIR,—Permit me to inquire as follows:—

1. What is the nominative to "lived" and "brightened" in line 72, Deserted Village? Is it the word "that" in the preceding line, or does it consist of the three words "hours," "desires" and "sports" occurring in the three preceding lines. May not these three words be parsed as in apposition with "these" of line 73?

2. To what is "she" in line 131 the nominative? Is it "to (is) forced" in the same line, Or to (is) "left" of line 135? McLeod parses it as the nominative to "is forced."

3. Some editions have "bade" in line 155, some "bid." "Bid" is the past participle of "bid," why is "bade" the past tense substituted in some editions? Is it because "bid" is a short word? I am sure I am giving you too much trouble, but I have seen you answering questions in the pages of your journal and this has emboldened me; please excuse.

Yours obediently,

AN INQUIRER.

P. S.—Permit me to make a suggestion; your journal valuable as

it is, would be rendered ten times more useful if two or three pages were devoted every month, to *English Idioms*.

(1) "That" is nom. in "lived" and brightened. The words "hours," "desires," "sports" and "these" are all subjects to "sick."

(2) "She" in line 121, may be regarded as nom. abs.—"The wretched nation being forced" &c.

(3) "Bede" is here incorrectly used by Goldsmith for *bid*. *Bede* the past tense, and *bidd* (contracted from *bidden*) the passive participle, are frequently confounded in use. The correct usage is seen in Shakspeare: "I am *bidd* forth to supper, Jossan." *Merchant of Venice*.—Ed. M. J. of E.]

ALGEBRA.

Solutions of Examples from Chap. XXV. Toddhunter's

Larger Algebra.

(Continued from page 320.)

$$23. \quad x + y = a + b \quad (m)$$

$$\frac{a}{x} + \frac{b}{y} = 2 \quad (n)$$

From equation (m), we have $y = a + b - x$

Substituting this value of y in equation (n), we obtain

$$\frac{a}{x} + \frac{b}{(a+b)-x} = 2.$$

$$\therefore a^2 + ab = (3a + b)x - 2x^2$$

$$\text{that is } -(a^2 + ab) = 2x^2 - (3a + b)x;$$

$$\text{whence } x = \frac{3a + b \pm \sqrt{(3a+b)^2 - 8(a^2 + ab)}}{4}$$

$$= \frac{3a + b \pm a - b}{4} = a \text{ or } \frac{a+b}{2}$$

$$\text{Hence } y = b \text{ or } \frac{a+b}{2}$$

$$24. \quad \frac{ax}{a+x} + \frac{by}{b+y} = \frac{(a+b)c}{a+b+c}$$

$$\therefore \frac{ab(a+y) + (a+b)xy}{(a+x)(b+y)} = \frac{(a+b)c}{(a+b+c)};$$

$$\text{that is } \frac{abc + (a+b)xy}{ab + ay + bx + xy} = \frac{(a+b)c}{a+b+c}.$$

$$\text{Hence } abc(a+b+c) + (a+b)(a+b+c)xy$$

$$= (ab + ay + bx + xy)(a+b)c$$

$$\text{that is } abc(a+b+c) + (a+b)^2 xy$$

$$= (a+b)c(ab + ay + bx)$$

By substituting for y its value $c-x$ and simplifying, we obtain

$$abx^2 + (a+b)^2(cx - x^2)$$

$$= (a+b)ac^2 - (a^2 - b^2)cx$$

$$\therefore (a+b)^2 x^2 - (2a^2 + 2ab)cx = -a^2 c^2;$$

$$\text{Whence } x = \frac{(a^2 + ab)c \pm \sqrt{(a^2 + ab)^2 c^2 - a^2 c^2 (a+b)^2}}{(a+b)^2}$$

$$= \frac{c(a+b)c \pm \sqrt{a^2 c^2 (a+b)^2 - a^2 c^2 (a+b)^2}}{(a+b)^2}$$

$$= \frac{a(a+b)c}{(a+b)^2} = \frac{ac}{a+b}$$

$$y = c - x = c - \frac{ac}{a+b} = \frac{bc}{a+b}$$

$$25. \quad 6\left(\frac{x}{y} - \frac{y}{x}\right) = 5$$

$$6\left(\frac{1}{x} + \frac{1}{y}\right) = 5$$

These equations become by simplification

$$6\left(\frac{x^2 - y^2}{xy}\right) = 5 \quad (a)$$

$$6\left(\frac{x+y}{xy}\right) = 5 \quad (b)$$

By division,

$$x - y = 1,$$

$$\therefore x = y + 1$$

From equation (b), we obtain by substituting for x this value.

$$5y^2 - 7y = 6;$$

$$\text{Whence } y = \frac{7 \pm \sqrt{49 + 120}}{10} = 2 \text{ or } \frac{3}{5}$$

$$\text{Hence } x = 3 \text{ or } \frac{8}{5}$$

$$26. \quad x(bc - xy) = y(xy - ac) \quad (m)$$

$$xy(ay + bx - xy) = abc(x + y - c) \quad (n)$$

From equation (m) we have

$$bcx + acy = (x + y)xy \quad (p);$$

And from equation (n) we obtain by multiplying by c .

$$xy (acy + bxz - cxy) = abc^2 (x + y - c)$$

$$xy \{xy (x + y) - cxy\} = abc^2 (x + y - c)$$

$$x^2 y^2 (x + y - c) = abc^2 (x + y - c)$$

$$\therefore x + y - c = 0, \text{ and } x^2 y^2 = abc^2$$

Substituting for xy its value, $c\sqrt{ab}$ in equation (m) we obtain

$$x (bc - c\sqrt{ab}) = y (c\sqrt{ab} - ac);$$

$$\text{that is } xc\sqrt{b}(\sqrt{b} - \sqrt{a}) = yc\sqrt{a}(\sqrt{b} - \sqrt{a})$$

$$\therefore \frac{x}{y} = \frac{\sqrt{a}}{\sqrt{b}}; \therefore x = \sqrt{ac}, y = \sqrt{bc}$$

Since $x + y - c = 0$, we have from equation (n)

$$ay + bx - xy = 0;$$

$$\text{hence } y = \frac{bx}{x - a}$$

$$\text{But } x + y = c;$$

$$\text{Therefore } x + \frac{bx}{x - a} = c$$

$$x^2 - ax + bx = c(x - a)$$

$$\text{hence } x^2 - (a - b + c)x = -ac$$

$$x = \frac{a - b + c \pm \sqrt{(a - b + c)^2 - 4ac}}{2}$$

$$= \frac{a - b + c \pm \sqrt{a^2 + b^2 + c^2 - 2ab + 2ac - 2bc - 4ac}}{2}$$

$$= \frac{a - b + c \pm \sqrt{a^2 + b^2 + c^2 - 2ab - 2ac - 2bc}}{2}$$

C. W. B., LL.B.

SCHOOL DISCIPLINE.

(A paper by W. WELCH, Esq.; M. A.)

I have been asked to read a paper before you to-night, similar to the one I had the pleasure of reading at the Conference of Teachers held at King's College; and, presuming that there are some present who heard that paper, I may perhaps be allowed to point out that, whereas I then touched upon only one point in reference to discipline, I now propose to take a somewhat wider view. The point on which I then laid stress was not the use of externals in the maintenance of discipline, but the power of sympathy between the teacher and the taught.

Professor Laurie, in his recent address, told us that "The aim of the educationist is mainly discipline, and the aim of discipline is the production of a sound mind in a sound body, the directing and cherishing of the growth of the whole nature, spiritual and physical, so as to make it possible for each man, within the limits of the capacity which God has given him, to realise in and for himself, with more or less success, the type of humanity, and in his relation to others to exhibit a capability for wise and vigorous action."

Now, though I propose to touch but little on this side of the question, it is a side which after all is most important, and which must have due weight in the mind at all times when we are dealing with School Discipline. This description tells us that the aim of discipline is the training of the individual; but to practical school-masters the word will suggest another idea as well.

Discipline, then, being a word of somewhat wide import, I will at once state that by School Discipline I wish to imply one or both of two things:

1. The mode or modes by which those at school are brought to conform to certain regulations and forms.

2. The state into which they are brought.

And here I must guard myself, by saying that my remarks have reference to boys' schools only, my knowledge of schools for the other sex being very limited. I may, however, be allowed to add that, as far as my experience extends, my estimate of their discipline is not very high, though I hear of golden opinions which are now being won by the schools lately established by the Girls' Public Day School Company.

Before, however, we enquire as to what this state of discipline should be, and how best it may be obtained, it is necessary for us to have clearly in our minds the objects of discipline. They are, I think, two:—

1. The training of the individual.

2. The maintenance of order.

And whereas the theorist will tell us that the former is the more important, we know very well that in practice it is the latter which we make our primary object; or, to put it more pleasantly and perhaps correctly, the latter, viz., the maintenance of order, will be the object of discipline, while the former viz., the training of the individual, will regulate the means whereby the discipline is enforced.

In speaking thus I am contemplating large schools, for it is among such that what little experience I have has been mostly gained, and in these absence of order would mean hopeless chaos. In schools of small size more attention may be paid by the teacher to the training of the individual than is possible with large numbers. I do not say that it is so, but I presume it is possible. And do not understand me to mean that the training of the individual is carried out better in a small school—I believe it is very much the reverse; the truth being that the training of a boy lies much more in the hands of Nature and of the boy's school-fellows than in that of his masters. Boys are not born good: they are born

ignorant, and are ready to learn both good and evil. We do not believe, I am sure, that the majority of boys are morally bad; but we do know that evil counsels spread much more rapidly than good counsels in a school, and one or two black sheep in a small flock work infinitely more harm than a greater number do in a larger flock; in fact, in the latter case they are occasionally, if not trampled out, at least silenced, by their opponents. A boy, then, at a small school has a possible chance that more attention will be paid to his individual training on the part of his masters (I am supposing the small school to be well mastered); but he loses much that Nature unchecked and his numerous companions, from whom he can pick his set, will do for him in the way of training; and he will surely run a much greater risk of coming into contact with the black sheep, which I fear are never entirely absent for any length of time from any, even the smallest school.

There are, then, two things to be considered: (1) the individual, (2) the aggregate of individuals—the school. Neither must be sacrificed; both are equally important; for, such as the one is, such, to some extent, will be the other.

Now Discipline, like all other arts, has its theoretical and practical sides, and in this world of imperfectibility the two will not always coincide. "The general practice of any ideal system of education is hopeless," says Mr. H. Spencer, "we are not good enough." But I suspect it is equally impossible to lay down a good theory of discipline. It is so complex a subject, so much depends on the character and temper of the master, the character of the boys, their ages, their numbers; that unseen power, sympathy, plays so important a part, and yet is so variable.

We, of course, all admit that a school ought to be in a good state of order, but our opinions differ widely as to what that state should be, and more widely still as to how it should be effected and maintained. I imagine that there may exist one of two kinds of discipline in a school.

1. A sort of formal discipline, where everything is done with clock-work precision and uniformity, and the boys are always under the master's eye. There are, of course, various modified forms of this species.

2. The second species is informal in its nature. It is not absolute order, but there is enough order to allow of the carrying out the work of the school without inconvenience.

Of the two, the first is infinitely the easier to maintain, but in my opinion the latter is preferable by far. The clock-work discipline is, I think, neither necessary nor advisable.

The essence of the formal, or, as one might call it, military discipline, is the total absence of freedom, and consequently of the opportunity for self-government, and the almost total absence of sympathy. A system which necessitates such a terrible position as that held by the "pion," as the French boy calls him, must surely be hostile to English notions of freedom. To this some perhaps may be inclined to answer, that no such position exists in an English school. Does it not? Perchance not to quite such an exaggerated degree; but an assistant, or rather subordinate, in many a private

school, is but little above the rank of a "pion. More than once have I heard "Principals" bewail their unrecognised position in society; and yet these very men, I know of a truth, themselves fail to recognise the profession when their assistants, and not themselves, are the individuals in question. Away with this system of military discipline,—an army with only one commissioned officer, a military discipline which culminates in a despotism,—where freedom is withheld from the teacher as well as from the taught,—where the teacher is expected to do so much work for so much pay, and there the contract ends,—where he has no more to do with the government of the school than a sergeant with the command of a regiment,—where he is, in fact, a non-commissioned officer, whose opinion and advice in the daily campaign is never taken or even asked.

In connection with this form of discipline, we have sometimes a system of drill in the schoolroom. It is met with commonly in primary schools, but it is not confined to them. To a stranger the sight of a large number of boys going through all the common-place actions of schoolroom life with uniformity and precision is somewhat striking, but it becomes monotonous; though with quite young children, I fancy the plan succeeds—they seem to find some sort of pleasure, or even amusement, in acting in concert, and it thus makes it easier for them to keep in order.

A friend of mine once went to visit a very large day-school where the formal system prevailed, and so much impressed was he with the appearance of the rooms and with the schoolroom drill, that he appeared to think that numberless blessings arose therefrom, and to wish that his own school, a boarding school, were in a similar state. I visited the school myself shortly afterwards, and was equally struck at first, but I had no wish to see the system introduced into any school with which I was connected. Moreover, when I came to consider the matter, I remembered that this was a day-school, and therefore it was natural that the class-rooms, not being living rooms, should present a much more tidy appearance than class-rooms in which boys lived from morning to night; the work too seemed to be done entirely on the paper-work and lecture plan; the rooms were filled with desks and seats; and there was, I believe, but one lesson going on in a room at once, and therefore there was absent that necessary amount of disorder and noise which is unavoidable when forms are coming up and going down; for I most emphatically protest against a form being regularly kept standing for a full hour.

One obvious objection to schoolroom drill is, that it inevitably comes to be looked on as an end instead of a means, and there consequently ensues a good deal of waste of time in order duly to attain an end which is no end. Moreover, it does not leave a boy to act for himself at all; it deprives him of all training in self-restraint during school, since the authority of the master is interposed at every point.

In connection also with this form of discipline, we have silence at meals, and silence with supervision in the dormitories; but of that I propose to speak farther on. I need hardly refer to the baneful plan of inspecting correspondence between boys and their friends, as such a piece of despotic surveillance is, I suppose, quite out of date.

But let us take a glance at the other form of discipline which I have mentioned. The general spirit of this is freedom and self-government. It is the form which exists in most, if not all, Public Schools. Too often, under the other system, the boys regard their masters in the light of natural enemies; but here there is such freedom of intercourse between masters and boys,—the former frequently taking part in the games of the latter,—that such a view would be untenable. This intimate association does not in the least diminish a boy's respect for a master, nor does it impair a master's authority, unless he unwisely permits that excess of familiarity which breeds contempt; for there are men, we must remember, who would fail under any system. Here we find subordinates, who are called Assistant Masters, actually considering themselves the colleagues of the Head Master, and actually addressing him openly without the title Mr. or Sir. I have said that the general spirit is freedom and self-government; and, as regards the individual, what is the object of discipline if not to produce beings imbued with a spirit of obedience, beings capable and ready for self-government? Hedge your child round about with numberless rules, put him under a constant espionage; and, as I have said, you deprive him of all opportunity of self-restraint, you neglect the whole aim of discipline as regards the individual, you do not even teach him how to submit to the government of others, as the world will count government. Let the rules of a school be few, broad, and traditional. Our boys sent forth into the wide world will find that there is no elaborate code of petty and detailed regulations read out three times a year for their moral guidance.

In the class-room as much freedom is allowed as is consistent with good work. There is no attempt at drill; but, of course, freedom must not be allowed to degenerate into licence. M. Jules Simon says that he thinks a quarter of an hour of liberty between each lesson would do children much good, and would do no harm to discipline. In English schools, where our hours are comparatively short, we can hardly afford so long an interval; but I quite agree in the principle, and I think it a good thing to let boys "kick up a row," as they call it, for four or five minutes during changes of lessons. This freshens them up, and puts a little more life into them. I have, at times, on a hot summer's afternoon, proposed to the boys a short interval in the middle of a lesson for forty winks, to which they have graciously acceded; and after a few minutes we have jumped on our legs again to wake ourselves up, and have continued our lesson with far more vigour than we betrayed before. This may shock those who consider themselves stern disciplinarians; but it is infinitely better than the master should fall asleep by himself, and, as a friend of mine did once, fall back off the stool, and in his effort to have himself pulled the desk over on the top of him.

In most instances, as soon as a master enters a class-room in lesson hours, there is silence; though, perhaps, through having to get books out of his desk, or what not, he is not ready to begin work for a minute or so. It is a question, in my mind, whether it is not as well to wait till one really wants silence, and then call for it by voice or other signal. Boys will thus understand that the reason for silence is not the presence of the master, but the desire for work.

Some men, I believe, feel it derogatory to their dignity if boys continue their games and noise in their presence; for my own part, I cannot endure to think that their pleasure is to be checked simply because I happen to be present. During preparation silence is no doubt imperative, unless it taken place under the eye of a master, in which case he can safely use his discretion. I have more than once tried to adopt Dr. Andrew Bell's system of boy teachers in my form; but I found that, in my absence, it was often the cover for much illicit conversation, and thus brought a good deal of extra trouble and annoyance on the perfect in charge of the form.

During meal times, and in the dormitories, the same spirit of freedom should prevail; but, as in a class-room boys cannot be allowed indiscriminately to leave their places, or absolute disorder would soon be the consequence, so it must be here. I know few things more painful than to be for any length of time in a large dining-hall full of boys where the silent system is enforced. A meal with one's friends in constrained silence loses all its pleasure and half its digestibility. Better a dinner of herbs where conversation is, than a silent banquet off the fatted calf! Some may think that I should not argue thus if I had ever tested the plan practically. I am going to make a confession. I have had experience of the plan, to no small extent—the numbers under our charge being over 300; and I have, at times, suffered more dyspepsia from the worry of it than I care to say. But what then? It has probably been my own fault. I have not shown sufficient vigour and firmness, freedom has been allowed to verge on licence, and then one's troubles begin. It is merely a salutary visit of the goddess Nemesis, it is not fair to blame it on the system.

I have already said that the formal system of discipline is far the easier to maintain; but in every action of life is not the extreme more easy of accomplishment than the mean? In the former, no exercise of judgment is necessary; in the latter, how great! Reading during meals is a moot point. There are many arguments against it—it is not good manners, and does not conduce to health; and, as far as I know, only one for it—expediency. But we know what weight that argument has. Where there are large numbers, it is not always possible for them all to be served at once; and, in addition to that, boys vary as regards appetite—some eat much, some eat little (unhappily for the purveyors, the latter class of boys are in a decided minority!)—and yet they cannot be allowed to leave the dining-hall irregularly as they finish—the disorder would be too great! besides there is a lesson to be learnt of sacrificing self to society by waiting contentedly till all have finished. Conversation will not always come at command. What is to be done? Admitting the necessity, I think the matter may be regulated thus:—Where the meal is of fixed length, such as half-an-hour for tea or breakfast, books might be allowed; but at meals, where the boys are dismissed as soon as they have finished; I am of opinion that they should be forbidden. Their presence, too, is apt to disorder the arrangements of the table, which at dinner is more extensive than it is at other meals. These you will perhaps say are minor details, but you will admit that these details have much to do with the subject of my paper.

The discipline in the dormitories is of great importance. As I

have already said, I would here have the same freedom as in hall. The minimum number of beds in a room I place at three; but I think twenty a much better number. The order of the dormitory should be in the hands of some senior boy or boys—call them monitors, prefects, prepositors, or what you please. By this means there is always some one present in authority, whereas, when a master only is responsible for the order, "high jinks," at least, are sure to go on in his absence.

It may be taken as a general rule, that there is more chance of mischief being in progress when boys are silent than when they are making a noise. I am, therefore, an advocate for freedom of speech in the dormitory, though a silence of some few minutes should be enforced, both to show that boys are expected to say their prayers, and to give them an opportunity of saying them in peace; for, strange as it may be thought, there still exist schools where boys are pelted with slippers if they dare to kneel at their bed-sides; at least a boy, friend of mine tells me of one with 40 or 50 boys where this used to happen when he was there a couple of years since. A light in the dormitory throughout the night is a great safeguard of order.

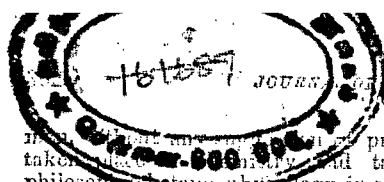
Before I leave this part of my subject it will be well to say a few words on a very important point in school discipline—punctuality. It is very necessary that we, masters, should set a good example in this particular. An unpunctual master makes unpunctual boys; and the worst of it is, that it is not he who really has to suffer for his fault, it is his colleagues who are punctual who suffer; for the boys become demoralized, and get into a habit of being just behind time, and the master who is always on the spot for his Form or Roll-call feels naturally irritated thereat, whereas in all probability the man who is really at fault does not from his nature receive any irritation. A habit of unpunctuality in boys should, I am inclined to think, be nipped at once by very strong measures. No one can possibly foresee the damage it may cause in after-life. Let a high standard of punctuality, then, be an important item in school discipline. In looking through the prospectus of one of the upper middle-class schools of late foundation, I find this paragraph, "A whole holiday is also given once a month to those boys who have passed a satisfactory examination at the Warden's review, and who have not missed Roll-call more than six times during the month." Now this I call a very low standard. In my opinion, a boy to be so rewarded ought not to have missed a single Roll-call during the month, or, perhaps, allowing for accidents, but one. In connection with this subject of punctuality, another difficult question occurs to me. How about taking boys' excuses? I have heard men say, "Oh, I never take any notice of excuses." I really think it would not be a bad plan never to receive them—it would save a great deal of trouble, and, perhaps, much lying; but was any one ever able to carry out the plan? I have made a determination more than once to try it, but have had to give in, because fear of doing an injustice has been too strong for my resolution. "Weak man," whispers some one. "Nature listens to no excuses." True; but, did I always follow Nature, I should be unnatural.

(To be continued.)

PROFESSOR HUXLEY ON THE TEACHING OF SCIENCE IN SCHOOLS.

A LECTURE on "The Method of Teaching Science in Schools" was delivered on Saturday, the 10th June, by Professor Huxley, in the large Hall of the Watt Institution, Edinburgh, to the members of the Edinburgh branch of the Educational Institute of Scotland. The attendance, as might be expected from the reputation of the lecturer, was very large, and on the platform were Mr. Maurice Paterson, Principal of the Free Church Training College, Professor Hodgson, Dr. Donaldson, Dr. Ogilvie, Dr. James Bryce, Dr. J. Pryde, Dr. Lees, Dr. Graham, Dr. Ross, and a large number of the most distinguished teachers connected with the schools in and around Edinburgh. Mr. Paterson having been voted into the chair, Professor Huxley, who was received with applause, rose, and delivered the following address:—

The system of teaching science, like all wholesome things, had grown out of practical necessities. In almost all cases a science was the outcome of an art. People had begun to feel the necessity of systematising the rules of the art, and for building on them to the furthest extent, and these rules of the art had become what they now called science. This was eminently the case with the science the teaching of which first became properly organised—he meant the science of anatomy. The necessity for a knowledge of that science grew out of medicine. It became needful that men should understand the structure of the human body, not merely as a matter of curiosity, and that they should have such a knowledge as thoroughly as they possessed an acquaintance with the ordinary affairs of life. It was found that, in order to acquire that knowledge of anatomy, they could not trust merely to the oral instruction of the teacher, excellent and useful as that might be. They could not trust to that kind of teaching supplemented by books, and even aided by diagrams, and showing the things upon the lecturer's table. But, in order to have knowledge which could be depended upon, it must be acquired by the person taught going over the matter which he had to know himself, and learning at first hand, so that from that time forth his knowledge would be as good as that possessed by his teacher. Now, in order to acquire such knowledge, dissecting rooms and anatomical laboratories were established, in which the student went to work for himself, verifying all that he had been told, and basing his knowledge of the structure of the human body upon the actual inspection and observation of the facts. He could almost remember the time when the teaching of anatomy was in a very imperfect state, but in the present day no anatomical school would be thought worthy of the name if it did not, in addition to the teaching of the professor and the handbook, provide the means by which the student could work practically. As other sciences had grown and acquired a practical importance, and had become more or less the foundation of professions where exact knowledge became of great practical value, they had found themselves constrained to follow the example set in the case of anatomy. Chemists were among the first to do so. No one would now dream of teaching chemistry as taught in every university in this kingdom within the memory of living



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practical instruction. What had taken place in physics, natural philosophy, physiology, in short, in every branch of science—he was now speaking simply of the physical science that was seriously cultivated. In France and Germany, especially in the latter country, the laboratories for practical teaching had now attained marvellous magnitude and astonishing completeness of equipment. Even in this country, slow as we are, great changes had been carried out. Within the last few years both of our great Universities had established laboratories for practical teaching, and it was being done where it could be carried out in the Universities of Scotland. Our great University of Edinburgh, one of the most important educational institutions of the three kingdoms, in regard to science was simply not doing all she might do in this matter for lack of material aids. The University buildings were absolutely inadequate for the purpose, and the sooner Scotchmen understood this to be the case the better it would be, because the teaching of the University at present was seriously impeded for the want of the practical appliances to which he referred. He did not mean to say, that although such complete appliances were absolutely necessary to the effectual teaching of the sciences, anything that fell short of this might not be exceedingly useful, but the value of the teaching would be diminished exactly in proportion as the practical element was omitted. Because, what did scientific teaching mean? It was not merely instruction. I was in a great measure that. It was the acquainting of the mind with the laws which governed the phenomena of nature, and he needed not to enlarge upon the well-worn topic of the value of such knowledge. But there was about scientific teaching a value as an educational discipline of a particular kind. The first element of value of scientific teaching arose from the fact of its cultivating the power of observation, which he thought was the most difficult to cultivate, or at any rate the least cultivated, and at the same time probably the most valuable of the faculties that man possessed. It was astonishing how difficult a thing it was to say exactly what was to be observed in anything, and to state what one had observed without putting in any thing more or leaving out something. He should say that upon the whole it was the very rarest of all human qualifications, and the lack of it was at the bottom of half the miseries of human life. Any one of them who had lived thirty years in the world could not have failed to see that half the evils of society, the malice, hatred, and uncharitableness of this world, arose not exactly from bad intention. He did not think human nature was altogether of so malicious a character as it was represented. But it was because people allowed their statements of actual occurrences to contain hypotheses in addition to the objective matter of fact. He would not give illustrations; they were to be found in daily experience. He knew of no educational discipline—he would not speak of moral discipline—which was of so great value in relation to this apparently fundamental difficulty of human nature as scientific discipline, for the source of all our mistakes in science was to be found in this unlucky habit of not being able to see what was before us, and putting into our statements more than was really in the facts. But, besides knowing, besides being able to use the mind, there were other faculties, powers, tendencies, and instincts in man's nature. He could imagine a person with endless knowledge

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and with great facility and dexterity in using it, yet being a man devoid of culture in the highest sense of the word. Mere knowledge was no very great thing, and mere dexterity in using it was no very great thing, looked at in relation to a man's own future. What he meant by culture was something higher than this: it meant the disposition of the mind, a certain understanding of one's relations to that which is not of one's self, a certain confidence in the order of things; and no other study could give this particular form and disposition of the mind which alone deserved the name of culture so well as scientific training. They might say that he submitted this because it was his especial business and training; and very likely that might weigh very much with him, but yet that could not be the whole explanation of the case. He had seen the announcement a day or two previously of the death of the greatest woman of our times—certainly the person of the largest ability, so far as his knowledge went, and eminently an artist, who had exhibited in very different shapes the highest powers of the genius of the artist—he referred to George Sand. She died at the age of seventy, and in the year 1891 she published, when she was in the ripeness and maturity of her powers one of the most remarkable of her books. In that work occurred a passage in which she gave her view of the function of science in this world in relation to the highest culture. She said—"The man who reflects knows well that he is weak, that he is always liable to exhaust himself by an excess of the powers with which he is endowed. It is in forgetting his own miseries that he finds a renewal or preservation of his faculties, but this salutary forgetfulness is to be found neither in idleness nor in intoxication of the emotions; it is to be found only in the study of the great book of the universe. You will see that as you grow older." As he had said, all these results of scientific training could only be expected of perfect and complete scientific training; but he would again repeat that he did not wish to throw a shadow of reflection upon less amounts of scientific training. A great deal of information might be got by listening to lectures and by an intelligent reading of books, which was endlessly better than ignorance.

(To be continued.)

EXPLORATIONS AT KORKEI AND KAYAL.

(By the Rev. Dr. Caldwell.)

I visited Korkei once many years ago, and though my visit was a hurried one, yet from what I saw and from the inquiries I made I came to the conclusion that Korkei—(in Tamil properly Kolkei, euphonised into Korkei),—though now so insignificant, was to be identified with the *Kōkxai* of the Greeks, which Jassen had identified with Kilakarei, a place on the Madura coast. The Greeks came to *Kōkxai* to purchase pearls, certainly soon after the Christian era, probably many years before, and represented it as the head-quarters of the pearl trade between Cape Comorin and the place they called *Kāpē*, properly *Kōti*, now *Rāmōshwaram*, which was also an emporium of the same trade. It must have been regarded as a considerable place at that time, seeing that from its name they called the Gulf of Mannar the *Colohie* gulf. It was easy to conclude also that this was the Korkei to which all Native traditions pointed as the cradle of

South Indian civilisation—the place where the three brothers Chéran, Pandyan and Pandyan were said to have been born and brought up and from whence they went forth to form dynasties and kingdoms—or, as might more readily be admitted, the place where the rule of the Pandyas commenced and from whence they afterwards migrated to Madura. The meaning of the name Korkei is an army, a camp. The interest of this identification was heightened by the conclusion at which I arrived at the same time that an insignificant place called Old Kāyal, about half way between Korkei and the sea, was to be identified with the Cacl of Marco Polo, the most important city and seaport on the eastern coast of India during the middle ages. (See Colonel Yule's Marco Polo.) The sites of two famous places were thus discovered in the same neighbourhood, and a glance at the geology of the neighbourhood disclosed the reason why each had been abandoned in turn. Both places are situated on the delta of the Tamraparni, Korkei within 3, Kāyal within 2 miles of the sea, and each was originally on the sea coast. As the silt accumulated in the sea near the mouth of the river, or as the land rose—or from both causes—Korkei was found at length to be too far inland for the convenience of a sea-borne trade, and Kāyal (meaning a “lagoon opening into the sea”) rose in its stead on the sea shore and attained to still greater dimensions. Kāyal carried on an immense direct trade with China and Arabia, the evidences of which are found lying all over the open plain on which the city stood. In time, however, through the continuous operation of the same causes, Kāyal came to be too far from the sea; and accordingly, shortly after the Portuguese arrived on the Coromandel Coast, they abandoned Kāyal, and established themselves instead at Tuticorin, which has ever since been the principal sea port of Tinnevely, there being no river near to silt up the harbour and roads. It would seem as if Korkei, though probably never so important an emporium of trade as Kāyal, must at one time have been nearly as large. This is proved by the relics of pottery &c., scattered about the country for miles, and especially by the circumstance that places, such as Akkasalei (“the Mint”), which are now at a distance from Korkei, are ascertained by the inscriptions I have found on the walls of the temples to have been portions of Korkei originally.

Whilst in Korkei and the neighbourhood I employed ten or twelve coolies for four days to make excavations here and there, under the superintendence of one of my assistants, whilst it was made the duty of the choir boys—much more a pleasure to them than a duty—to examine every shovel-full of earth that was thrown up, to see whether it contained any objects of interest. The Collector of the district, Mr. Stuart, kindly sent me a peon, to let the people of the place see that nothing illegal or improper was going to be done, and in return I sent him a list of the articles found, though unfortunately the articles found were of no particular interest.

The geology of the place seemed to me more interesting than its antiquities. The whole of the country in this neighbourhood is included in the delta of the Tamraparni the great river of Tinnevely, and this place is situated in the last formed portion of the delta, lowest and nearest the sea, so that the mode in which the delta was formed, which is doubtless, more or less the mode in which all deltas have been formed, could be easily studied. The upper stratum is

composed of stiff alluvial clay which had been brought down by the river and deposited in the bed of the adjacent sea. Every portion of this alluvium contains sea shells in great abundance, not merely sea-shells, but deep sea shells, such as the chank and the pearl oyster. So abundant are they that, in places where the surface of the ground has been washed away by rain and cultivation has not been carried on, the white shell-covered surface glitters almost like water in the moonlight, and in some places as you walk along the roads, especially near Maramangalam, the shells go crackling under your feet, as they would by the sea shore when the tide is out. This being the last formed portion of the delta the alluvial stratum is very shallow. The average depth cannot be more than six feet, and at the bottoms of tanks I have found it not more than three. Underneath this I invariably found a layer of grit-stone, (called by the people “salt-stone”) rarely more than a foot in thickness, composed of the larger grains of sea sand, such as lie on the surface, mixed with comminuted shells. This had evidently been the surface of the ancient sea bed, for underneath I invariably came upon beautiful white sea sand, in smaller grains, containing great quantities of unbroken shells. Doubtless the grit-stone had been formed by the infiltration of the alluvium from above. I found it impossible to ascertain the depth of the sand, or what it rested on, for after digging into it for a few feet the hole always got filled with water, and the water flowed in so fast that bailing out was useless. Strange to say some of the shells I found in this ancient sea-bed retained a portion of their original colour. One in particular—a *Conus*—looked as if it had been alive only a few years ago. What makes this so remarkable is that this portion of the delta must have been inhabited at least 2,500 years ago, and it must have been many ages earlier that the deposition of the alluvium commenced.

I hoped by making excavations in Korkei and the neighbourhood to find some traces of the Greeks, but in this I was doomed to be disappointed. The ancient level of the village is about eight feet below its present level, which of itself is a proof of great antiquity. When the diggers reached this depth they invariably found traces of human habitations, shreds of Indian pottery &c., but nothing of the nature I hoped to find. On the surface we found two Singhalese copper coins (I conclude them to be Singhalese from the management of the drapery), but the inscriptions were quite obliterated. I also found two images of Buddha, sitting, in his usual attitude of contemplation. One of them was out in the fields, the other in the village. I suspected that the latter was worshipped, though it was known to belong to a different religion. The people strenuously denied this, but one morning when I happened to pass I saw a garland of flowers which had been placed by some person round its neck. The person who did so evidently thought that if ever Buddha got his head above water again, he had a chance of being remembered for good. The most interesting things that were found were three of those mysterious sepulchral urns which have hitherto puzzled everybody. The Natives know nothing about them, and the common opinion amongst Europeans is that they pertained to a race which died out, but of which no relic remains, except these urns. The urns are made of the ordinary pottery of the country, but there

are always some little vessels found inside, some of which are beautifully shaped, with a polish or glaze which the potters of these days cannot imitate. Two of the urns I found contained no ones, but only traces of funeral ashes, but one, 11 feet circumference—unfortunately found broken—contained a complete set of unburnt human bones, including a perfect skull. The circumstances in which this urn was found were very interesting. The people to whom it belonged had dug down through the alluvial soil of the delta and the grit-stone till they came to the white sea sand and in this they had deposited the urn. The grit-stone had the partially re-formed all round, and I found the cavity of the skull filled up with grit-stone. The notion invariably entertained by the natives of these days is that the people buried in these urns were a race of pygmies, but the bones found in this urn were admitted by the natives who were standing about when it was opened to be those of a full grown man of the usual size. Strange to say a depuration of women came to my tent one day for the purpose of seeing the bones.

I visited old Kāyal (Marco Polo's Caal) twice, and set my excavators at work for a day, in a place about two miles from the present village, which represents only the western boundary of the ancient city. At a depth of three feet beneath the present surface the, came on the *clamminal* floor of a house, but found nothing of importance. The extent of the site of Kāyal was so great that it would take a month, instead of a single day merely, to explore it properly. I found, however, the whole surface of the ground, literally for miles, covered with evidences of the perfect truth of Marco Polo's statements respecting the trade of the place, confirmed by those of the Muhammadan historians. According to those statements, Kāyal was frequented by great numbers of vessels from the Arabian coast and from China—(junks)—in one of which latter Marco Polo himself arrived; and accordingly I picked up every where on the open plain broken pieces of China porcelain of all qualities and broken pieces of Arabian pottery. I could easily, if I had chosen, have collected a cart load, but the pieces had been broken again and again by the plough and the feet of bullocks, so that though the material in each case was obvious enough, all trace of the shape of the article had disappeared. Old Kāyal, or what remains of it, is now inhabited almost exclusively by Labbies and Roman Catholic fishermen.

The people of these parts, as generally throughout India, have not the remotest notion of the object Europeans have in view in searching for antiquities. Whatever we may say, they think our real object is to endeavour to discover hidden treasures; and this they consider a very risky business, for all hidden treasures are in the custody of demons, who will not allow them to be rifled with impunity. At Kerkel before my explorations commenced many of the people expressed an earnest hope that I should not make any excavations near any temple or image, because although very likely there might be treasure underneath, the demons in charge would be so enraged that they would destroy the village outright. I assured the people that I should take care not to come near any temple or image, and I scrupulously kept my word. My old friend Mānikāśgar of Arumagamangalam professes to have received a dreadful fright some years ago from the demons that watch over

hidden treasure, when he helped Mr. Puckle, the then Collector of Tinnevely, to make some explorations near Kāyal. The night after the first day's exploration a sho-demon appeared to him in a dream, and asked him in terrible tones how he dared to meddle with her treasures. In the morning when he awoke, he found—dreadful to relate—that his feet were fastened round the back of his neck in such a way that he was unable to unloose them without assistance! I need scarcely add that no further part in the exploration was taken by him. I wanted him to tell me the story; but he was afraid, I suppose, I should laugh at him and so I failed; but he told it quite gravely to my assistants, and has told the story so often that he evidently believes it himself now. Even Europeans, it seems, are not quite so free from danger as they suppose. Many years ago there was a Collector of Tinnevely, it is said, who determined to dig for the treasure which was believed to have been hidden in a certain place by a woman who intended to make use of it in some subsequent birth, and which, for the time being, of course, was under the custody of demons. He was warned that something dreadful would happen, but being a European he did not care. He pitched his tent near the place, and the whole of the first day was occupied by himself, his peons, and his coolies in digging. At length at night drew on they came to a carefully built stone receptacle; and justly concluding that this was the place where the treasure was hidden, the Collector set a watch over it and went to sleep in his tent, with the intention of opening the stone receptacle the next morning. The next morning came, and the Collector found himself not in his tent, but in bed in his own bungalow at Palamcottah, the tent was found pitched at the other side of the river, and of the excavations that had been made the previous day not a trace remained.

CLASS MATCHES.

The following brief paper, which contains some excellent hints for diversifying and increasing the usefulness of class matches, is by an experienced English schoolmaster:—

I have long been in the habit of having class matches in my school. Each Saturday morning is devoted to one, the subjects being varied in regular order.

As regards spelling, the following are the rules at present in force amongst my pupils:—

(i.) Two sides are chosen from the whole school, two of the senior boys being the choosers, and each pair of boys chosen being rivals, the one to the other.

(ii.) Each boy chooses about six words, which he writes on a piece of card, and which words it is his duty to learn to spell correctly himself, and of the meaning of which he must also be able to render to his rival a clear and correct explanation. Failing to do this, his rival counts a mark at the match. Each boy having selected his words, it is his duty to take his list to his captain, who decides whether the words are suitable, whether his boy can spell and explain them, and who also sees that the same word is not proposed by more than one boy on his side. All this having been done, the words

are then brought to me on the day before the match, and I exercise a further censorship over them, and in the event of any word being disallowed by me I myself propose its substitute. This places the disallowed boy at a disadvantage as to the spelling and meaning of his word, and thus both he and his captain learn to exercise great caution as to the choice of suitable words. The standard of the senior boys is any ordinary word in the school dictionary; that of the lower classes, any word found in their respective class reading books.

(iii.) The day of the match being come, the boys are arranged in two long lines, each pair of rivals being *vis-à-vis*. I then ask the captain of side B the first word proposed by his rival of side A, and *vice versa*, proceeding thus down the entire line, and continuing the rounds in the same order as long as time allows. Each boy on being asked his word may challenge his interrogator to explain it, and if the latter fail to do so, the challenged may count his mark without further trouble; a boy also counts a mark if he and his interrogator both fail to spell the given word.

(iv.) The winning side leave school half an hour earlier than the losers, either on the next Monday or on the next succeeding fine day.

Such is the usual order of our spelling matches, but we occasionally vary them as follows:—First variation: each boy spells his word to his rival and requires the latter to explain its meaning. Second variation: each boy spells a word to his rival and requires the latter to spell to him (a) a word of contrary or opposite meaning, (b) a word synonymous to the given word. Third variation: I myself propose the words, one word to a boy on either side alternately, and the respondent counts a mark if he spells the word rightly, or if some boy on the other side fails immediately to detect any error the speller may have made. This mode of conducting the match has the advantage of keeping the attention of all the boys continually on the *qui vive*. Fourth variation: the ordinary Spelling Bee. This I have tried once, but it has the great drawback of leaving so many boys with absolutely nothing to do as soon as they are ruled out of the Bee. Fifth variation: I spell a word incorrectly and require the boys in turn to correct me. This plan also I have tried only once, and I do not think well of it; it has a tendency to mislead and confuse the younger boys. There are many other variations of which the spelling match is capable, notably one suggested by one of the comic papers—that of writing a word on the blackboard and requiring the competitors to pronounce it. I have not tried this variation, but I think it has advantages. Especially it would expose such errors as “singin” for singing, “droring-room” for drawing-room, “gownd” for “gown,” “anythink” for anything, etc.; also such a mistake as that of the boy who brought to me lately an exercise in which he described the “ou” in joyous as a “false diphthong.” But in order to be effective this method would entail a considerable strain on the teacher’s attention, and for some words would require a very nice ear on his part.

With respect to matches in mental arithmetic, I find it necessary to give all the questions myself; but otherwise I make very little difference in the conduct of these matches and those in spelling. The chief rule different from those given in the spelling match is that I ask one question to each pair of rivals, instead of to each individual.

boy. Then the boy who answers the sooner of the two scores the mark. My object in this is to induce quickness as well as correctness in calculating. The correctness is also provided for by the proviso that the same boy is not to answer the question twice. As soon as each boy has answered incorrectly, I give the proper answer, marking the question aloud to show the method of solution. I have had the effect of giving each question to be competed for by anyone either side; but this plan failed signally, all the replies being given by six or eight boys, and the whole of the others soon becoming listless and inattentive.

The chief dangers to be avoided in these matches are—(i.) The risk of all the interest being confined to a few of the best boys; (ii.) The choice by the boys of useless or improper questions; (iii.) The risk of the matches degenerating into mere amusement, without any educative value; (iv.) A coalition among rivals to give each other easy questions. I have endeavoured to point out the ways of obviating these dangers, as each claimed notice, in the explanations given above.—*Bombay Educational Record*.

EXAMINATION PAPERS.

DEPARTMENT OF EDUCATION.

CERTIFICATE EXAMINATION 1878.

To CANDIDATES:—Write on one side only of your paper. On each sheet write your name; number your answers, and stitch or pin your sheets in order before giving them up.

GEOMETRY—FOURTH GRADE—SCHOOLMASTERS.

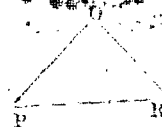
Examiner—MR. E. P. METCALF, M. A.

I. Define the centre of a circle, an acute-angled triangle and a plane surface. How can we determine practically whether a surface is plane or not?

II. Define an oblong and a rhomboid. Show that their diagonals bisect each other, but not at right angles.

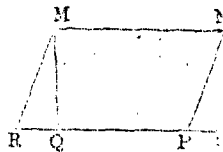
III. Enumerate in order the propositions employed in the above proof.

IV. In the triangle *POR* show that *PO* and *PR* are together greater than *OR*.



Prove geometrically that any side of a triangle is greater than the difference between the other two.

V. Prove that the parallelograms MNOQ, MNPR being upon the same base MN and between the same parallels MN OR, are equal to one another.



VI. Describe a parallelogram that shall be equal to the triangle HKL, having one of its angles equal to the given rectilinear angle A, and one of its Sides coinciding with HK.



VII. Prove Prop. XXIX assuming as your axiom that two straight lines which cut one another cannot both be parallel to the same straight line.

VIII. To describe a square upon a given straight line.

IX. (1) Explain the meaning of 'evenly' in definition IV.

A straight line is that which lies evenly between its extreme points.

(2) Why are the words 'in a plain' inserted in the definition of a plane angle, and omitted in that of a plane rectilinear angle?

(3) In Prop XXIV why is it important to say—

"Of the two sides DE EF let DE be that which is not the greater."

(4) Explain the terms adjacent angles, interior angles, opposite angles, interior and opposite angles, vertical angles, and alternate angles, giving diagrams in each case.

ENGLISH LANGUAGE—FOURTH GRADE—SCHOOLMASTERS.

Examiner—REV. T. E. SLATER.

1. One day, a young chicken that lived thereabouts,
Stood watching to see the ducks pass in and out,
Now standing tall upward, now diving below;
She thought, of all things she should like to do so.

"So the poor silly chick was determined to try;
She thought 'twas as easy to swim as to fly;
Though her mother had told her she must not go near,
She foolishly thought there was nothing to fear.

"My feet, wings, and feathers, for aught I can see,
As good as the ducks' are for swimming," said she;
"Though my beak is pointed, and their beaks are round,
Is that any reason that I should be drowned?"

"Why should not I swim then as well as a duck!
I think I shall venture and even try my luck!"
For said she (spite of all that her mother had taught her)
I'm really remarkably fond of the water.

(a). Give the construction of the italicised words.

(b). Expand into phrases the adverbs found in the first verse.

(c). Point out and name all the subordinate clauses in the first two verses, giving the construction of each.

(d). Give the sense of the last line of the first verse, using the word "anything" and not the phrase "all things"; and the sense of the second line of the second verse using the word "difficult" for "easy" (making other alterations so rendered necessary).

(e). "For aught I can see." Explain the meaning of this.

II. "Will you walk into my parlour," said a spider to a fly,
" 'Tis the prettiest little parlour that ever you did spy;

The way into my parlour is up a winding stair,
And I've many a curious thing to show when you are there."
"Oh no no," said the little fly, "to ask me is in vain,
For who goes up your winding stair, will not come down again."

(a). Re-write this in the indirect form.

(b). Re-write the second line, changing the superlative degree into the positive.

(c). Parse fully the words in italics.

III. 1. Two objects are obtained by tanning. 1st, the leather is preserved from rotting, 2nd, it is rendered impervious to wet.

(a). What kind of sentence is this?

(b). Re-write it as one simple sentence.

2. Monsoons or shifting trade winds, are merely the trade winds modified by the position of the sun at certain seasons, with reference to certain large masses of land lying within the tropics. Re-write this sentence, giving equivalents of the words in italics.

IV. 1 (a). It is probable that cotton clothes more people in the world than any other substance.

(b). The art of pottery is so ancient and universal, that we seek in vain for any precise information as to its origin.

(c). Not a few of the trees of India supply medicines, as camphor, castor-oil, aloes, &c., while others yield resins, gums and varnish.

Re-write correctly the above sentences, using the passive forms of the several verbs.

2 (a). Coffee is a stimulant, and a preventive of sleep.

(b). The atmosphere accompanies the Earth in its revolution on its own axis.

(c). The English word 'Monsoon' is a derivative of the Malay 'Moo- seen,' signifying a season.

Re-write the above sentences so as to use the verb form of the nouns in italics.

V 1. Give the opposite meanings of the following adjectives:—
Rarefied. Beneficial. Opaque. Minute. Endless. Ancient.

2. Give the noun forms of the following:—
Rotatory. Variable. Aerial. Elastic. Sustaining.

3. Introduce the following words and phrases into sentences of your own:—
Since. However. Of course. At all events.

VI. Illustrate the emphatic use of any compound personal pronoun, and also of the word "own."

VII. 1. Give examples (in sentences) (a) of verbs that are both transitive and intransitive; (b) of the participle in "ing" used as a noun.

Add the proper prepositions that must follow the words:—Covetous, Angry, Different, Glad, Warm, Smile.

ARITHMETIC—FOURTH GRADE—SCHOOLMASTERS.

Examiner—Mr. JAMES BRADSHAW.

I. Simplify $\frac{2\frac{1}{2} + 1\frac{1}{2} + \frac{3}{4} + \frac{1}{2}}{2\frac{1}{2} + 1\frac{1}{2} - \frac{1}{4} - \frac{1}{2}} + 12\frac{1}{2}$

II. Show that the square root of 17777 ... is 1.333 ... and find the two first figures in the square root of 2.

III. After silver had fallen 15 per cent. it was sold at Rs. 32 an ounce. If before the fall, the Rupee was worth Rs. 84, how much silver does it contain?

IV. If rice is selling at 9 measures the Rupee and it costs a family Rs. 6 a month, at what rate must it be selling when it costs Rs. 8 a month for the same quantity?

V. If Rs. 578.25 per annum be given for a loan of Rs. 631 4s., what is the rate per cent?

VI. In Ceylon the current coins are the Rupee and decimal parts of a Rupee. How would 3s. 9p. be expressed? And what decimal of a pound sterling is Rs. 5-23, exchange being at Rs. 8d. the Rupee?

VII. Express as the decimal of an Indian maund (82½ lb.) the sum of 3 viss, 1-216, Madras maund (25 lb.) and 1 lb. 11oz.

VIII. Water is poured into a cistern at the rate of 55 gallons an hour from 6 A. M. to 9 A. M., every day, and 150 gallons are drawn from it every night. Supposing the cistern empty on the 1st August, and that its capacity was 2,000 gallons, at what hour would it be filled?

IX. A certain number of Rupees is divided among four people in the proportion of 1, 2, 3, and 4, so that each shall have an exact number of Rupees. What is the smallest amount that each could have?

X. From a certain number one half is taken away, then $\frac{1}{3}$ of what remains and $\frac{1}{4}$ of what still remains and there were 5 left. How many were there at first?

HISTORY—FOURTH GRADE—SCHOOLMASTERS.

Examiner—Mr. J. T. MARCOSSEN.

I. Relate the rise of the Ottoman Empire. Why was it so called?

II. Enumerate the British possessions in Europe, Asia and Africa.

III. Write what you know of the Hansatic League.

IV. Assign dates to the following events:—

The Burning of Moscow; The Founding of Constantinople.

*The League of Cambray; The Siege of Sebastopol; The Discovery of the Cape of Good Hope.

V. What is the chief Russian port in the Baltic, and what articles form its principal exports?

VI. What were the chief events during the administration of Sir Henry Hardinge? Give dates.

VII. Give a brief account of Noncomar.

VIII. When and under what circumstances was the province of Cuttack ceded to the English?

IX. Relate the adventures of Humayun after his flight from India to Persia.

X. Name the ancient kingdoms of South India, and give the Capitals of each.

Provincial School, Calcut.

SENIOR F. A. CLASS.

QUENTIN DURWARD.

Time—3 hours.

I. Mention the sovereigns of Europe who lived and reigned at the supposed date of our story. Show by reference to incidents in the story that the spirit of chivalry was beginning "to be innovated upon." Who still upheld it?

II. Draw out a list of all the chief characters in the novel and state in a succinct manner the part each plays.

III. Describe as carefully as possible the battle before the walls of Liège.

IV. Give (a) the context of the following:—

i. "We are above his *voles*, he who does his duty may laugh at the Provost-Marshal."

ii. "There is a heaven above us."

iii. "The page slew the boar, The peer had the gloire."

iv. "Right, Peter, very right, it is our Law Dutch fashion—*Ein wort, Ein man!*"

v. "This is a dreadful lesson on the text *Vie victis*."

vi. "Right, right it shall be done! Uncouple the hounds!—Hyke a Talbot! Hyken Befurnout!"

(b.) The meaning of the two following mottoes and the substance of the Chapters to which they are prefixed.

i. "Go to—thou art made, if thou desirest to be so—if not let me see thee still the fellow of servants, and not fit to touch Fortune's fingers."

ii. "'Tis listening fear and dumb amazement all,
When to the startled eye, the sudden glance
Appears far South, eruptive through the cloud."

V. What are *anachronisms* and *archaisms*? Explain carefully and give two examples of each from your text.

VI. Who, or what is meant by—

Earl Thynne, Gasconading, Brabantia, The Court of Gorgonzola, Walloon, Jus emphyteusis, Souffering, Muscovy, Stanton, Thebais.

VII. Write, (A) critical notes on the following :—

(a) "Deal with me what your nobleness suggests."

(b) "Habits of exercise of every kind."

(c) "They are all squandered abroad like so many pease."

(d) "A fair youth, though a fiery."

(e) "So saying, he dealt the Scot such a blow on the helmet, as till that moment, (though bread where good blows were plenty,) he had only read of in romances."

(B) Explanatory notes on—

(a) "Only I wish we have not got King Stork, instead of King Log."

(b) "As I ride my horse at the ring."

(c) "To be smeared with oil at Rheims."

(d) "Save a rope and break a proverb."

QUENTIN DURWARD.

First 10 Chapters.

I. Re-write in simple English the substance of the following passage:—

In the fifteenth century, the feudal system which had been the sinews and nerves of national defence, and the spirit of chivalry, by which as by a vivifying soul, that system was animated began to be innovated upon and abandoned by those grosser characters, who centred their sum of happiness in procuring the personal objects on which they had fixed their own exclusive attachment. The same egotism had indeed displayed itself even in more primitive ages; but it was now for the first time openly announced as a professed principle of action. The spirit of chivalry had in it this point of excellence, that however overstrained and fantastic many of its doctrines may appear to us, they were all founded on generosity and self-denial, of which if the earth were deprived, it would be difficult to conceive the existence of virtue among the human race.

II. Explain, with reference to the context where necessary:—

(a.) Ghostly advice; Grandmother of happy memory; Jack-of-all-trades.

(b.) I could not have answered it in conscience.

(c.) He will chase with the hounds and run with the hare.

(d.) Why then the world is my oyster, which I with sword will open.

(e.) He is not like the King of Castile, who choked of thirst, because the great butler was not beside to hand his cup.

III. Describe the state of France at the time of the accession of Louis XI.

IV. Sketch briefly Louis' character and illustrate by reference passages in your text. Contrast it in its leading features with that of the Duke of Burgundy.

V. Name half-a-dozen instances from your text, of words that have degenerated in their meaning. Can you mention any illustrating the opposite tendency?

(b.) Derive the meaning of Chouse, Cajole, Damask, Dungeon, Sinister, and Assassin.

(c.) Give the meaning of the following idiomatic expressions and introduce them into sentences of your own construction:—

Under cover, To take off, To harp upon, To build castles in the air, To clear off old scores.

VI. Explain clearly the grammar of the words italicised in the following:—

1. Woe *worth* him.

2. I must go *dry* myself.

3. I understand you *passing* well.

4. For as great princes as they *be*.

5. I would have hung them farther from my palace, *though*.

6. Your uncle might have you *placed* on the file, when there should a vacancy occur.

Do you remark any fault in the arrangement of the words in (6.)

Distinguish between "His uncle had him taught in many languages" and "His uncle had taught him in many languages."

VII. Narrate, without detail, and in the natural order of their occurrence, the leading incidents in the life of Quentin as far as you have read. Mark out the one which you consider the luckiest in his life as having tended to his advancement in the favour of Louis.

VIII. Write brief explanatory notes on 'Stoical indifference,' 'Machiavellian policy,' 'The good Samaritan,' 'The laughing philosopher.'

IX. Take the following hints and write an essay (not exceeding three pages) on novel reading.

1. Definition and division of the subject.

2. The names of English Authors who have distinguished themselves in this department of literature and of their principal works of fiction.

3. The advantages and disadvantages of such reading.

MATRICULATION CLASS.

SUBJECT MATTER OF THE ENGLISH TEXT.

Time 2 hours.

a. To what may be attributed all the disasters that Scotland suffered from, after the death of Alexander III?

b. Name and give the date of the battles fought during that disastrous period.

- c. What part did King Edward I. of England play in bringing about these disasters?
- d. Enumerate his claims to the Lordship of Scotland, stating which of them were *real* and which were *pretended*.
- e. Give brief accounts of *Robert Bruce*, and *William Wallace*.
- II. i. The Plays of Shakespeare are calculated to teach among other virtues
1. Humanity.
 2. Courtesy.
 3. The restraining of selfish thoughts and
 4. Generosity.
- Relate incidents from the *Lamb's Tales* you have read to illustrate each of the above mentioned virtues.
- ii. State briefly the plot of *Macbeth*.
- iii. Name the characters in the *Merchant of Venice* in the order of their importance, stating briefly the part assigned to each.
- III. Name and give examples of the various metres employed in your poetical Selections and scan any two lines from *The Parting Hour*.
- IV. i. Write briefly the substance of
1. The History of John Gilpin.
 2. Scott's *Rosabelle*.
 3. The Outlaw.
- ii. Give a brief account of Cowper, naming some of his important works.

MATRICULATION CLASS. ENGLISH POETRY.

- I. The hand of the weeper
Takes the care that was heavy,
But the voice of the weeper
Wails manhood in glory.
The autumn winds rushing
Waft the leaves that are seardest,
But our flower was in flushing
When blighting was nearest.
- Paraphrase the foregoing passage, and analyse the last four lines.
- II. Retate in your own words as much as you have gathered from Scott's poem of the history of the Outlaw. What evidence is there to show that he was not utterly depraved?
- III. What is meant by Alliteration? Give four examples of Alliteration from the poems you have read.
- IV. " 'Tis not because the ring they ride,
And Lindsay at the ring rides well,
But that my sire the wine will chide,
If 'tis not filled by Rosabelle."

In the above passage state clearly the antecedents of *it* in " 'Tis not because," &c., and of *they* in "they ride." Give the exact force of *and* in "And Lindsay at the ring rides well," and parse fully the words in Italics.

V. What is remarkable in the usage of the words in italics in the following quotations:—

Gentles and Commons; Come from mountain so rocky; A citizen of famous London town; I'd rather rove; The victor hand of Lorn; As they had basted been.

VI. In what metre is *The Brooch of Lorn*? Scan the concluding lines—

While his spoils in triumph worn,
Long shall grace victorious Lorn.

(a) Give the masculine forms of *mermaid* and *fairy*. What is the plural of *dwarf*?

(b) What is the literal meaning of *homicide*? How is the word now used, and how does Scott use it in *The Brooch of Lorn*?

(c) Explain fully the allusions in the line
"From England's love or France's fear."

VII. Make notes explanatory of the following words and phrases:—
The water sprite; the hne and cry; Kirkpatrick's bloody dirk; the Queen of May; concentrated all in self.

VIII. Give the meaning and the derivation of the following words:—

Riddle; dirge; fate; sacristy; pinnet; eke; and the antonyms of foreign; renown; bereft; triumph; chide

MR. GLADSTONE ON LORD MACAULAY.

The current number of the *Quarterly Review* contains an article on Macaulay, which derives its chief interest from the fact that it comes from Mr. Gladstone's pen. We extract such portions as show clearly the opinions Mr. Gladstone held of the man and the writer:—

Lord Macaulay lived a life of no more than sixty years and three months. But it was an extraordinarily full life of sustained exertion—a high tableland without depressions. If in its outer aspect there be anything wearisome, it is only the wearisomeness of reiterated splendour, and of success so uniform as to be almost monotonous. He speaks of himself as idle: but his idleness was more active, and carried with it hour by hour a greater expenditure of brain-power, than what most men regard as their serious employments. He might well have been, in his mental career, the spoiled child of fortune; for all he tried succeeded, all he touched turned into gems and gold. In a happy childhood he evinced extreme precocity. His academical career gave sufficient, though not redundant, promise of after celebrity. The new golden age he imparted to the *Edinburgh Review*, and his first and most important, if not best, parliamentary speeches in the grand crisis of the first Reform Bill, achieved for him, years before he had reached the middle point of life, what may justly be termed an immense distinction. For a century and more, perhaps no man in this

country, with the exception of Mr. Pitt, and of Lord Byron, had attained at thirty-two the fame of Macaulay. His parliamentary success and his literary eminence were, each of them enough, as they stood at this date, to intoxicate any brain and heart of a meaner order. But to these was added in his case an amount and quality of social attentions such as invariably partake of adulation and idolatry, and as perhaps the high circles of London never before or since have lavished on a man whose claims lay only in himself and not in his descent, his rank, or his possessions. Perhaps it was good for his mental and moral health that the enervating action of this process was suspended for four years. Although after his return from India in 1839 it could not but revive, he was of an age to bear it with less peril to his manhood. He seems at all times to have held his head high above the stir and the fascination, which excite and enslave the weak. His masculine intelligence, and his ardent and single-minded devotion to literature, probably derived in this respect essential aid from that depth and warmth of domestic affections, which lay nearer yet to the centre of his being.

He was, indeed, prosperous and brilliant; a prodigy, a meteor, almost a portent, in literary history. But his course was laborious, truthful, simple, independent, noble; and all these in an eminent degree. Of the inward battle of life he seems to have known nothing; his experience of the outward battle, which had reference to money, was not inconsiderable, but it was confined to his earlier manhood. The general outline of his career has long been familiar, and offers neither need nor scope for detail. After four years of high parliamentary distinction, and his first assumption of office, he accepted a lucrative appointment in India, with a wise view to his own pecuniary independence, and a generous regard to what might be, as they had been, the demand of his nearest relations upon his affectionate bounty. Another term of four years brought him back, the least Indian, despite of his active labours upon the legislative code, of all the civilians who had ever served the company. He soon re-entered Parliament; but his zest for the political arena seems never to have regained the temperature of his virgin love at the time of the Reform Bill. He had offered his resignation of office during the debates on the Emancipation Act, at a time when salary was of the utmost importance to him, and for a cause which was far more his father's than his own. This he did with a promptitude and a manly unconsciousness of effect or merit in the act, which were truly noble.

One of the very first things that must strike the observer of this man is that he was very unlike to any other man. And yet this unlikeness, this monopoly of the model in which he was made, did not spring from violent or eccentric features of originality, for eccentricity he had none whatever, but from the peculiar mode in which the ingredients were put together to make up the composition. In one sense, beyond doubt, such powers as his famous memory, his rare power of illustration, his command of language, separated him broadly from others; but gifts like these do not make the man; and we now for the first time know that he possessed, in a far larger sense, the stamp of a real and strong individuality. The most splendid and complete assemblage of intellectual endowments does not of itself suffice to create an interest of the kind that is, and will be, now felt in Macaulay. It is from ethical gifts alone that such an interest can

spring. They existed in him not only in abundance, but in forms distinct from and even contrasted with, the fashion of his intellectual faculties, and in conjunctions which came near to paradox. Behind the mask of splendour lay a singular simplicity; behind a literary severity which sometimes approached to vengeance, an extreme tenderness; behind a rigid repudiation of the sentimental, a sensibility at all times quick and in the latest times almost threatening to sap his manhood. He, who as speaker and writer seemed above all others to represent the age and the world, had the real centre of his being in the simplest domestic tastes and joys. He for whom the mysteries of human life, thought, and destiny appear to have neither charm nor terror, and whose writings seem audibly to boast in every page of being bounded by the visible horizon of the practical and work-day sphere, in his virtues and in the combination of them, in his freshness, bounty, bravery, in his unshrinking devotion both to causes and to persons, and most of all, perhaps, in the thoroughly inborn and spontaneous character of all these gifts, really recalls the age of chivalry and the linaments of the ideal.

To the literary success of Macaulay it would be difficult to find a parallel in the history of recent authorship. For this, and probably for all future centuries, we are to regard the public as the patron of literary men; and as a patron abler than any that went before to heap both fame and fortune on its favourites. Setting aside works of which the primary purpose was entertainment, Tennyson alone among the writers of our age—in point of public favour, and of emolument following upon it—comes near to Macaulay. But Tennyson was laboriously cultivating his gifts for many years before he acquired a position in the eye of the nation. Macaulay fresh from college, in 1825 astonished the world by his brilliant and most imposing essay on Milton. Full-orbed he was seen above the horizon; and full-orbed after thirty-five years of constantly emitted splendour, he sank beneath it. His literary gains were extraordinary. The cheque for 20,000*l.* is known to all. But his accumulation was reduced by his bounty; and his profits would, it is evident, have been far larger still, had he dealt with the products of his mind on the principles of economic science [which, however, he heartily professed,] and sold his wares in the dearest market, as he undoubtedly acquired them in the cheapest. No one can measure the elevation of Macaulay's character above the mercenary level without bearing in mind that for ten years after 1825 he was a poor and a contented man, though ministering to the wants of a father and a family reduced in circumstances; though in the blaze of literary and political success; and though he must have been conscious from the first of the possession of a gift which by a less congenial and more compulsory use, would have rapidly led him to opulence. Yet of the comforts and advantages both social and physical, from which he thus forebore, it is so plain that he at all times formed no misanthropic or ascetic, but on the contrary a very liberal estimate. It is truly touching to find that never, except as a Minister, until 1851 [ii. 291, 292], when he had already lived fifty of his sixty years, did this favourite of fortune, this idol of society, allow himself the luxury of a carriage.

He was eminently objective, eminently realistic; resembling in this the father of all poets, whom none of his children have surpassed, and who never converts into an object of conscious contemplation the

noble powers which he keeps in such versatile and vigorous use. In Macaulay all history is scenic, and philosophy he scarcely seems to touch, except on the outside where it opens into action. Not only does he habitually present facts in forms of beauty, but the fashioning of the form predominates over, and is injurious to the absolute and balanced presentation of the subject. Macaulay was a master in execution, rather than in what painting or music terms expression. He did not fetch from the depths, nor soar to the heights; but his power upon the surface was rare and marvellous, and it is upon the surface that an ordinary life is passed, and that its imagery is found. He mingled, then like Homer, the functions of the poet and the chronicler; but what Homer did was due to his time, what Macaulay did to his temperament.

For works of the mind really great there is no old age, no decrepitude. It is inconceivable that a time should come when Homer, Dante, Shakespeare, shall not ring in the ears of civilised men. On a lowly throne, in a less imperial hall of the same mansion, we believe that Macaulay will probably be found not only in A. D. 2000, which he modestly specifies, but in 3000 or 2850, which he more boldly formulates, or for so much of this long, or any longer lease as the commentators on the apocalypse will allow the race to anticipate. Whether he will remain as a standard and supreme authority, is another question. Wherever and whenever read he will be read with fascination, with delight, with wonder, and with copious instruction too; but also with copious reserve, with questioning scrutiny, with liberty to reject, and with much exercise of that liberty. The contemporary mind may in rare cases be taken by storm; but posterity never. The tribunal of the present is accessible to influence; that of the future is incorrupt. The coming generations will not give Macaulay up, but they will, probably, attach much less value than we have done to his *ipse dixit*. They will hardly accept from him his neat solutions of literary, and still less of historic, problems. Yet they will obtain from his marked and telling points of view great aid in solving them. We sometimes fancy that ere long there will be editions of his works in which his readers may be saved from pitfalls by brief, respectful, and judicious commentary, and that his great achievements may be at once commemorated and corrected by men of deeper pen, of drier light, and of more tranquil, broad and comprehensive judgment. For his works are in many respects among the prodigies of literature; in some, they have never been surpassed. As lights have shone, through the whole universe of letters, they have made their debt to a place in the solid firmament of fame. But the tree is greater and better than its fruit; and greater and better yet than the works themselves are the lofty aims and conceptions, the larger heart, the independent manful mind, the pure and noble career, which in this Biography have disclosed to us the true figure of the man who wrote them.

MORAL TEACHING IN SCHOOLS.

Whenever it is suggested that special teaching on ethical subjects ought to be introduced into every educational course, we are met by many and various objections. One opponent says: 'Opinion is too much divided upon moral questions; you will but lead children into

a fog.' Another denies that a science of morals as any existence. A third urges that good behaviour should proceed from discipline and habit alone. A fourth predicts that the pupils will merely turn into conceited parrots. Or again it is assumed that moral lessons must from their nature be so dull that the teacher will but talk his class to sleep. And often we are told that the religious lesson sufficiently embraces ethics. Now I think that these and other objections that I have heard are of three classes. Some represent real, practical difficulties, which, however, thought and patience may generally overcome; others are founded upon a misapprehension of what is intended by ethical (or moral) teaching; while the third set, if they are valid, certainly strike with destructive force at the root of the whole matter. For instance, moral truth cannot be taught if it does not exist in a form which is teachable. In this paper I might reply by turns to the objections that I have referred to; but, instead of doing so in a direct manner, I think it will be best to try to picture the sort of moral instruction, as to scope and method, which seems to me to be possible and desirable, hoping that some of the arguments put forward against such teaching may then disappear of themselves, and any that remain can be more satisfactorily noticed later. But I must say beforehand that my proposed sketch by no means covers the whole field which I believe might be occupied by teachers of ethics. I can only attempt to show a few of the most important points, leaving it to others who have thought more deeply on the subject than I have, and whose experience is wider, to present completer schemes of teaching, and to delineate more the beauty and the richness of a region into which at least I earnestly desire that all boys and girls should, at a suitable age, be conducted.

I will very briefly describe, *first*, the subject of moral lessons; *secondly*, the teacher's method; and, *thirdly*, I will give the reason for such lessons. In other words, I shall try to answer the questions, What? How? and Why?

I. First, then, as to the subject. The great aim of such lessons I hold to be, to make young people acquainted with the moral world, in which, as truly as in the physical world, they are come to live; to instruct them as to its laws, its boundaries, its groupings, its order; to show them its paths, its landscapes, its precipices; to give them a due estimate of its relative importance, and to make its facts as real to them as those which their senses perceive. This being laid down as the teacher's general drift, I will glance at several particular matters of serious ethical interest, which I think, ought in a systematic manner to be brought before children's minds. The relations of fact in which they are placed should be represented to them so clearly as always to remain within their sphere of mental sight: relations towards parents and others in authority, towards brothers and sisters, towards friends and neighbours, and towards the lower animals, their own position being either *below*, *side by side with*, or *above* the others concerned. And they should be made to see that certain duties are inseparable from these relationships, duties not to be altogether escaped from by any possible wrench: so that they are, as it were, pledged from the very fact of the relations to right behaviour in them. More temporary relationships should also be explained in the same light, such as those between teachers and pupils, em-

players and employed, and in every case that harmony of arrangement should be pointed out according to which, when the relation is rightly understood, the feelings incline to the fulfilment of the corresponding duties. Then, too, we ought to cultivate children's observing powers as to the invisible claims and possessions of others. It is not enough for them to be honest in regard to apples and pence; their mind's eye must be sharpened to discern readily the subtler treasures owned by their fellow-beings—treasures of character or of credit, various priorities of claim, and rights of delicate frame-work, all of which they should learn to respect as faithfully as more tangible possessions, recognizing the walls and the fences that exist around them to be not less actual than those that are formed of bricks and stakes. As the basis of such difference for rights, they should be led to see that they are not isolated units in the world, as they are apt to fancy, but parts of a great whole, being connected through bonds, only to be severed by the knife of selfishness, with all other members of the human family, and that by means of these bonds a ready sympathy is quickened and maintained, so that consideration for others, and responsiveness to their interests and their sufferings, becomes as it were instinctive to an unselfish nature. Again, we should of course impress upon them the supremacy of conscience, urging them to yield with alacrity at its lightest whisper of command, and to live in the attitude of submission to a law beyond and above themselves. On occasions we may lead them to observe separately the duties which an acknowledgment of moral truth involves, and the qualities which help to form a noble character. Justice as the ground-work of society; veracity in regard to past, present, and future; kindness in its manifold manifestations, obedience, patience, faith, hope, self-sacrifice, industry, courage, patriotism, gratitude, self-control, &c. All these virtues should be vividly placed before the mind's eye, so as to be distinguishable; like the violet, red, and other rays of the prism which combine to produce the pure white light. Faults, too—such as insincerity, conceit, self-indulgence, cruelty—should be sometimes, though, I think, more sparingly analysed, in order that it may be seen how they infringe upon the law of right. In another set of lessons the principles previously inculcated may be drawn out and illustrated in reference to particular points of behaviour and action, such as the management of temper, responsibility, work, manners, the use of time and of money; dress, talking, and other accidental subjects. Duty as to the care and cultivation of mental and bodily powers will naturally be included in this teaching; a habit of moral judgment will be called into practice; virtue will rise in estimation above wealth; worthy aims may be presented to view, and mean ambitions shown in their true light. Thus the conduct of life will assume the importance it deserves, and by a gradual illumination the world of moral truth will be indelibly fixed within the pupil's field of vision. Questions of difficult solution will inevitably at times arise, but we should no more on this account give up dealing with the many parts of the subject that are clear and defined than we would move away out of a highly convenient house because it contained one or two imperfectly lighted corners. Some lately written words of Mr. Gladstone seem to me to express the tone of mind which, in these ethical lessons, it will be the teacher's hope to establish:—"I submit,

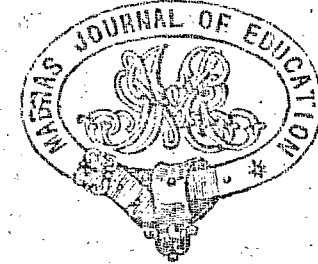
he says, "that duty is a power which rises with us in the morning," and goes to rest with us at night. It is co-extensive with the action of our intelligence. It is the shadow which cleaves to us, go where we will, and which only leaves us when we leave the light of life."

II. Next, as to the teacher's method. Supposing it to be allowed that sufficient material exists for special moral teaching, the important question arises, in what manner is this teaching to be conducted? There is a faculty in children by means of which I believe the teachers can fix their attention on points of moral truth, and can enlist their sympathies and their will on the side of goodness. That faculty is the *imagination*. It is always noticed that the imagination of the young is remarkably lively, agile, and playful. Everything that they see is a mirror through which they see numbers of other things; they invest the merest hints and outlines with substance, and the enjoyment of youth is greatly derived from this energy of fancy. Now ideas connected with moral science are particularly capable of being transferred into the mind through the medium of the imagination,—indeed I do not know how otherwise they can be introduced there at all. We realize what is invisible mainly through the visible. Every ethical word that we use knows this fact. 'Right' originally meant *straight*; 'independent,' *leaning on nothing*; steady, '*standing firm*, &c. In cases where we cannot trace a borrowed significance, we may be sure that the word has unfortunately been rubbed by age and use into its present characterless form. The whole language of morals consists of definitions of tangible objects and external relations, which we readily translate for ourselves into a system of higher meanings; and not only does the imagination thus supply us with pictures of moral ideas,—through its influence also the emotions and the affections are drawn forth, stimulated, and regulated. It re-vivifies for us the past, it enlarges the bounds of our present, it furnishes and peoples for us the future; consequently it exerts a strong qualifying power over our states of feeling: it is one of the chief elements of sympathy, and the spring of elevating ideals, and thus it becomes as with truth it has been called, "the great formative agency by which character is moulded." As, then, this wonderful faculty is the necessary vehicle of moral science, and as children are largely endowed with it, and as its exercise gives them pleasure, we see that the teacher commands an instrument by means of which he may succeed in reaching and moving the minds and the wills of his pupils.

But granted that ethical truth flows readily through the channel of the imagination, how, practically, can these lessons be rendered lively and impressive? I can only venture to offer a few suggestions on this point. The first thing to be aimed at is, I think, to call up a sharp definite idea of the subjects to be treated. Fortunately hazy notions are not acceptable to children's bright, acute, though hasty and untrained intellects. If we do not well explain what we mean, their thoughts will dart off to kites and kittens, or the equivalents which succeed them in interest, for no images but such as are real and appreciable do they care to contemplate. The teacher can therefore at once perceive whether he is arresting attention. To secure this necessary clearness and precision, it is often useful to begin by analysing the word which conveys the subject; and, next,

the subject itself may be looked at in its material and its symbolic sense, the latter being shown to be in exact accordance with the former. The relations of the idea, too, to other allied ideas, and its contents, may be considered. Analogies will help to picture it, and various illustrations may be called for, through which its inherent qualities will be more fully recognized. If the subject allows, the teacher can recall past impressions in the children's lives, which will assist to arouse the desired state of feeling. In regard, for instance, to any of the relationships of life (as that of *Companions*), he will represent and combine many of the occasions and possibilities of intercourse which conduce to a right view of that relationship. Out of time and space he will collect as in a focus the truths of experience that bear upon his theme and thus the sentiments of the pupils will be strengthened in a right direction. Of course in all this their own minds must be incited to action. It is not enough for them just to sit lazily gazing at stores of moral facts displayed by the teacher. Their intellects must accompany him in his researches, and must actually discover truth after truth, he only leading the way: for thus, and thus only, will the lessons produce a lasting impression. Then, too, the teacher will derive important help from the incidents out of history and biography which he and his class will contribute in illustration of the subject on hand. By means of these the children will be brought under the constraining force of example. For, good deeds and high motives belonging to the past, though less strong in their influence than those which we can associate with persons living and present yet often exert, through the vivifying power of imagination, a most magnetizing effect. I am aware that this is no new suggestion. History has long been effectually employed in the service of morals, but usually, I think, in a somewhat desultory manner; while what I am urging is that fitting instances should be carefully sought out, and applied to the intensifying of the particular idea to which the children's attention is being directed. Again, the teacher need not confine himself to examples in the form of facts. Imaginary instances of conduct will also tell with much power on children's minds. They extremely enjoy to hear what they call 'supposed' stories out of the lives of boys and girls situated somewhat like themselves—how Edith and Susan made up their long quarrel—how Philip held to the truth in spite of self-interest and ridicule; and indeed the accounts of the efforts, temptations, merits and demerits of improvised young persons may help to form the character even more surely than those of historical doings, partly because the surroundings of the former case can be more easily realized. The pupils may be encouraged to invent for themselves instances in point, and to give examples of the subject out of well-known works of fiction. It will be useful also to place before them practical problems to be solved, asking them how they would act in such or such a situation.

[To be Continued.]



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THE MONTH.

THE number of candidates for the Matriculation Examination is this year still larger than last year, nearly 2,500 names having been registered. This we believe is the largest number of applicants for examination ever known in any Indian University.

Most of the Examiners named in our list of last month have accepted the appointments, the only changes are Mr. P. Ranganada Mudaliyar is made Examiner in Logic and Psychology vice Mr. W. R. Weld, who has resigned, and Mr. T. C. Poonen Examiner in Malayalam, instead of the Rev. J. H. Bishop. In our list on page 338, the words "P. A. Examination only" which by the bracket are made to refer to Messrs. Metcalfe, Willock and Seshayya, ought to refer only to Mr. Seshayya.

THE practice so common in Madras of candidates absenting themselves from school classes after their applications for admission to the Matriculation Examination have been forwarded to the Registrar of the University, is, we find, not peculiar to the Presidency Town. The Head-master of one of the largest and most important schools in the Motussil writes to us on the subject as follows:—

"The applications have been sent in, and the consequence is that our classes are getting empty again.

The whole system is rotten. Punctuality and regularity are worth all the cramming in the world, yet the Madras University take no regard of these weighty matters, and care only to find out what a lad has crammed up. No good can come of the system till a boy shall be refused admission to the examinations unless he can produce a certificate of having attended a regularly organized class 200 days

in a year. The cases of private students, except masters, need not be taken into account at all."

We learn that Mr. Fortey, the Inspector of the Second Division returns shortly from furlough, and Mr. Bradshaw the Acting Inspector takes a few months' leave, on the expiration of which, he is to act in the Fifth Division for Mr. Marden, who is about to take furlough to England. Mr. E. C. Caldwell is expected to return very shortly from England to resume his duties as Inspector of the Fourth Division. Mr. Moss, the Head-master of the Mangalore Provincial School is, we hear, about to proceed to England on sick certificate.

THE Director of Public Instruction has appointed the undermentioned gentlemen Examiners at the approaching Examination of Candidates for admission to the Junior Department of the Medical College :—

G. Duncan, Esq.	English.
J. T. Margoschus, Esq., F.R.C.S.	Geography.
D. Sinclair, Esq., M. A.	History.
B. Thompson, Esq., M. A.	Malayalam.
Mr. S. Rangayya Chettiar, B. A.	Telugu.
Mr. Vijayaranga Mudaliar	Tamil.
Mr. A. Subba Rao, B. A.	Canarese.
Abdool Karim Sahib	Hindustani.

CANDIDATES for the approaching Matriculation and F. A. Examinations are reminded that Cochin, Mysore, and Nellore have this year been added to the list of places at which examinations will be held.

The following alterations have been made in the Text-books in Hindustani for the First Examination in Arts :—

F. A. Examination, 1876.

For

Khudad Afroz ... Chapters, 3, 4, and 5,

Read

Khudad Afroz ... Madras-i-Azra Edition of 1870. Central Book Depot, Madras.

F. A. Examination, 1877.

For

Nasr-i-Benazir.

Read

Arush-i-Mablit, commonly called Khissa-i-Hatim.

Paddurotta Sarnu Sastri Sundram Aiyar, Registered No. 512, at the Matriculation Examination held in December 1875, having, in the opinion of the Syndicate, been guilty of obtaining a certificate that he had passed the examination while knowing that he had failed therein, has been declared disqualified for admission to any future University Examination.

WE give below the remarks of the *Madras Mail* on an occurrence which has been a common topic during the past month. It is satisfactory to learn that the Committee of the Doveton College very properly resolved not to interfere in any measures that the Acting Principal may think fit to adopt for the preservation of discipline. A few years ago, the demoralized condition of the Doveton College of Calcutta was a public scandal and disgrace; we hope that the tact and firmness of the authorities of the sister institution in Madras may prevent its drifting into as deplorable a condition :—

"Last Monday the Doveton Protestant College in Vepery was the scene of a very striking ceremony. Some of the students of that institution have cultivated a prejudice against Mr. Bindon, the Acting Principal; and, in the course of last week, they hit upon a novel expedient for 'bringing him down a peg.' They deftly cut out the cane bottom of his chair, but re-attached it to the frame by a few pieces of rattan, so that the chair resumed its customary appearance. The Principal in due course arrived, and sat down in it, when the bottom immediately gave way; and the unfortunate gentleman immediately assumed an attitude that convulsed the school with laughter at his expense. Having been extricated from the embarrassing position into which he had sunk, the Principal addressed himself to the task of discovering the authors of the outrage on the majesty of his office; but his enquiries were fruitless, as the boys stood by one another, and did not 'sneak.' The Principal then, in compliance with a custom among schoolmasters in England, decreed that there should be no holiday on Saturday until the offenders were discovered. The punishment of keeping in the whole school is fine; that all Principals are loath to inflict as it deprives the masters equally with the boys of a much-needed respite; but the offenders committed demanded serious notice. Last Saturday arrived, and the whole school being warned should have attended; but about thirty of the senior boys absented themselves; and a few of these per-

in an appearance on Monday, armed with letters from their parents offering some frivolous excuses for the disobedience of orders on Saturday. The Principal, however, was not inclined to permit any further defiance of his authority; but "forthwith, surrounded by all his subordinate masters and 'College students' and standing on the dais, commenced thrashing the delinquents—a punishment which has been the severest given within the history of the school." So writes a parent to a contemporary. Not a few Eurasian parents cannot understand the ultimate virtue of the *argumentum ad baculum* of a schoolmaster; and they demand that their young hopefuls shall not be touched with the cane. So, several of the fathers of the boys who were thrashed, are threatening to take action against the Principal in the Police Court; and they are prompted thereto by a mischievous decision pronounced lately by Mr. Stevenson Now in the Town Police Court against a junior master of the Bishop Corrie's School, for thrashing a boy for alleged impertinence. Should the threatened proceedings be commenced in the Egmore Police Court before Colonel Weldon, we shall be caused no anxiety as to the result; for that Magistrate must have acquired in his youth a wholesome respect for the cane, and must know that in England the sons of peers as well as the sons of nobodies are alike liable to be caned, but are too proud to complain to their parents of the punishment. A boy who, though ordered to attend school with all his schoolfellows on a Saturday, for a gross breach of discipline committed by one or more of the number, is aided and abetted by his parents in disobeying that order ought certainly to be caned and if his parents object to his receiving that punishment, he ought without further ceremony to be expelled. His parents may then propose to place him in St. Andrew's School; but we have little doubt that the Revd. Mr. Walker will refuse to take the "bad bargains" of any school, for such lads may be expected to heave the whole lamp of the new institution. Certain of the aggrieved parents are drawing up a remonstrance to the Committee of the Doveton, in the hope, doubtless, that that body will by an expression of disapproval, cause the Acting Principal to resign. The Committee are not as strong as we would like to see them, for they include some gentlemen who may be expected to sympathise with the morbid weakness of the parents. We trust, however, in the interests of their invaluable institution, that the members will exhibit a due sense of the importance of maintaining the Master's authority. If, by their censure of the exemplary execution of Monday, they render that gentleman's position untenable, they may be quite sure that there will not be a rush of qualified men for the vacancy. The manipulation of the chair was no great matter; and there are probably few of our English readers who could not, with the aid of their own school experiences, cap this story of juvenile impertinence. But the wilful disobedience of orders of Saturday was an enormity which could not be passed over, and one which in all good schools in England would be followed by a well-applied castigation; and the College would be well quit of the offspring of parents who resent that penalty as a personal affront. Mr. Bindon may or may not be a discreet and competent Principal, for apart from the fact, which we have gleaned from the Almanac, that he is a Master of Arts, we knew absolutely nothing about him. But we do know that

our Police Courts are occasionally resorted to by foolish parents; and that local schoolmasters, whose goodness of heart, and general ability are beyond reproach, are exposed to the risk of being victimised by native Magistrates who have an effeminate horror of personal chastisement which renders them unfit to dispense the law in such cases. We are no apologists for tyranny at school, but, at the same time, we protest against a pernicious interference with the lawful authority of schoolmasters; and we look to the Committee of the Doveton College on the present occasion to adopt such proceedings in defence of their Master as will vindicate discipline, and prove a needful lesson indiscreet parents and ill-conditioned youngsters."

SCHOOLMASTERS' FOURTH GRADE EXAMINATION.

The undermentioned candidates have passed at the late Teachers' Certificate Examination the complete tests in writing prescribed for a certificate of the 4th Grade.

FOURTH GRADE.—First Class.

- 1 98 Samuel Vathakkan, Pupil, Sawyerpuram Training Institution, English & Tamil.
- 2 99 Daniel Joseph, Pupil, Sawyerpuram Training Institution, English & Tamil.
- 3 101 John Santhappen, Pupil, Sawyerpuram Training Institution, English & Tamil.
- 4 97 David Davapriam, Pupil, Sawyerpuram Training Institution, English & Tamil.
- 5 39 Pattucottay Coopooosawmy Iyer, Pupil, Govt. Normal School, Vellore, English & Tamil.
- 6 44 Darapuram Sandra Row, Pupil, Govt. Normal School, Vellore, English & Tamil.
- 7 95 Mannel Yesadian, Pupil, Sawyerpuram Training Institution, English & Tamil.

Second Class.

- 1 65 Garumurti Krishna Iyer, Pupil, Govt. Normal School, Trichinopoly, English & Tamil.
- 2 100 Manuel Joseph, Pupil, Sawyerpuram Training Institution, English & Tamil.
- 3 107 Kantamvetra Sekhara Potuvai, Pupil, Govt. Normal School, Calicut, English & Tamil.
- 4 104 Pannikot Sekharan Nair, Teacher, Elementary School, Malliapparam, English & Malayalam.
- 5 42 Thorapady Coopooosawmy Mudelly, Pupil, Govt. Normal School, Vellore, English & Tamil.
- 6 { 47 Wallajunet Parthasarathi Iyengar, Pupil, Govt. Normal School, Vellore, English & Tamil.
- 96 Abraham Vathanayagum, Pupil, Sawyerpuram Training Institution, English & Tamil.
- 8 { 40 Shembankam Moonooosawmy Mudelly, Pupil, Govt. Normal School, Vellore, English & Tamil.
- 45 Bhownaghery Mathis Deva Row, Pupil, Govt. Normal School, Vellore, English & Tamil.

- 10 { 82 Yesanthasen Swamidasan, Teacher, Girls' Boarding School, Srirangal, English & Tamil.
64 Ramachandran Subramania Iyer, Pupil, Govt. Normal School, Trichinopoly, English & Tamil.
- 12 53 Samuel Gnananantha, Pupil, C. M. S. English Institution, Palanecottah, English & Tamil.
- 13 63 Vangur Ramaswamy Iyer, Pupil, Govt. Normal School, Trichinopoly, English & Tamil.
- 14 102 Sathannantham John, Pupil, Sawyerpuram Training Institution, English & Tamil.
- 15 54 Yesudian Gnananatha, Teacher, Sawyerpuram, English & Tamil.
- 16 103 Simon Peter, Pupil, Sawyerpuram Training Institution, English & Tamil.
- 17 92 Abraham Yesudian, Teacher, Sawyerpuram, English & Tamil.
- 18 { 55 Salem Ramakrishna Iyer, Teacher, Caste Girls' School, Oosoor, English & Tamil.
52 Vellore Coomaraswamy Pillay, Teacher, Talag School, Erode, English & Tamil.
- 20 108 Kannathikkal Natak Kandi Happa, Pupil, Normal School, Calicut, English & Malayalam.
- 21 41 Kojuvattam Mooneswamy Mudelly, Pupil, Govt. Normal School, Vellore, English & Tamil.
- 22 109 Thirakattil Kailon Kunhi Kuttu, Teacher, Talag School, Badagery, English & Malayalam.
- 23 46 Pallconda Madava Row, Pupil, Govt. Normal School, Vellore, English & Tamil.
- 24 43 Vellore Venkata Ramiah, Pupil, Govt. Normal School, Vellore, English & Tamil.
- 25 105 Vanji Narayana Iyyan, Pupil, Practising School, Calicut, English & Malayalam.

2. The undermentioned candidates have passed the above tests in English, but not in the Vernacular.

FOURTH GRADE.—First Class.

- 1 48 Richard Franklin, Pupil, Govt. Normal School, Vellore, English.

Second Class.

- 1 71 S. Vanamartinaden Venkata Subbramaniam Pillay, Pupil, Govt. Normal School, Trichinopoly, English.

SCHOOLMISTRESSES' EXAMINATION.

The undermentioned Candidates have passed at the late Teachers' Certificate Examination the complete tests in writing prescribed for Schoolmistresses' Certificates of the 1st and 2nd Grades.

FIRST GRADE.—Second Class.

- 1 249 Ann Shanmugam, Teacher, Govt. Female Normal School.—English and Tamil.

SECOND GRADE.—First Class.

- 1 256 Margaret Shanmugam, pupil, Govt. Female Normal School.—English and Tamil.
- 2 The undermentioned Candidates have passed the tests in writing for Schoolmistresses' Certificates of the 1st, 2nd and 3rd Grades, in one language only.

FIRST GRADE.—First Class.

- 1 120 Mary Rosario, teacher, Convent Girls' School, Mangalore.—English.
- 2 251 Maria Adeline Scott, pupil, Govt. Female Normal School.—English.
- 3 250 Ellen Bazely, do do do do.
- 4 { 127 Jessie Elizabeth Gordon, teacher, Davidson Street Girls' School, Madras.—English.
359 Maria Court, pupil teacher, Doveton Girls' School.—English.

Second Class.

- 1 34 Eliza Clavidge, Late teacher, W. M. Girls' School, Bangalore.—English.
- 2 122 Ignacie Rosario, teacher, Convent Girls' School, Mangalore.—English.
- 3 { 330 Lydia Briznall, teacher, St. John's School, Bangalore.—English.
357 Sarah Louisa White, pupil, W. Miss. Mixed Day Sch.—do.
345 Jane Amelia Hudson, do do do do.
6 104 Mary Frances Harringer, teacher, Coonor Day School.—English.
7 139 Julia Brown, pupil, Davidson Street Girls' School.—English.
8 129 Grace Rose Scott, pupil, do do do.

SECOND GRADE.—First Class.

- 1 318 Agnes Ellen Flynn, Private Sandy.—English.
- 2 258 Grace Kennedy, pupil, Govt. Female Normal School.—English.
- 3 257 Priscilla Pedroza, pupil, Practising School.—English.
- 4 11 Ayesha Violet Smith, pupil, Christ Church School, Nellore.—English.
- 5 95 Eva Lee, pupil, Lawrence Asylum, Ootacamund.—English.
- 6 252 Ranga Naick, pupil, Govt. Female Normal School.—Telugu.

Second Class.

- 1 113 Liza Pattakara, pupil, Basel German Mission Girls' Boarding School, Calicut.—Malayalam.
- 2 109 Delphina Eleanor Barboza, pupil, St. Joseph's Convent School, Calicut.—English.
- 3 114 Elise Kalletta, pupil, Basel German Mission School, Calicut.—Malayalam.
- 4 54 Elizabeth Foster, pupil, Coimbatore Day School.—English.
- 5 133 Georgina Selina Carter, pupil, Davidson Street Girls' School.—English.
- 6 370 Laura Gaudoin, pupil, Emmanuel Church School.—English.
- 7 369 Fanny Unger, pupil, do do do do.
- 8 184 Annam Ammal, teacher, Girls' Day School, F. C. M. Society.—Tamil.
- 9 39 Alice Sepiah Wells, pupil, Remount Depot School, Oosoor.—English.
- 10 199 Mary Nicholas, pupil, St. F. Xavier's School, Madras.—English.
- 11 132 Martha Simpson, pupil, Davidson Street Girls' School.—do.
- 12 254 Esther Saverimuttu, pupil, Govt. Female Normal School.—Tamil.

- 133 161 Caroline James, pupil, St. John's School, Bangalore.—English.
 134 134 Lydia Gordon, pupil, Davidson Street Girls' School.—do.
 135 38 Eliza Margaret Glineson, pupil, Remount Depot School, Coosoper.—English.

THIRD GRADE—First Class.

- 1 246 Eliza Adelaide Tod, pupil, Government Female Normal School.—English.
 2 57 Laura Stephenson, pupil, Coimbatore Day School.—English.
 3 { 3 Emily Paul, Teacher, London Mission Girls' School Bellary.—
 Canarosa.
 3 Saramadial Evelyn Hughes, pupil, Manganapuram Girls' English
 Tuxford School.—Tamil.
 3 124 Cleilda Fernandez, pupil, Convent Girls' School, Mangalore.—
 English.
 6 { 167 Arno Joshua, pupil, Female Boarding School, Free Church
 Mission.—Tamil.
 90 Johanna Melcomb, pupil, Manganapuram Girls' English Tuxford
 School.—Tamil.
 8 { 89 Aroslai Dale, do do do do.
 86 Maryal Sandford, do do do do.
 10 88 Selvam Burbridge, do do do do.
 11 87 Katie, do do do do.
 12 { 213 Mary Caroline Maiden, pupil Mrs. Kohlhoff's Seminary.—
 English.
 119 Hannah Spadigara, pupil, Basel G. M. Girls' Boarding School
 Calicut.—Malayalam.
 14 { 78 V. Sasannah, pupil, Sarah Tucker Female Training Institution,
 Palamcottah.—Tamil.
 189 Elizabeth Samuel, pupil, Girls' Day School, Free C. M. Society.—
 Tamil.
 197 Rajam, pupil, Indian Instruction Society's Normal School.—
 Telugu.
 17 { 143 Emma Esther Carter, pupil, Davidson street, Girls' School
 Madras.—English.
 67 Gnanammol Pamela, pupil, Sarah Tucker Female Training
 Institution, Palamcottah.—Tamil.
 96 Elizabeth Perkins, pupil, Lawrence Asylum, Ootacamund.—
 English.
 77 Annie Maria, pupil, Sarah Tucker Female Training Institution
 Palamcottah.—Tamil.
 21 { 190 Emily Peter, Teacher, Madras Poor School, Tamil.
 356 Maude Scriven, pupil, Wesleyan Mts. Mixed Day School.—Eng.
 23 { 91 Gnanamei Wilhelmina, pupil, Manganapuram Girls' E. Tux-
 ford School.—Tamil.
 70 S. Annamalai, pupil, Sarah Tucker Female Training Institution,
 Palamcottah.—Tamil.
 26 { 87 Mary McGavin, pupil, Lawrence Asylum, Ootacamund.—English.
 290 Gnanavolivo Mary Umma, Girls' Boarding School, St Thomas'
 Mount.—Tamil.
 117 Edith Burgess, pupil, Basel G. M. Girls' Boarding School, Cali-
 cut.—Malayalam.

- 326 Adelaide Cruickshanks, Private Study.—English.
 28 { 223 Susan Mahoney, pupil, Presentation Convent.—English.
 235 Augusta Fonseca, do do do.
 31 { 263 Emily Pouch, pupil, Military Female Orphan Asylum.—English.
 168 Elizabeth Venkatakrishnaiah, pupil, Female Boarding School,
 Free Church Mission.—English.
 3 { 209 Lucy Palman, pupil, Presentation Convent.—English.
 63 Salome Santhai, pupil, Sarah Tucker Female Training Institution
 Palamcottah.—Tamil.
 31 { 11 Virginia Rosario, pupil, St. Joseph's Convent Sch., Calicut.—Eng
 99 Emma Tocher, pupil, Lawrence Asylum, Ootacamund.—English.
 17 Hannah Parthasaradi, pupil, Female Boarding School Free
 Church Mission.—Tamil.
 262 Christianna O'Brien, pupil, Military Female Orphan Asylum, Eg.
 37 { 31 S. Elizabeth, pupil, American Arcot Mission Girls' Seminary,
 Chittore.—Tamil.
 92 Elizabeth Frances, pupil, Manganapuram Girls' E. Tuxford
 School.—Tamil.
 173 Seshammal, pupil, Girls' Day School Free Ch. Mission.—Tamil.
 75 Mary Pakkiam, pupil, Sarah Tucker Female Training Institution,
 Palamcottah.—Tamil.
 41 { 84 Harriet Pakkiam, pupil, do do do do Tamil.
 216 Leda Lyons, pupil, Mrs. Kohlhoff's Seminary.—English.
 26 S. Paripuram, pupil, American Arcot Mission, Girls' Semi-
 nary, Chittore.—Tamil.
 98 Minnie Montgomery, pupil, Lawrence Asylum, Ootacamund.—
 English.
 144 Evangeline Kitto, pupil, Davidson Street Girls' School, Madras.
 —English.
 47 { 263 Anna Blake, pupil, Roman Catholic School, Palaveram.—English.
 72 Leah, pupil, Sarah Tucker Female Training Institution, Palam-
 cottah.—Tamil.
 227 Georgiana Fernig, pupil, Presentation Convent.—English.
 375 Grace Gatton, pupil, Emmanuel Church School.—English.
 50 { 118 Thamar Lea, pupil, Basel G. M. Girls' Boarding School, Calicut.
 —Malayalam.
 146 Augusta Caroline Burton, pupil, Davidson Street Girls' School,
 Madras.—English.
 53 { 208 Florence Rodrigues, pupil, Presentation Convent.—English.
 109 Eliza Thomas, pupil, Lawrence Asylum, Ootacamund.—English.
 238 Anne D'Rosario, pupil, Presentation Convent.—English.
 55 { 305 Rose Chase, teacher, London Mission Hindu Girls' School
 Black Town.—Tamil.
 69 Sarah Annampel, pupil, Sarah Tucker Female Training Insti-
 tution, Palamcottah.—Tamil.
 58 { 331 Camilla Georgiana Gilles, pupil, Christ Church Girls' School,
 Madras.—English.
 153 Clara Bay, pupil, Davidson Street Girls' Sch., Madras.—English.
 204 Maude Brass, pupil, St. Francis Xavier's Sch., Madras.—English.
 299 Vadooramba Ammal, pupil, London Mission Hindu Girls' School,
 Vepery.—Telugu.
 62 { 160 Esther Lazarus, pupil, Female Boarding School, F. C. Mission.—
 Tamil.
 76 Rachel, pupil, Sarah Tucker Female Training Institution, P. lam-
 cottah.—Tamil.

- 65 { 81 Mary Christina, pupil, Sarah Tucker Female Training Institution, Palamcottah.—Tamil.
74 R. Chinnappa, pupil, do. do. do. do.
211 Mabel Lyons, pupil, Mr. Kohlhoff's Seminary.—English.
- 63 { 110 Alice Margaret Barboza, pupil, St. Joseph's Convent School, Calicut.—English.
174 Annamal Chockamural, pupil, Girls' Day School, Free Church Mission.—Tamil.
173 Sophia Venkatarangam, pupil, Female Boarding School, Free Church Mission.—Tamil.
- 71 { 79 Mary Annal, pupil, Sarah Tucker Female Training Institution, Palamcottah.—Tamil.
85 Colpillai, teacher, Kadachapuram Girls' Day School.—English.
112 Grace Ruth Carroll, pupil, Davidson Street Girls' School, Madras.—English.
- 71 { 145 Sophia Adelaide Barton, pupil, do. do. do. do.—English.
311 Elizabeth Nursinga Rao, pupil, London Mission Girls' School, Vaniambady.—English.
- 73 { 15 Jane Louisa Walton, pupil, Christ Church Girls' School, Nellore.—Tamil.
141 Anna Barrow, pupil, St. Joseph's Convent Sch., Calicut.—Tamil.
- 78 { 58 Vera Stephenson, pupil, Coimbatore Day School.—Tamil.
250 Mable Placott, pupil, Military Female Orphan Asylum.—Tamil.
- 80 { 157 Caroline Amelia Hill, pupil, Davidson Street Girls' School, Madras.—Tamil.
73 Kate, pupil, Sarah Tucker Female Training Institution, Palamcottah.—Tamil.
- 82 { 279 Charlotte O'Keefe, pupil, Devonon Girls' School.—English.
116 Irene Sileri, pupil, Basel A. M. Girls' Boarding School, Calicut.—Malayalam.
- 83 { 233 Sophia D'Souza, pupil, Presentation Convent.—English.
242 Varalakshmi, pupil, Government Female Normal Sch.—Telugu.
123 Gertrude Subbathia, teacher, Convent Girls' School, Mangalore.—English.
- 80 { 301 Rajathia Annal, pupil, London Mission Hindu Girls' School, Vepery.—Tamil.
- 83 { 133 Mathia, pupil, Girls' Day School, F. C. M. Society.—Tamil.
44 Ananthkayi, pupil, S. P. C. Mission School, Tanjore.—Tamil.
- 89 { 339 Esther Ballantyne, pupil, Christ Church Girls' School, Madras.—English.
207 Annie Rodriguez, pupil, Presentation Convent.—English.
- 92 { 230 Rosa Golway, pupil, do. do. do. do.
41 Charlotte E. Westwood Martin, pupil, Resonant Depot School, Ootacamund.—English.
- 93 { 103 Henrietta Webster, pupil, Coonoor Day School.—English.
339 Ericothum Lazarus, pupil, Black Town Girls' Central School.—Tamil.
- 97 { 214 Louisa, teacher, Wesleyan Mission Girls' Boarding School, Royapettah.—Tamil.
229 Mary Arlet, pupil, Presentation Convent.—English.
264 Gertrude Carlows, pupil, Military Female Orphan Asylum.—English.
- 97 { 282 Alice Stagger, pupil, Durston Girls' School.—English.

- 267 Julia Jones, pupil, Military Female Orphan Asylum.—English.
328 Sarkoonum, teacher, Black Town Girls' Central School.—Tamil.
101 { 101 Amelia Hopkins, pupil, Lawrence Asylum, Ootacamund.—English.
64 Caroline O'Brien, pupil, Coimbatore Day School.—English.

SECOND CLASS.

- 1 { 195 Amarthum Arumainayagam, pupil, Indian Instruction Society's Normal School.—Tamil.
233 Mary D'Vaz, pupil, Presentation Convent.—English.
319 Catharine M. Goodall, Private study.—English.
- 4 { 132 D. Sarah, pupil, American Arcot Mission Girls' Seminary, Chittoor.—Tamil.
175 Annamunoo Annal, pupil, Girls' Day School F. C. Mission.—Tamil.
- 4 { 203 Eugenia Casmier, pupil, Presentation Convent.—English.
241 Parvathi, pupil, Govt. Female Normal School.—Tamil.
316 Agnes, pupil, Wesleyan Mission Girls' Boarding School, Royapettah.—Tamil.
- 9 { 33 Rajammah, pupil, Lou. M. Hindu Girls' School, Vepery.—Telugu.
352 Grace Florence Whitwell, pupil, Wesleyan Mission Mixed Day School.—English.
- 11 { 313 Hannah Shadrach, teacher, Wesleyan Mission Girls' Boarding School, Royapettah.—Tamil.
- 12 { 361 Chinammal, pupil, London Mission Hindu Girls' School, Vepery.—Tamil.
105 Annie E. Antony, pupil, Coonoor Day School.—English.
- 14 { 150 Adelaide Ruth Christian, pupil, Davidson Street Girls' School, Madras.—English.
237 Nora Lavelle, pupil, Presentation Convent.—English.
- 15 { 239 Elsie Leah, pupil, Presentation Convent, do.
- 17 { 219 Barbara H. E. Durieu, pupil, Mrs. Kohlhoff's Seminary.—English.
- 13 { 237 Jane Caroline Martin, pupil, Christ Church Girls' School, Madras.—English.
- 19 { 162 Agnes Bantleman, pupil, St. John's Girls' School, Bangalore.—English.
- 20 { 80 Mary Annamoni, pupil, Sarah Tucker Female Training Institution, Palamcottah.—Tamil.
- 21 { 247 Mary Macartoon, pupil, Practising Sch., Female Norl. Sch.—Eng.
280 Sarah Duffy, pupil, Devonon Girls' School.—English.
- 23 { 217 Laura Amelia Coombes, pupil, Mrs. Kohlhoff's Seminary.—Eng.
- 34 { 293 Esther Paul, teacher, London Mission Girls' Boarding School, Vepery.—English.
323 Grace Henrietta Harvey, pupil, Union School John Pereira's.—English.
- 26 { 365 Elizabeth Perry, pupil, Military Female Orphan Asylum.—English
- 27 { 147 Gertrude Beatrice Dixon, pupil, Davidson Street Girls' School, Madras.—English.
- 28 { 236 Jane Parker, pupil, Presentation Convent.—English.
231 Rosa Trotter, pupil, Devonon Girls' School. do.
- 30 { 175 Nagarathnam Annal, pupil, Girls' Day School Free Church Mission.—Tamil.
61 Constance Barnett, pupil, Coimbatore Day School.—English.

- 32 { 2 Annie W. Jagannatham, Private study.—English.
49 Mary Annamal, pupil, S. P. G. Mission School, Anvikadu.—Tamil.
- 34 { 18 Sarah Eliza White, pupil, Christ Church Girls' School, Nellore.—English.
315 Emily, pupil, Wesleyan Mission Girls' Boarding School, Royapetta.—Tamil.
- 36 { 335 Mabel Theodosia Gilles, pupil, Christ Church Girls' School, Madras.—English.
33 A. Lydia, pupil, American Arcot Mission Girls' Seminary, Chittoore.—Tamil.
- 38 { 338 Annie Charlotte Jacobsz, pupil, Christ Church Girls' School, Madras.—English.
292 Rachel Jones, teacher, London Mission Girls' Boarding School, Vepery.—English.
- 39 { 324 Ada Daweltz, pupil, Union School, John Pereira's.—English.
103 Henrietta Moore, pupil, Lawrence Asylum, Ootacamund.—English.
- 42 { 350 Fannie Alice Sheppard, pupil, Weston Mission Mixed Day School.—English.
177 Ralasoodrums Ammal, pupil, Girls' Day School Free Church Mission.—Tamil.
- 44 { 178 Carpagum Ammal, do do do do.
43 Damzaandi, pupil, S. P. G. Mission School, Tanjore.—Tamil.
- 45 { 322 Jane Victoria Kiernan, pupil, Union School, John Pereira's.—English.
373 Charlotte Mainwaring, pupil, Emmanuel Church School.—English.
- 47 { 298 Hulda Samuel, pupil, London Mission Girls' Boarding School Vepery.—English.
302 Rathnamal, pupil, London Mission Hindu Girls' School, Black Town.—Tamil.
- 50 { 291 Angelina Rodrigues, pupil, St. Francis Xavier's School, Madras.—English.
309 Louisa Augusta Walker, pupil, Wesleyan Mission Girls' School Bangalore.—English.

R. M. MACDONALD,

Director of Public Instruction.

MADRAS, 20th September 1876.

NOTES ON COWPER'S TABLE TALK.

INTRODUCTION.—*Principal Events of Cowper's Life.*—William Cowper was born in 1731, at Berkhamstead, in Hertfordshire. He received the latter part of his education at Westminster School, on leaving which he entered the office of a London solicitor. His progress, however, in the study of the law was inconsiderable, and was completely interrupted by the coming on of mental derangement. In 1765, he formed that congenial acquaintance with Mrs. Unwin and her family, which so soothed and comforted him during the remaining years of his life; and he accompanied them in their removal to Olney, in Buckinghamshire, in the year 1767. In this town he lived many years, and here he became an author for the first time, at the advanced age of fifty. He died on the 5th of April, 1800.

Principal Works.—The most admired of Cowper's poems, independently of his numerous graceful and lively small pieces, are those entitled, "Truth," "Hope," "The Progress of Error," "Expostulation," "Conversation," and, above all, "The Task."

Characteristic Spirit and Style.—"The nature of Cowper's works makes us peculiarly identify the poet and the man in perusing them. As an individual, he was retired and weaned from the varieties of the world; and, as an original writer, he left the ambitious and luxurious subjects of fiction and passion for those of real life and simple nature, and for the development of his own earnest feelings, in behalf of moral and religious truth.

His language has such a masculine idiomatic strength, and his manner, whether he rises into grace or falls into negligence, has so much plain and familiar freedom, that we read no poetry with a deeper conviction of its sentiments having come from the author's heart, and of the enthusiasm in whatever he describes, having been unforged and unexaggerated. He impresses us with the idea of a being whose fine spirit had been long enough in the mixed society of the world to be polished by its intercourse, and yet withdrawn so soon as to retain an unwordly degree of purity and simplicity.

He was advanced in years before he became an author; but his compositions display a tenderness of feeling so youthfully preserved, and even a vein of humour so far from being extinguished by his ascetic habits, that we can scarcely regret his not having written them at an earlier period of life, for he blends the determination of age with an exquisite and ingenious sensibility; and though he sports very much with his subject, yet, when he is in earnest, there is a gravity of long-felt conviction in his sentiments, which gives an uncommon ripeness of character to his poetry.

It is due to Cowper to fix our regard on this unaffectedness and authenticity of his works, considered as representations of himself; because he forms a striking instance of genius writing the history of its own secluded feelings, reflections, and enjoyments, in a shape so interesting as to engage the imagination like a work of fiction. He has invented no character in fable, nor in the drama; but he has left a record of his own character, which forms not only an object of deep sympathy, but a subject for the study of human nature.

His verse it is true, considered as such a record, abounds with opposite traits of severity and gentleness, of playfulness and superstition, of solemnity and mirth, which appear almost anomalous; and there is undoubtedly sometimes an air of moody versatility in the extreme contrasts of his feelings. But looking to his poetry as an entire structure, it has a massive air of sincerity; it is founded in steadfast principles of belief; and, if we may prolong the architectural metaphor, though its arches may be sometimes gloomy, its tracery sportive, and its lights and shadows grotesquely crossed, yet altogether it still forms a vast, various, and interesting monument of the builder's mind.—PAYNE'S *Studies in English Poetry*.

'*Si te forte, &c.*' If perchance the heavy load of my papers ever burden thee, throw them away.

Cowper's Poem of TABLE TALK was begun in 1780. It is so named because it descants upon various topics in the desultory manner common at table after or during meals, passing "from grave to gay,

from lively to severe." (For Cowper's application of the word see verse 151.) The poem takes the form of a dialogue between two imaginary personages A and B. The following summary of it is given in the Globe Edition of Cowper's Poems:—

"A and B begin to converse about true and false Glory, then pass on to the duties, difficulties, and shortcomings of kings. A hints that B might turn his verse to useful account by propounding therein some plan for paying the national debt, but is told that even the engineering skill of Brindley could not turn Helicon to such a purpose. "Let us, at all events," says A "have something practical. Why does a Briton love liberty?" This leads to a discussion of the English character, and of the use and abuse of liberty. B takes a gloomy view of the present position of England, but A reminds him that a like view was widely prevalent just when Lord Chatham's wonderful successes began. "Yet that view was correct," replies B, "and if Sir got the mastery of the nation the gloomy prognostications will yet come true." The growing passion of the verses excites A's notice, and this leads to a descent upon the functions of the Poet, and this again to the present condition of English Poetry. The bard holds that there is one new field into which the Poet may enter, namely, Religion.

"All other themes are sped,
Hacknerved and worn to the last flimsy thread."

1. 'You told me so.' The poet commences in the middle of the conversation supposed to be taking place between A and B. A here refers to some talk that had passed between them on a previous occasion.

'Deeds.' Nom. to are and. The deeds are stark naught. Noun sentence, object of told.

4. 'Stark naught.' Utterly worthless. Stark is now used adverbially only with adjectives *naked* and *mad*, but in Spenser we find "stark blind" and in Sidney we find the expression in the text "stark naught," e. g., "Then are the best but stark naught."

'Stark' is also used as an adjective in the expression "stiff and stark," it is cognate with *starch*, both coming from the Anglo Saxon *sterco* = strong.

5. 'Strange doctrine this.' The construction is here inverted for emphasis.

Tears' Tears away.

6. 'The laurel that the very lightning spares.' "There was a very old but erroneous idea that lightning will not strike laurel. The emperor Tiberius used to wear a wreath of it when a thunder storm threatened. Byron cleverly throws a symbolical meaning into this notion:—

"For the true laurel-wreath which glory weaves
Is of the tree no bolt of thunder cleaves."

CHILDE HAROLD, VI. 14.—Globe Edition.

7. 'The very lightning.' Even the lightning; the lightning itself relentless as it is.

8. 'Rue.' In what case is this noun?

11. 'The rule.' I. e., that military glory is shameful.

'Drench.' Causative of *drink*.

'Parnassus.' Mount Parnassus was considered by the Greeks to be the sacred abode of Apollo and the Muses, the inspirers of poetry. Hence "drenched in pure Parnassian dews" = celebrated by the poets.

17. 'Plants it; &c.' Determines to abide by the right.

19. 'Virtues.' Here used with reference to its original meaning of *manliness* or what is excellent in a man. Cowper is fond of using Latin words in their original sense.

'Man.' Mankind.

21. 'Displays.' Unfolds.

22. 'Feats.' Deeds. *Fact* and *feat* are cognate words, both coming from the L. *facio*, to make.

'Wrought.' By metathesis from worked. The letter *r* often thus changes its position. Cf., *burnt* and *brand*; *iron*, pronounced *tern* purpose and propose.

'Stout.' Strong, brave.

'Hearts.' Synecdoche for heroes.

'At their country's side.' Fighting for (i. e. on the side of) their country.

25. 'Moved.' Roused to admiration and sympathy.

26. 'Takes not fire.' Is not stirred with patriotic ardour.

23. 'Kind.' Nature. Cf. "the kindly fruits of the earth" = the natural fruits of the earth.

With these verses compare Scott's well known lines:—

"Breathes there a man with soul so dead," &c.

'To nought but his ambition true.' Regardful of nothing but his own ambition. (*But* is here a prep. = except.)

Cowper probably alludes to Frederick the Great, King of Prussia, who died in 1786. Macaulay thus stigmatizes the war which he waged with Maria Theresa for the province of Silesia. "Frederick determined to commit the great crime of violating his plighted faith, of robbing the ally whom he was bound to defend, and of plunging all Europe into a long, bloody and desolating war; and all this for no end whatever, except that he might extend his dominions and see his name in the gazettes."

His own words are 'ambition, interest, the desire of making people talk about me, carried the day, and I decided for war.'....The whole world sprang to arms. On the head of Frederick is all the blood which was shed in a war which raged during many years, and in every quarter of the globe, the blood of the column of Pontenoy, the blood of the mountaineers, who were slaughtered at Culloden. The evils produced by his wickedness were felt in lands where the name of Prussia was unknown; and, in order that he might rob a neighbour whom he had promised to defend, black men fought on the coast of Coromandel, and red men scalped each other by the Great Lakes of North America."

'Post-horns.' Used by metonymy for gazettes. In the last century, the postmen who brought the letters gave notice of their approach by blowing a horn. Cf:—

Hark! 'tis the twanging horn o'er yonder bridge,
That with its wearisome but needful length,
Bestrides the wintry flood, in which the moon
Sees her unwrinkled face reflected bright,
He comes, the herald of a noisy world,
With spattered boots, scuffed waist and frozen locks,
News from all nations lumbering at his back.—Cowper's Task Et. IV.

39. 'The globe and sceptre.' The insignia of regal dignity. Compare Macbeth:—

"Some I see

That two-fold balls and triple sceptres carry."

40. 'Ensigns.' Signs, insignia.

41. 'The glass.' Death is generally represented as a skeleton with an hour-glass in one hand and a scythe in the other.

42. 'Speak.' Bespeak, symbolize.

43. 'Grace.' Decorate. 'The bony phantom.' Death. 'In their stead.' Instead of the globe and sceptre.

44. 'Shoulder knot.' The epaulette, a badge of a military or a naval officer worn on the shoulder.

45. 'The twin brethren.' Death and the king.

46. 'Their occupation.' The destruction of men. Compare what Cowper says of kings in *The Task*, Book V, lines 220—222.

48. 'Self-same.' Self was formerly an adj. = same. *Self-same* is therefore tautological.

49. 'Yours.' Your belief. *Theirs*. Their belief.

[Compare Pope's *Essay on Man*:—

While man exclaims, 'See all things for my use!'

'See man for mine!' replies a pamper'd goose;

And just as short of reason he must fall,

Who thinks all made for one, not one for all.]

(To be continued.)

MATHEMATICAL SECTION.

[The following problems are taken from Wolstenholme's collection. Their solutions may be interesting to our Mathematical readers. The collection contains some of the stiffest problems we have met with, and even the solutions of the following would, probably, not be obvious to those who have not a tolerably large experience in dealing with such.]

The sign $\equiv$ will be found. It is used by Mr. Wolstenholme for an identity, while he restricts the ordinary sign(=) to equations of condition. The sign $\equiv$ is the symbol of identity.]

I. Prove that

$$(1) \quad 1 - n \frac{1+x}{1+nx} + \frac{n(n-1)}{[2]} \cdot \frac{1+2x}{(1+nx)^2} - \frac{n(n-1)(n-2)}{[3]} \\ \times \frac{1+3x}{(1+nx)^3} + \dots \dots \dots = 0$$

$$(2) \quad 1 + 3 \left(\frac{2n+1}{2n-1} \right) + 5 \left(\frac{2n+1}{2n-1} \right)^2 + \dots \dots \dots \\ + (2n-1) \left(\frac{2n+1}{2n-1} \right)^{n-1} \equiv n(2n-1)$$

$$(1) \quad \text{Since } 1 - \frac{1}{1+nx} = \frac{nx}{1+nx}$$

$$\left(1 - \frac{1}{1+nx} \right)^n = \frac{nx}{1+nx} \left(1 - \frac{1}{1+nx} \right)^{n-1}$$

$$\therefore 1 - \frac{n}{1+nx} + \frac{n(n-1)}{[2] (1+nx)^2}$$

$$- \frac{n(n-1)(n-2)}{[3] (1+nx)^3} + \&c.$$

$$= \frac{nx}{1+nx} \left\{ 1 - \frac{n-1}{1+nx} + \frac{(n-1)(n-2)}{[2] (1+nx)^2} \right.$$

$$\left. - \frac{(n-1)(n-2)(n-3)}{[3] (1+nx)^3} + \&c. \right\}$$

$$= \frac{nx}{1+nx} \left\{ 1 - \frac{2(n-1)}{[2] (1+nx)} + \frac{3(n-1)(n-2)}{[3] (1+nx)^2} \right.$$

$$\left. - \frac{4(n-1)(n-2)(n-3)}{[4] (1+nx)^3} + \&c. \right\}$$

Transposing and collecting together fractions with common denominators we get

$$1 - n \cdot \frac{1+x}{1+nx} + \frac{n(n-1)}{[2]} \cdot \frac{1+2x}{(1+nx)^2} \\ - \frac{n(n-1)(n-2)}{[3]} \cdot \frac{1+3x}{(1+nx)^3} + \&c. = 0$$

The number of terms in the expansion of the right hand member of the equation being n and these being collected with the corresponding last n terms of the left hand member.

(2) For $\frac{2n+1}{2n-1}$ put x . Then the expression becomes

$$1 + 3x + 5x^2 + \dots + (2n-1)x^{n-1}$$

Let s be the sum of this series. Then

$$s = 1 + 3x + 5x^2 + \dots + (2n-1)x^{n-1}$$

$$\therefore xs = x + 3x^2 + \dots + (2n-3)x^{n-1} + (2n-1)x^n$$

$$\therefore s(1-x) = 1 + 2x + 2x^2 + \dots + 2x^{n-1} - (2n-1)x^n$$

$$= 2(1+x+x^2+\dots+x^{n-1}) - 1 - (2n-1)x^n$$

$$= 2 \frac{1-x^n}{1-x} - 1 - (2n-1)x^n$$

$$= \frac{2(1-x^n) - (1-x) - (2n-1)x^n(1-x)}{1-x} \text{ which by}$$

$$\text{reduction} = \frac{(1+x)(1-x^n) - 2nx^n(1-x)}{1-x}$$

$$= \frac{1+x}{1-x} (1-x^n) - 2nx^n$$

Now in this identity put $\frac{2n+1}{2n-1}$ for x and

therefore $-2n$ for $\frac{1+x}{1-x}$ and $-\frac{2}{2n-1}$ for $1-x$.

$$\therefore s \times -\frac{2}{2n-1} = -2n(1-x^n) - 2nx^n$$

$$s = -2n$$

$$\therefore s = n(2n-1)$$

$$\text{Therefore } 1 + 3\left(\frac{2n+1}{2n-1}\right) + 5\left(\frac{2n+1}{2n-1}\right)^2$$

$$+ \dots + (2n-1)^n \left(\frac{2n+1}{2n-1}\right)^{n-1} \equiv n(2n-1).$$

II. Determine the values of a, b, c, d, e in order that the n^{th} term in the expansion of

$$\frac{a + bx + cx^2 + dx^3 + ex^4}{(1-x)^5} \text{ may be } n^4 x^{n-1}$$

Expanding $(a + bx + cx^2 + dx^3 + ex^4)(1-x)^{-5}$ we get

$$\times (1 + 5x + \frac{5 \times 6}{1 \cdot 2} x^2 + \frac{5 \times 6 \times 7}{1 \cdot 2 \cdot 3} x^3 + \&c).$$

Now as the n^{th} term may denote any term suppose it to be successively the term involving x^0, x^1, x^2, x^3, x^4 , in the given product. Then we get the following equations for determining a, b, c, d, e :-

$$(1) \quad a = 1$$

$$(2) \quad 5a + b = 2^4 = 16$$

$$(3) \quad 15a + 5b + c = 3^4 = 81$$

$$(4) \quad 35a + 15b + 5c + d = 4^4 = 256$$

$$(5) \quad 70a + 35b + 15c + 5d + e = 5^4 = 625.$$

From these equations the values of a, b, c, d, e are readily found to be $a = 1; b = 11; c = 11; d = 1; e = 0$. Introducing these values into the given expression we get for the coefficient

of the term involving $x^{n-1}, \frac{n(n+1)(n+2)(n+3)}{1 \cdot 2 \cdot 3 \cdot 4}$

$$+ \frac{11(n-1)n(n+1)(n+2)}{1 \cdot 2 \cdot 3 \cdot 4} + \frac{11(n-2)(n-1)n(n+1)}{1 \cdot 2 \cdot 3 \cdot 4}$$

$$+ \frac{(n-3)(n-2)(n-1)n}{1 \cdot 2 \cdot 3 \cdot 4}.$$

Taking the first two and last two of these terms together, this expression becomes

$$\frac{1}{1 \cdot 2 \cdot 3 \cdot 4} \left\{ (n+1)(n+2)(12n^2 - 8n) + (n-2)(n-1)(12n^2 + 8n) \right\}$$

$$= \frac{1}{1 \cdot 2 \cdot 3 \cdot 4} \left\{ (n^2 + 3n + 2 + n^2 - 3n + 2) 12n^2 \right.$$

$$\left. + (n^2 - 3n + 2 - n^2 - 3n - 2) 8n \right\}$$

$$= \frac{1}{1 \cdot 2 \cdot 3 \cdot 4} \left\{ (2n^2 + 4) 12n^2 + 48n^2 \right\}$$

$$= \frac{24n^4}{1 \cdot 2 \cdot 3 \cdot 4} = n^4 \quad \text{Hence the required condition is satisfied.}$$

III. The sum of the first $r+1$ coefficients of the expansion of $(1-x)^{-m}$ is equal to $\frac{m+r}{m} \frac{1}{1-x}$

$$(1-x)^{-m} = 1 + mx + \frac{m(m+1)}{1 \cdot 2} x^2 + \dots$$

$$+ \frac{m(m+1) \dots (m+r-1)}{1 \cdot 2 \cdot 3 \dots r} x^r + \&c.$$

$$(1-x)^{-1} = 1 + x + x^2 + \dots + x^r + \&c.$$

Now the product of these two series being identical with the expansion of $(1-x)^{-m-1}$, the coefficients of like powers of x are equal. Equating the coefficient of x^r in the product of these series and in the expansion of $(1-x)^{-(m+1)}$ we get

$$1 + m + \frac{m(m+1)}{1 \cdot 2} + \dots + \frac{m(m+1) \dots (m+r-1)}{1 \cdot 2 \cdot 3 \dots r}$$

$$= \frac{(m+1)(m+2) \dots (m+r)}{1 \cdot 2 \cdot 3 \dots r}, \text{ and multiplying numerator}$$

and denominator of this fraction by $[m]$ we get for the sum required $\frac{m+1}{[1][2]}$.

IV. (a) Prove that

$$2^n = (n-1) 2^{n-2} + \frac{(n-2)(n-3)}{[2]} 2^{n-4} \\ - \frac{(n-3)(n-4)(n-5)}{[3]} 2^{n-6} + \dots \equiv n+1.$$

$$(b) 1 - (n-1) \frac{m}{(1+m)^2} + \frac{(n-2)(n-3)}{[2]} \frac{m^2}{(1+m)^4} \\ - \frac{(n-3)(n-4)(n-5)}{[3]} \frac{m^3}{(1+m)^6} + \dots \equiv \frac{m^{n+1} - 1}{m-1} \frac{1}{(m+1)^n}$$

$$(c) (p+q)^n = (n-1)(p+q)^{n-2}pq \\ + \frac{(n-2)(n-3)}{[2]} (p+q)^{n-4}p^2q^2 - \frac{(n-3)(n-4)(n-5)}{[3]} \\ \times (p+q)^{n-6}p^3q^3 + \dots \equiv \frac{p^{n+1} - q^{n+1}}{p-q}$$

(d) Since $\frac{1}{(1-2x)+x^2} \equiv \frac{1}{(1-x)^2} \equiv (1-x)^{-2}$ we have by expanding both members of this identity.

$$\frac{1}{1-2x} = \frac{x^2}{(1-2x)^2} + \frac{x^4}{(1-2x)^3} - \frac{x^6}{(1-2x)^4} + \&c. \\ \equiv (1+2x+3x^2+4x^3+\&c.)$$

Expanding the terms of the left hand member

$$(1+2x+3x^2+2^2x^3+\&c.) - x^2(1+2 \times 2x+3 \times 2^2x^2+\&c.) \\ + x^4(1+3 \times 2x + \frac{3 \times 4}{[2]} \times 2^2x^2 + \frac{4 \times 5}{[2]} 2^3x^3 + \&c.) - \&c. \\ \equiv (1+2x+3x^2+4x^3+\&c.)$$

Equating the coefficients of x^n in this identity we have

$$2^n = (n-1) 2^{n-2} + \frac{(n-3)(n-2)}{[2]} 2^{n-4}$$

$$- \frac{(n-5)(n-4)(n-3)}{[3]} 2^{n-6} + \&c. \equiv n+1.$$

$$(b) \text{ Since } \frac{1}{1-(1+m)x+mx^2} \equiv \frac{1}{1-mx} \times \frac{1}{1-x}$$

Expanding both sides of this identity

$$\frac{1}{1-(1+m)x} = \frac{mx^2}{\{1-(1+m)x\}^2} + \frac{m^2x^4}{\{1-(1+m)x\}^3} - \&c. \\ \equiv (1+mx+m^2x^2+m^3x^3+\dots)(1+x+x^2+\dots)$$

Expanding the terms of the left hand member

$$\{1+(1+m)x+(1+m)^2x^2+\&c.\} - mx^2\{1+2(1+m)x+ \\ 3(1+m)^2x^2+\&c.\} + m^2x^4\{1+3(1+m)x \\ + \frac{3 \times 4}{[2]}(1+m)^2x^2+\&c.\} - m^3x^6\{1+4(1+m)x \\ + \frac{4 \times 5}{[2]}(1+m)^2x^2+\&c.\}$$

$$\equiv (1+mx+m^2x^2+m^3x^3+\dots)(1+x+x^2+\dots)$$

Equating the coefficients of x^n we have

$$(1+m)^n = (n-1)m(1+m)^{n-2} + \frac{(n-3)(n-2)}{[2]} m^2(1+m)^{n-4} \\ - \frac{(n-5)(n-4)(n-3)}{[3]} m^3(1+m)^{n-6} + \&c. \equiv$$

$$m^n + m^{n-1} + m^{n-2} + \dots + m+1 \equiv \frac{m^{n+1}-1}{m-1}$$

Dividing both sides by $(1+m)^n$ we get

$$1 - (n-1) \frac{m}{(1+m)^2} + \frac{(n-3)(n-2)}{[2]} \frac{m^2}{(1+m)^4} \\ - \frac{(n-5)(n-4)(n-3)}{[3]} \frac{m^3}{(1+m)^6} \equiv \frac{m^{n+1}-1}{m-1} \times \frac{1}{(1+m)^n}$$

$$(c) \text{ Since } \frac{1}{1-(p+q)x+pqx^2} \equiv \frac{1}{1-px} \times \frac{1}{1-qx}$$

Expanding both sides we get

$$\frac{1}{1-(p+q)x} = \frac{pqx^2}{\{1-(p+q)x\}^2} + \frac{p^2q^2x^4}{\{1-(p+q)x\}^3} - \&c.$$

$$\equiv (1 + px + p^2 x^2 + p^3 x^3 + \dots) (1 + qx + q^2 x^2 + \dots)$$

Expanding the left hand member

$$(1 + (p + q)x + (p + q)^2 x^2 + \dots) - pqx^2 (1 + 2(p + q)x + 3(p + q)^2 x^2 + \dots)$$

$$+ p^2 q^2 x^4 (1 + 3(p + q)x + \frac{3 \times 4}{1 \cdot 2} (p + q)^2 x^2 + \dots)$$

$$+ \frac{4 \times 5}{1 \cdot 2} (p + q)^3 x^3 + \dots - \&c.$$

$$\equiv (1 + px + p^2 x^2 + \dots) (1 + qx + q^2 x^2 + \dots)$$

Equating the coefficients of x^n in this identity

$$(p + q)^n - (n - 1)(p + q)^{n-2} pq + \frac{(n - 3)(n - 5)}{1 \cdot 2} (p + q)^{n-4} p^2 q^2 - \dots$$

$$\times (p + q)^{n-6} p^3 q^3 + \dots \&c.$$

$$\equiv p^n + p^{n-1} q + p^{n-2} q^2 + \dots + p^2 q^{n-2} + p q^{n-1} + q^n$$

$$\equiv \frac{p^{n+1} - q^{n+1}}{p - q}$$

∴ If p be nearly equal to q , then will $\frac{p + 2p}{p + 2q}$ be nearly 1.

$$\text{to } \sqrt[3]{\frac{p}{q}}$$

Let $p = q + x$ where x is a very small quantity

$$\text{Then } q + 2p = q + 2(q + x) = 3q + 2x$$

$$\text{And } p + 2q = q + x + 2q = 3q + x$$

$$\therefore \frac{q + 2p}{p + 2q} = \frac{3q + 2x}{3q + x} = 1 + \frac{x}{3q + x} = 1 + \frac{1}{3} \frac{x}{q} \text{ nearly}$$

$$\text{Again } \sqrt[3]{\frac{p}{q}} = \sqrt[3]{\frac{q + x}{q}} = \left(1 + \frac{x}{q}\right)^{\frac{1}{3}}$$

$$= \left(1 + \frac{1}{3} \frac{x}{q} - \frac{1}{9} \times \frac{1}{3} \frac{x^2}{q^2} + \&c.\right)$$

$$= 1 + \frac{1}{3} \frac{x}{q} \text{ nearly}$$

For x being very small compared to q the fraction $\frac{x}{q}$ is very small

and in approximating to the value of $\left(1 + \frac{x}{q}\right)^{\frac{1}{3}}$ we may omit the higher powers than the first of $\frac{x}{q}$. Hence

$$\frac{q + 2p}{p + 2q} = \sqrt[3]{\frac{p}{q}} \text{ nearly.}$$

VI. If $\frac{(1 + x)^n}{(1 - x)^r}$ be expanded in ascending powers of x , the coefficient of x^{n+r-1} is $(n + r) 2^{n-1}$, n and r being positive integers (including zero),

$$\frac{(1 + x)^n}{(1 - x)^r} \equiv (1 + x)^n (1 - x)^{-r}$$

$$\equiv \left(1 + nx + \frac{n(n-1)}{1 \cdot 2} x^2 + \dots\right)$$

$$\times (1 + 2x + 3x^2 + \dots)$$

The coefficient of x^{n+r-1} in this product is $(n + r) + n(n-1)$

$$+ \frac{n(n-1)}{1 \cdot 2} (n + r - 2) + \dots + n(n + r - n - 1) + (n + r - n)$$

That is :-

$$(n + r) \left\{ 1 + n + \frac{n(n-1)}{1 \cdot 2} + \dots + n + 1 \right\} \\ = \left\{ n + 2 \frac{n(n-1)}{1 \cdot 2} + 3 \frac{n(n-1)(n-2)}{1 \cdot 2 \cdot 3} + \dots + n \right\}$$

That is $(n + r) \times 2^n$

$$\left\{ 1 + (n-1) + \frac{n(n-1)(n-2)}{1 \cdot 2} + \dots + 1 \right\} \\ = (n + r) 2^n - n \times 2^{n-1} \\ = 2n \times 2^{n-1} + 2r \times 2^{n-1} - n \times 2^{n-1} \\ = (n + 2r) \times 2^{n-1}$$

Q.E.D.

MATRICULATION CLASS.

ALGEBRA.

I. Simplify $\left\{ 5^{2n} \left(2^{2n+1} + 2^{2n} \right) + 7^{2n} \left(2^{2n+2} - 2^{2n} \right) \right\}$

$\times \left\{ \frac{2^{2n-1} + 2^{2n-2}}{2^{2n+1} - 2^{2n}} - \frac{2^{2n-1} + 2^{2n-2}}{2^{2n+2} - 2^{2n}} \right\}$; and shew that it ends in

two ciphers, if n be any positive integer.

II. Given that the division of $x^3 + ax^2 + bx^2 + ax - 81$ by $x - 3$ leaves a remainder $30 + 39b$; prove that

$$\frac{a^2 - b^2 - 1}{3} = \frac{a^2 + b^2 - 1}{2}.$$

III. The difference between the $(2p + 1)^{th}$ and $2p^{th}$ terms in the division of x^2 by $1 + x^2$ is x^{2n} , $(1 + x^2)$. Find the value of n .

IV. The expressions $x^3 + ax + 4$ and $x^2 + x + c$ have a common factor of the form $x + p$. Find a .

V. Find, in the simplest form, the value of

$$\frac{a^2}{b+c} + \frac{b^2}{a+c} + \frac{c^2}{a+b}, \text{ when } \frac{a}{b+c} + \frac{b}{a+c} + \frac{c}{a+b} = 1.$$

VI. If $\frac{c(1-bc)}{b+c} = \frac{ac(1-ac)}{a+c}$, then (1) each

$$= \frac{ab(1-ab)}{a+b}; \text{ (2) and prove that}$$

$$\frac{a(b^2 - c^2)}{(b^2+1)(c^2+1)} + \frac{b(c^2 - a^2)}{(c^2+1)(a^2+1)} + \frac{c(a^2 - b^2)}{(a^2+1)(b^2+1)} = 0.$$

VII. If a number contain n digits, its cube root will contain

$$\frac{1}{3} \left\{ 2n \pm 1 \right\} - (-1)^n \text{ digits.}$$

VIII. Find the square root of

$$4a^2 + 6 - \frac{36a^2 + 81a^2 + 81a + 4}{4a^2 + 16a^2 + 20a^2 + 21a + 9}$$

IX. Solve the following equations:—

$$(1) \frac{4x-3}{4x-5} - \frac{4x-7}{4x-9} = \frac{4x-11}{4x-13} - \frac{4x-15}{4x-17}.$$

$$(2) \frac{x^2+9a^2}{x+3a+\sqrt{6ax}} - \frac{x^2+25a^2}{x+5a+\sqrt{10ax}} = a.$$

$$(3) \frac{1}{x} + \frac{1}{y} + \frac{1}{z} = a + b + c;$$

$$\frac{2c}{x} + \frac{2b}{y} + \frac{2a}{z} = a^2 + b^2 + c^2 + ab + ac + bc;$$

$$\frac{a-b}{x} + \frac{c-a}{y} + \frac{b-c}{z} = 0.$$

X. P and Q set out from two stations m and n at the same time, and travel in opposite directions. The place where they meet is 15 miles nearer n than m ; if P had travelled two miles an hour slower and Q two miles an hour faster, they would have met 10 miles farther from n ; but if, when P reached the middle point of the course (with his original speed), they had interchanged their rates of walking, they would have met 10 miles nearer n than m . Find their rates of travelling, and the distance between m and n .

(The solutions will appear in our next.)

CORRESPONDENCE.

TO THE EDITOR OF THE JOURNAL OF EDUCATION.

Sir,—Kindly let me know through your Journal what is meant by a ship being built on the "wave-line" principle, and farther explain Telology. Both of these occur in Spencer's Tractate on Education, set for the B. A. of 1877.

I remain,

Yours sincerely,

C. A. G.

NEUCHÂTEAU, 12th September 1876.

[The wave-line principle is a theory in devising the form of a ship first propounded by Mr. John Scott Russell in 1842, by which he determines the curve which will allow the water displaced by the ship's bow to roll along the sides with the least possible resistance to the ship's progress. It is called the wave-line principle, from some analogy which he considers to exist between it and the form of waves.

Telology is the doctrine of final causes, i.e., of special ends, motives, purposes. The meaning of the word may perhaps be best learned from Dugald

Stewart's illustration of the value of Teleology as an organ of physical discovery.

"To understand the structure of an animal body, it is necessary not only to examine the construction of the parts, but to consider their functions; or in other words, to consider their ends and uses. Nor indeed, does the most accurate knowledge of the former, till perfected by the discovery of the latter, afford satisfaction to an inquisitive and scientific mind. Every anatomist, accordingly, whatever his metaphysical creed may be, proceeds in his researches upon the maxim that no organ exists without its appropriate destination; and although he may often fail in his attempts to ascertain what this destination is, he never carries his scepticism so far, as for a moment, to doubt of the general principle. I am inclined to think, that it is in this way the most important steps in physiology have been gained; the curiosity being constantly kept alive by some new problem in the animal machine; and, at the same time, checked by its wanderings, by an irresistible conviction, that nothing is made in vain.—Ed. M. J. R.

A Correspondent enquires how he may obtain the *Vedantahayatra* reviewed in our July number. The Manager of the periodical is Mr. Sakharara Parashuram, Pandit, Office of the "Indu Prakash," Bombay, who will answer all enquiries.

SCHOOL DISCIPLINE.

(Concluded from page 360.)

And now I must pass on to another part of my subject, and inquire by what means this school order can be best produced and maintained. It is, indeed, a very difficult question, and I approach it with considerable diffidence; indeed the whole question of discipline is an unpleasant one for a practical schoolmaster to treat of in public, since most of us are standing examples of failure of plans. Moreover, the writing thus in the middle of a busy school term, seems to me like an attempt to write a description of a battle on the field, while the fight is going on around. One's ideas and feelings are dragged first to one side and then to another, and one feels inclined to crowd the page with details and incidents which, however instructive and interesting—for nothing interests like personal anecdote—might have been in as questionable taste as the recent publication of the Greville Journals. I will remember how on a similar occasion, some time since, I introduced an anecdote to illustrate some remark I had made in which a proper name should have appeared. I ran over the whole alphabet in my mind, and at last fixed on a letter for an initial which I thought was safe from misconstruction. What was my horror on being reminded, after I had read the paper, that the name of a friend, whom I had not in my mind at the time, but to whom my anecdote might have applied, began with the unfortunate initial I had chosen. Luckily the paper did not fall within his reach, or doubtless he would have fitted the ready-made cap.

I have said that the training of the individual will regulate the means by which the discipline is enforced. And here let me pay a passing tribute to Mr. Herbert Spencer. His chapter on Moral Education I consider to be most valuable,—not perhaps because it

contains anything new, but because it lays down clearly the principles on which we ought to act, if we wish to produce self-governing beings. "To educate rightly is," he says, "a complex and very difficult thing." Well, if it is so with the individual, how much more with a large body. We must take into consideration, too, the fact that the majority of children who come to school have not been educated by parents who have studied and striven to copy Nature's method. It is my opinion that parents, generally speaking—and I by no means exclude school-masters themselves—are bad educators of their own children. Their affection warps their judgment. They go to the extremes of mildness and severity. Weak love impels to the former; love, mingled with disappointment at unrealized hopes which ought never to have been indulged in, produces the latter.

Those who have read Mr. Spencer's Essay will remember that all his examples are drawn from home life. Had they been taken from school life, I think we should have seen the impossibility of carrying out to the letter his dictum, that the natural reactions, the true consequences of children's conduct, must be neither warded off, intensified, or have artificial consequences put in place of them. Now, that this dictum is pleasant, is admirable, theoretically correct, few may perhaps deny; but will any master in a large school tell us that it can be worked? Of course it is not very probable (to use Mr. Spencer's examples) that a mania would seize a hundred boys to lay hold of fire-bars, thrust their hands into candles, or spill boiling water over themselves; but one can imagine a rage for gun-powder, tobacco, or even gin and water. Nature says, "Let them be burned, let them be sick, let them have headaches and other pains." By all means, I say. Nay, let Ossa be piled upon Pelion; let them have all the consequences at once; and yet we must still further intensify the consequences, because not only have the individuals themselves to suffer for their sins, but it is necessary that the safety of the community be consulted; it is necessary, moreover, that an example be set to deter others from following in the steps of the offenders. We know how hard a thing it is to learn from the experience of others, and we recognise how much we lose by our inability so to learn. I think boys may be assisted by putting an example before them of intensified consequences, though the natural consequences should not only not be disguised, but should be carefully pointed out.

I have at times looked into a journal, boasting the largest circulation in the world, which deals in the romantic, the sensational, I might even add the fictitious—a journal which delights in the wonderful, whether at the distant Khiva, or on our own shore; and there I have learnt that there exist schools in which punishments are unheard of. Besides feeling rather doubtful as to the fact, I do not think such schools are to be commended. I am certain that large boarding schools cannot be carried on without punishments; nor do I think it advisable that one of the most valuable means of education should be ignored. Of course, I admit that the better the school, or the master, the less the punishment; but, before punishment should disappear, both should be perfection.

Among some of my early notions on discipline, was one that it is much better to prevent a boy breaking a law, than to punish him for breaking it. In most cases I hold the reverse now. Moreover, I

used to think that it was quite sufficient to tell a boy not to do a thing again, and quite unnecessary to punish him for a first offence. I have since discovered that telling a boy not to commit a certain act again, may, if one's influence is sufficient, prevent him from repeating it; but it has very little effect on his 300 companions. I see two or three boys lying on the damp ground; I tell them to get up and not to be so foolish again. Ten minutes later I come by and find three or four others doing the same. But suppose, on the other hand, instead of telling the first offenders to get up, I make an endeavour by means of my walking cane to counteract the chill which I fancy is creeping over their foolish limbs; I know that boys have so much sympathy with one another, that these will give a warning to their companions about to commit the same offence, of the unpleasantness of the reaction. No, we cannot always leave the punishment in Nature's hands, because of our own imperfections. Nature is patient, and can afford to wait; we are impatient, and demand retribution at once, as a warning to others. Thus we intensify the natural consequences in some cases, while in other cases, as Mr. Spencer allows, where there is a risk of broken limbs, or other serious injury, forcible prevention is necessary, and this, in many cases, can only be done by interposing artificial consequences at once. Let us take a case of habitual idleness. Nature's own punishment for this is not felt till years after. This will not do for us, because of the seriousness of the consequences, and because of the delay; we accordingly impose a penalty founded on Nature's principle, and declare that the inevitable shall not be avoided; if an allotted task is not done at one time, it must be performed at another. But this course of action cannot long be continued with the same boy, and artificial punishment must be had recourse to. The objections to artificial punishment I quite feel. They irritate both sides: the boy fails to see the connection between cause and effect, and feels aggrieved; the master is irritated because the result produced is so slight, and because he perhaps feels that he is not quite sure he has punished wisely.

But there is a more important objection to them, for they do little permanent good, and when the power of imposing them is removed, the check is at an end. There are some perhaps who would raise the same objection to personal influence, in a slight degree, and it must be allowed to have some weight. Our duty, of course, is to teach our boys a rule of action which will guide them when all domestic and school restraint is removed.

Having, then, arrived at the conclusion that artificial punishments are necessary in a school, I would enquire how they can be made most effective and least objectionable. I think the true principle is that they should be as near as possible akin to the offence. Many actions which are a pleasure when indulged in voluntarily, are a punishment when enforced. I remember being told by a Captain of a Training Ship in the Thames, that when he caught any of the boys chewing tobacco, he punished them in kind. On one occasion, a boy declared that he had rather go without his meals than give up the practice: the Captain took him at his word, supplied him with strong Pigtail, instead of food, and saw that he chewed it. The culprit ultimately changed his mind. So I have at times found boys chasing one another up and down staircases, out of bounds, and

have made them stand where I have found them for a couple of hours. I have never seen other boys playing theracabats, so long, at least, as my scarecrows have had to remain; and I think the said scarecrows have appreciated the quasi-natural form of the punishment, and have felt that I was not unfair.

Severity is no essential part of a good punishment, but certainly and quickness is. A punishment which is spread over a long period is more irritating, but not nearly so effective as one which is soon over; and this is, to my mind, one great argument for the use of the cane. My experience is that boys dislike the pain inflicted by that weapon, but that they do not dislike it as a form of punishment; and on more than one occasion, when I have had to set an imposition of some kind, boys have asked me if they might not have so many pats with the cane instead. The journal to which I have before referred, is, I am told, most strongly opposed to all corporal punishments, as being degrading and brutalizing. I must confess to thinking that there is a great deal of sentimental nonsense talked and written on this score. If I were not a school master, I could, I imagine, build a very pretty rose-water theory of discipline, in which the rod and other such punishments would entirely disappear; but my experience leads me to think that I should violate my principles as soon as I came to put them into practice. Not that I approve of the indiscriminate use of the rod in the classroom—the effect in the hands of most men is very pernicious, though the patient temper of the few may well be trusted. There are boys to whom the rod does a moral injury, there are others whose natures seem to require it. To discriminate wisely is our difficult but imperative duty; and this duty is rendered doubly difficult by the necessity we are under of both being and appearing just. If half-a-dozen boys have committed the same offence, they will think it very unfair if the same punishment is not given to all; and yet the punishment set, say it is so many lines, may take one boy four times as long to learn as it will another. In such a case it is wise to be unfair in order to appear fair; but with single cases the boy's nature and capabilities should be taken into account. A disgrace which will cause one boy's amusement, will break another boy's heart. I can call to mind a remarkable and somewhat amusing instance of the ignoring the differences of natures. Some 20 years ago I was at school at a fashionable watering-place in the South of England, and in the same town some near relatives were being educated at an "Establishment for Young Ladies." On more than one occasion I spent the evening with them, and I recall with singular pleasure—for now, even as then, I love this world's sweets—the brimstone and treacle which came round at prayers for the moral and physical improvement of all. I say "moral improvement" advisedly, because such was the simplicity of the régime which obtained in this school, that when a girl was fractious or had scored a certain number of bad marks during the week—I believe the cause was not taken into consideration—a dose of Gregory Powder was prescribed for the delinquent. One smiles when one thinks of this piece of quackery, though for my own part I suspect that, from the quantity and quality of the exercise then in vogue at girls' schools, in nine cases out of ten the supposed cause of the misbehaviour was the true one.

Let me now say a few words on a more serious form of punishment—expulsion. The question as to whether a boy ought to be expelled from a school or not, is often a most difficult one to decide. The gain and loss to the school have to be weighed against the gain and loss of the individual. It is so important a matter from all points of view, that I think in most cases the Head-Master will do well to consult his Assistants—his own conscience will thus be set at rest, and a mistake will seldom be made. A despotic Tory friend of mine used to have a very summary mode of procedure. If a boy came to him who seemed inclined to break the rules of his house occasionally, and to be of a somewhat idle disposition he used to say that his school was not a reformatory, and that the offender had better go. I cannot reconcile myself to the belief that the Sage quite did his duty.

To find really good artificial punishments, is no very easy matter. Detention, learning by heart, writing lines, and such like impositions are all open to the objection, that they deprive boys, and sometimes masters, of exercise, and therefore often increase the evil which they are designed to remedy; for worry and over hours of work produce dulness and nervous irritability, in both master and boys. Writing lines is open, too, to the objection that it spoils the hand writing. This may be obviated by leaving the quality of the writing count as a quantity—a plan I have heard suggested by Mr. Quick. Suppose for instance, 500 lines have been set as an imposition; it is given up in batches of 50, and according to the style of writing, each batch is valued at a greater or less number than the actual quantity. Another plan which is sometimes adopted, is to set so many pages of round-hand in a copy-book—this cannot very well be scamped. If the system of detention *par et simple* be adopted, I am of opinion that it is most effective when a number of boys are kept in silence without the consolation of even a lesson book; the being compelled to sit perfectly idle without a chance of going to sleep, is most irksome to boys. I mention this plan without recommending it. There is, however, one form of punishment to which the preceding objections do not apply, and that is drill under a sergeant for an hour or half-hour, as the case may be. This has all the advantages of detention without depriving boys of their exercise; indeed it is physically advantageous.

And now let me add a few words regarding ourselves. Let us take care that all our orders are reasonable, and not lay on our boys shoulders burdens greater than they can bear. Let us be firm, consistent, and unflinchingly just. Let us, if we would have a mastery over others, have a perfect mastery over ourselves—not only over our tempers, but over our tongues. One ill-advised sarcasm may cause more ill-feeling than any amount of impositions. Let us, at all times, beware of behaving as passionless instruments when punishing the wrong-doer, by so doing we deprive the punishment of more than half its sting. Let us be kindly affectioned to all; but while affection alone is our true guide for younger children, unwavering politeness is a never-failing check with elder boys.

In conclusion, I would claim your indulgence for a somewhat rambling paper, which of necessity has been put together at odd times. But for an event, which we all alike regret—the death of

our friend, Professor Payne—I should, I am sure, have been able to have offered you something more worthy of your consideration. It was his intention to read a paper himself on School Discipline, had not illness prevented him; and after I had been asked to undertake the subject, I was contemplating a visit to him to learn his views, when I heard that he was no more. I share with you the feelings of regret at the loss of so careful a thinker and so earnest a man; but, as an old pupil of his, I claim to feel a greater loss. To me he was ever all kindness, all gentleness, and by his death has been snapped a tie of such sort as can never be re-woven into my life. His example of persevering industry, of burning enthusiasm, stands brightly before us; and so firmly has he impressed on the minds of those who knew him the maxims of the science he so dearly loved, that of no man more truly can we say, "He being dead yet speaketh."

PROFESSOR HUXLEY ON THE TEACHING OF SCIENCE IN SCHOOLS.

(Concluded from page 369.)

He would now approach the question of science in relation to schools. Having formed an ideal, and knowing what was essential to the sound teaching of science, they had to consider how far was it desirable to introduce this teaching into the schools, how far was it possible to do it, and, if possible, what were the conditions and limitations under which it could be done. With respect to the advisableness of it, he did not think, looking at the question, in the abstract, he needed to enlarge upon that. He did not think anybody could be found to seriously oppose the proposition that a boy or girl should not leave school absolutely unable to understand the commonest phenomena of nature, absolutely unable to comprehend the commonest complaints of our social life. Again, he did not think any one would seriously object that it was not advisable, if possible, that young people should get something of that sort of discipline they had been talking of. It was not well that they should go through their whole educational career without understanding that there was some authority in the world beyond books and teachers—that there were such things as facts in the world—natural facts; and that it was possible in very simple and easy ways to ascertain things for themselves. He could not but think that if young people were constantly disciplined and trained in that habit of accurate observation, learning to mistrust their immediate impressions and warned against mixing hypotheses with observation of fact, they would be better prepared to do their duty in life when they left school, than they were now. There was an insatiable curiosity in man, one of those faculties that he shared with his poorer relations in the lower world—a source of sorrow and one of his highest pleasures. Whether they approved or not of it, it was perfectly certain that it existed, and the mind of a child especially was given by nature to speculate and form hypotheses of everything that came within its reach; and if they did not give it the means to form a right, it would certainly form a wrong hypothesis, such as they called superstitions and the like. It appeared to him that it was

eminently desirable, as far as might be, that the speculative notions and inquiries of children should be satisfied, and that their speculative notions should be sound. Suppose that, in walking along the beautiful sands at Northbeale, one of the children they were instructing picked up a shell and asked what that was. He supposed no one would have any doubt or difficulty in replying that the shell belonged to a sea animal, that the creature which had made it was dead, and that the shell had been thrown up on the beach. That was what the most unscientific mind could not be ignorant of. So far the child's curiosity was satisfied in a proper manner. But if the child further asked—How did all the sand come there? He was not sure that it might always get so satisfactory an answer to that question; but let them suppose that the person possessed some common sense, and replied that the sand had come by the washing and wearing of the coast, and had been thrown up by the tides. In this way the child got a remote notion of natural operations. But suppose from this object they turned round and looked at that beautiful view, which he was never tired of gazing at—Arthur Seat, Salisbury Crags, Calton Hill, and so forth, and the child being inquisitive asked how this came to be. The question might be answered in three ways—first, Don't ask foolish questions—second, I don't know—and third, God made it. Each of these answers, in the sense in which the child understood the thing, was a distinct harm to that child. The first answer was a mortal harm, because it tended to repress the spirit of inquiry and desire for instruction. The second answer was harmful, because it might give the child to suppose that this was so difficult a question that a person of the intelligence and authority of its teacher might not be expected to be able to answer it; and the third answer was harmful, because it led the child to suppose that Arthur Seat and Salisbury Crags and all the rest of it came into existence by some agency different from that by which the beach was produced and by which the shell was cast upon the beach. A teacher should have such instruction in elementary geology as to be able to say with perfect confidence—he did not mean to explain to the child in technical geological language the exact relation these masses of rock had to the different periods of the world's history—but that he might say that these rocks were records of very singular operations and agencies which once took place there. By active volcanoes, and flows of lava, and action of water, and various natural agencies, these had been sculptured and shaped into their present order. There could be no difficulty in getting ideas of that kind into a child's head, and in that way its knowledge was increased, its justifiable curiosity was satisfied, and, more important than that, the idea of the unity of the operations of nature, and the uniformity as a whole of all such operations, had struck yet another root into the child's mind. He ventured to take it as desirable that science should be taught in schools; and now came the question whether it was possible. What they called possibilities and impossibilities had frequently a relation to the condition of things that existed, ignoring the question whether these conditions could be altered or not. He knew it to be lamentably true that at the present time of young people was very full—in fact, he thought it was very considerably overburdened. The world at present was going examination mad. He was glad to get that response from practical teachers. They were

gradually ceasing to care for learning, the one thing they did care for was to pass examinations. But there was no reason why that should not be altered. There was no divine law which had settled that subjects of education should be what they were at present. If he were to discuss the value of these subjects as compared with science he would enter a very large field—one he had touched on already elsewhere, and on which his notions were entirely unchanged. He did not care to discuss it at present, because, having occasion to watch the course of events very carefully during the last thirty years, he had begun to see in what direction the great social currents, if he might so say, of modern civilisation were setting. There was a time when he was very anxious about the introduction of scientific training into the schools, but he had ceased to be so. The tide had set that way, it was flowing as fast as it could flow, and if those who opposed themselves to it did not get out of the way they would be swept out. Granting the advisableness and possibility of getting scientific instruction, they might proceed to consider what, out of the enormous diversity of things that would be included under that head, would do better to be selected, and what method of teaching, or rather what course of teaching, would do better to be adopted. Here he thought they were quite safe in following the guidance of nature and the guidance of history. If they paid any attention to the history of science, they would see that its progress had been perfectly well marked. People had begun by acquiring an exact knowledge of the common phenomena of things which did not require much previous knowledge, and they had gone on making that knowledge more accurate, and gradually building up science out of common observation. They could not draw the boundary, and say where common observation ended and where science began. The one was simply a perfection of the other. He took it that they must follow the course of history in attempting to teach science to the young. They must begin with the common and familiar properties of things, by degrees enlarge upon these as the faculties of the children became more comprehensive, and build upon that foundation the system of knowledge they called science. He did not know that any foundation of science could be laid better than that which might be based upon a glass of water. If it were his business to teach a class of young people, he would be disposed to begin with such a common thing as that, and exemplify by the help of it the nature of water and the contrast of the properties of the fluid with the solid. He thought he would be disposed to give a rough explanation why some things floated in it, and other things sank in it. He would be inclined to show the different states of that water, and compare it with other bodies in their different states. Then he would go on to water in nature, and there would be no difficulty whatever in explaining in an elementary way and sufficient for the purpose the nature of rivers, rain, snow, hail, the difference of ocean as compared with fresh water, and the great mechanical operations of water. He would speak of the power of water as a transferring agent, and the manner in which it carried away material and laid the foundation for new land—in fact, from that foundation, without having recourse to a single technical term or abstract idea, they might build up not only elementary conceptions of physics and chemistry, such as a child's mind was prepared to accept, but build up very competent notions

of elementary physical geography. As a child advanced in knowledge of acutaneous and powers of reasoning, then they might make the knowledge a little more exact, and extend it to a wider area, but he would accompany that with demonstrations of the facts so far as practicable, making the student observe the phenomena of nature for himself. In that way not only would he gain a large amount of instruction, but there would be cultivated the power of observation and reasoning, and, what was more important, he would gain confidence in the use of the reasoning powers of his mind. After having acquired some good notions of elementary physics and chemistry, his impression was that the next best study was human physiology, he meant in an elementary shape. That might appear at first sight to be rather an anomalous proposition, but yet, when they came to think of it, they would find that it was not so. Of course, to be a physiologist in the highest sense of the word, to be a perfectly technical physiologist, was quite another matter. While it was so difficult to understand advanced physiology, it was not difficult to comprehend elementary physiology—and for one reason among the rest, that the subject of their inquiries was their own bodies, and they could always have it at hand. They could demonstrate and feel in themselves the living action going on. This could be done, especially if it were supplemented by practical instruction. He did not want in that place to touch upon the subject of sundry unhappy controversies, but he did not wish them to go away with the notion that he was altogether a lunatic. It had been said, and repeated for years, that he had recommended that the children in schools who were learning elementary physiology should be encouraged to see and to perform the very difficult and complex experiments by which the higher truths of physiology were demonstrated. He could speak with great charity about the persons who had said this, because it could only arise from the grossest ignorance. He meant that no one who knew anything about the matter could tell a falsehood of this kind. It was too gross and too patent. If those who had circulated a statement of that kind understood what physiological experimenting meant, and what sort of appliances, knowledge, and dexterity were needed, the whole thing would be seen to be simply childish and absurd. The practical instruction which he had recommended was that sort of anatomical knowledge which could be gained without the slightest difficulty by the ordinary materials of the butcher's shop. By sheep's heart, for the purpose of elementary physiology, they could explain the structure of the human heart, and so on with the other organs. He did not say that would do for the professed student of human physiology, but to give elementary instruction the materials were amply sufficient. He had thought it right to take this occasion of explaining exactly what he meant in that elementary book of his which had been so terribly travestied. He did not suppose any of them would have believed the contrary, but he hoped all would take it now upon his authority that that was exactly what he meant. The extent to which they would carry this teaching would depend upon the time which could be given to it. If the time was given to the teaching of science that was allowed to the teaching of classics—he did not say whether that was desirable or not—there was not the smallest doubt that the boy of eighteen could be turned out of school a man of science in the same sense that the

boy of eighteen was turned out a scholar. He supposed that for many years to come they would only get fractional part of the time which was devoted to teaching in general, but he would be quite content with not more than an hour a day, or about a sixth part of the time given to school instruction. If their instruction in science was to have a greater value than information afforded, to have the value of discipline, less time would not do. In conclusion, the Professor urged the emphatic necessity of the teacher of science knowing thoroughly what he taught, and referred to the deficiencies in this respect which were at present exhibited by the teachers in most of our schools.

PHYSICAL EDUCATION.

A Sketch of a Physical Course for Schools.

(Concluded from page 286.)

(5) *The General Manners and Deportment.*—I am sorry that I shall have to dismiss the remaining portions of my subject with the briefest suggestions. Another valuable part of Physical Education is the training of the general manners and deportment of the children. No education can be complete that does not train a child for mixing with ease, comfort, and correctness in society. We must, therefore, give thorough training in the usages, customs, and manners of good society, and the courtesies of life. And this training in manner is largely physical, for it is a training of the body to certain movements. Our children should be exercised so as to have at all times an erect, free, well-balanced, healthy, and, as far as possible, elegant bearing. The stiffness and constraint of military drill should be avoided, and the manner and style of good society and cultivated people followed.

The general attitudes of the children should, therefore, at all times receive careful attention. The common attitudes in our schools violate the principles of both physiology and taste, deteriorate the general bearing of the people, and injure the health, especially from the evils done to the chest and the spine. Every boy and girl in our Common Schools should leave school able to practise with ease all the courtesies of good society, in the street, in the house, at table, and in all the manifold relations of life. Errors in habits that violate good manners should be pointed out, and corrected. Our upper classes rightly place great importance on this training, and see to their children receiving it; I should like to see adequate stress put upon it in our Common Schools. By attention to it, our elementary teachers could effect a reformation and improvement of national manners that would be surprising; and no general improvement in the manner and bearing of our people will be effected except through our Common Schools.

(6) *The Training of the Senses and other Physical Powers.*—A most important part of physical education is the full, systematic, and scientific training of the Senses. On this subject I offer a few brief suggestions.

The Eye should be educated to distinguish, delight in, and name all varieties of color and form, and in composition, proportion, and symmetry. The observing powers of children should be carefully trained, so as to give them clearness, correctness, and incisiveness

of vision, and the power and habit of minute and accurate observation. Form and colour are well begun in our Infant Schools, but it should be perfect in our Elementary and Higher Schools by systematic lessons during the school course. Children should also be taken out to Nature, and trained to the right use of their eyes in that wide and wondrous field.

The Ear should receive careful and graduated training. Music is the chief agent, and should be taught in all schools, and, where it can be heard, instrumental music should be played to the children and accompany their voices. Reading is another means of training the ear, which should be able to distinguish and appreciate correctness of sound, accent, modulation, expression, and the finer tones of feeling. Reading should be viewed, in part, as a training of the ear. The general speech and utterance of the children should be well modulated and mild, as much as possible, musical, clear, distinct, and sweet. The Music of Nature should also be heard and appreciated by our children, and they should be taken out to nature to hear, and love it.

Touch can also receive training, and it can be educated to accuracy and delicacy of perception in our common children, as well as in the blind. Touch is one of our senses very little developed in our educational system. It can be educated in many ways, by lessons on objects, in which these should be handled, and the facts of touch carefully deduced and expressed. It is sometimes begun to be trained in Infant Schools.

Taste and Smell should receive similar exercise by lessons on things. They are senses little possessed by most people as they should and could be possessed. They may be made the sources of rest and even refined pleasure.

In our training of the Senses, we should aim at giving our children correctness, keenness, strength, and delicacy. The senses of most people are rude and uneducated, and can perceive only the rudest and strongest appeals made to them. We should aim at giving our children wider and firmer possession of their senses, and greater power of using to purpose and profit these "five gateways of knowledge."

Then the Hand should receive careful training, so as to give our children full power over that wonderful organ. It should be trained by writing, figuring, drawing, painting, cutting, and carving, and in modelling, digging, gardening, and the use of tools. Technical Education, so much and so deservedly advocated, is in large measure a training of the hand. Our girls should further extend their hand-power by all kinds of industrial work, domestic economy and housewifery, and provision should be made for the practical teaching of these subjects.

The Voice should also be systematically trained. Music is again the chief agent here. But more care should be bestowed on the general speech and utterance of the children, and on the use of the voice in reading and recitation. Children should be taught to render all shades of strength, modulation, and expression. The scale of speech should receive practice like the musical scale, for the speaking voice has a scale of sounds as complete in its range as the singing voice. The cries of the playground should be encouraged; they are a valuable exercise, and should not be checked, but encouraged; they

are a good means of training the voice. As Charles Kingsley says, the enforced silence of our schools in the playground is "an offence against reason."

III. PHYSICAL GOVERNMENT, OR THE REGULATION OF THE BODILY FUNCTIONS.—Even if our children were sent out into the world fully developed by such wide and systematic Physical Training as has been indicated, they would still be wanting in a vital part of Physical Education. They require to be taught and exercised in the regulation of their physical functions, in the principles and practice by which health and physical well-being are to be maintained. By giving them mere physical training, without the principles of physical government, we should give them the possession of a perfect instrument without any instruction or power as to its proper use.

This higher Physical Education may be given in two divisions. We must give instruction (1) in the different parts and action of their organism, and (2) in the principles that produce and maintain the healthy action of that organism—that is, we must give instruction in 1) Physiology, and (2) Hygiene, or Health.

1. *Physiology*.—We ought to have a knowledge, more or less complete, of the various organs of the body, and the functions they perform, individually and relatively. Happily, the importance of Physiology has been so well advocated by medical men and others, that grants are given by Government for its teaching, and it is included in the syllabus of the Science and Art Department, and in the New Scotch Code. It is to be hoped that the inducements thus held out will lead to its universal teaching. It promises to be a popular subject. Higher instruction should be given later in life by special classes and lectures, and our young women should have special instruction given to them.

2. *Hygiene or the Principles of Health*.—But a most important part, in many ways, of our Physical Education still remains to be given. We must be taught how to use our organism rightly, and how to govern it in order to preserve sound health. One would have thought that, whatever subjects were neglected, the subject of Health, so essential to our happiness and work, would certainly not have been forgotten. But so it is, and so it assuredly ought not to be. We should set ourselves to rectify our mistake in this vital matter. Increased attention has of late been paid to this subject, however, and its teaching has been largely and earnestly advocated. Its principles have been systematised for use in schools and families, and text-books have been written by which they can be easily and successfully taught. There is, therefore, no excuse for its neglect, as is the case with many other subjects required for our schools, for which no text-books have been produced. I would mention with special commendation Dr. Andrew Combe's works, Mrs. Bray's "Physiology for Schools" (Longmans), and a more exhaustive work, lately published by Dr. Smith, "Health, a Handbook for Households and Schools" (Isbister).

In order that Physiology and Health may be taught in our schools, proper diagrams and apparatus should be supplied by School Boards. There can be had very good and cheap. The Principles of Health also, require more attention than they have received in the construction of our schoolrooms as to situation, ventilation, lighting, colouring,

nize, &c. These principles, if acted upon by our teachers, would lead to many changes in the organisation and arrangements of schools. They have the widest application in these matters, and are more violated than those who have not looked into the subject would suspect. Nothing shows more conclusively the importance of the general study and practice of the Principles of Health than the ignorance of them displayed by our teachers, school architects, and school managers, who have the regulation and conduct of our school affairs.

In conclusion, the subject of Scientific Physical Education is of the very greatest importance, and should command the earnest attention of all educationists, reformers, statesmen, and philanthropists. It recommends itself on the pleas of humanity and patriotism. The national loss of health, physique, and mental and moral power, and the prevalence of serious diseases which arise from its neglect, have been proved by many sad and striking facts. Its principles should enter into and regulate all our educational appliances and methods, which, to an incredible extent, violate its laws, in premises, furniture, desks, attitudes, and work. These facts have been abundantly demonstrated by our medical men and others. Notwithstanding all its practical value, in a practical country like our own, England is far behind most other countries in regard to this part of education. The wave of reform on this subject, originated in Sweden by Ling, has been felt with more or less strength in most European countries and in America, and has roused them to action, but only the faintest ripples have reached England. We have remained lethargic as a nation, while others have been wisely active, even with so much gain to be achieved and such evils to be cured.

LIFE OF COLEBROOKE.

(From the Edinburgh Review.)

THE name and fame of Henry Thomas Colebrooke are better known in India, France, Germany, Italy—nay, even in Russia—than in his own country. He was born in London on the 15th of June, 1765; he died in London on the 10th of March, 1837; and if now, after waiting for thirty-six years, his only surviving son, Sir Edward Colebrooke, has at last given us a more complete account of his father's life, the impulse has come chiefly from Colebrooke's admirers abroad, who wished to know what the man had been whose works they knew so well. If Colebrooke had simply been a distinguished, even a highly distinguished, servant of the East India Company, we could well understand that, where the historian has so many eminent services to record, those of Henry Thomas Colebrooke should have been allowed to pass almost unnoticed. The history of British India has still to be written, and it will be no easy task to write it. Macaulay's 'Lives' of Oliver and Warren Hastings are but two specimens to show how it ought to be, and yet how it cannot be written. There is in the annals of the conquest and administrative tenure of India so much of the bold generalship of raw recruits, the statesmanship of common clerks, and the heroic devotion of mere adventurers, that even the largest canvas of the historian must dwarf the stature of heroes; and characters which, in the history of Greece or England, would stand out in bold relief, must vanish unnoticed in

the crowd. The substance of the present memoir appeared in the 'Journal' of the Royal Asiatic Society soon after Mr. Colebrooke's death. It consisted originally of a brief notice of his public and literary career, interspersed with extracts from his letters to his family during the first twenty years of residence in India. Being asked a few years since to allow this notice to appear in a new edition of his Miscellaneous 'Essays,' which Mr. FitzEdward Hall desired to republish, Sir Edward thought it incumbent on him to render it more worthy of his father's reputation. The letters in the present volume are, for the most part, given in full; and some additional correspondence is included in it, besides a few papers of literary interest, and a journal kept by him during his residence at Nagpur, which was left incomplete. Two addresses delivered to the Royal Asiatic and Astronomical Societies, and the narrative of a journey to and from the capital of Berar, are given in an appendix and complete the volume, which is now on the eve of publication.

Although, as we shall see, the career of Mr. Colebrooke, as a servant of the East India Company, was highly distinguished, and in its vicissitudes, as here told by his son, both interesting and instructive, yet his most lasting fame will not be that of the able administrator, the learned lawyer, the thoughtful financier and politician, but that of the founder and father of true Sanskrit scholarship in Europe. In that character Colebrooke has secured his place in the history of the world, a place which neither envy nor ignorance can ever take from him. Had he lived in Germany, we should long ago have seen his statue in his native place, his name written in letters of gold on the walls of academies; we should have heard of Colebrooke jubilees and Colebrooke scholarships. In England, if any notice is taken of the discovery of Sanskrit—a discovery in many respects equally important, in some even more important, than the revival of Greek scholarship in the fifteenth century—we may possibly hear the popular name of Sir William Jones and his classical translation of Sakuntala; but of the infinitely more important achievements of Colebrooke, not one word. The fact is, the time has not yet come when the full importance of Sanskrit philology can be appreciated by the public at large. It was the same with Greek philology. When Greek began to be studied by some of the leading spirits of Europe, the subject seemed at first one of purely literary curiosity. When its claims were pressed on the public, they were met by opposition, and even ridicule; and those who knew least of Greek were most eloquent in their denunciations. Even when its study had become more general, and been introduced at universities and schools, it remained in the eyes of many a mere accomplishment—its true value for higher than scholastic purposes being scarcely suspected. At present we know that the revival of Greek scholarship affected the deepest interests of humanity, that it was in reality a revival of that consciousness which links large portions of mankind together, connects the living with the dead, and thus secures to each generation the full intellectual inheritance of our race. Without that historical consciousness, the life of man would be ephemeral and vain. The more we can see backward, and place ourselves in real sympathy with the past, the more truly do we make the life of former generations our own, and are able to fulfil our own appointed duty in carrying on the work.

which was begun centuries ago in Athens and at Rome. But while the unbroken traditions of the Roman world, and the revival of Greek culture among us, restored to us the intellectual patrimony of Greece and Rome only, and made the Teutonic race in a certain sense Greek and Roman, the discovery of Sanskrit will have a much larger influence. Like a new intellectual spring, it is meant to revive the broken fibres that connected the South-Eastern with the North-Western branches of the Aryan family; and thus to re-establish the spiritual brotherhood, not only of the Teutonic, Greek, and Roman, but likewise of the Slavonic, Celtic, Indian, and Persian branches. It is to make the mind of man wider, his heart larger, his sympathies world-embracing; it is to make us truly *humaniores*, richer and prouder in the full perception of what humanity has been, and what it is meant to be. This is the real object of the more comprehensive studies of the nineteenth century, and though the full appreciation of this their true import may be reserved to the future, no one who follows the intellectual progress of mankind attentively can fail to see that, even now, the comparative study of languages, mythologies, and religions has widened our horizon; that much which was lost has been regained; and that a new world, if it has not yet been occupied, is certainly in sight. It is curious to observe that those to whom we chiefly owe the discovery of Sanskrit were as little conscious of the real importance of their discovery as Columbus was when he landed at St. Salvador. What Mr. Colebrooke did, was done from a sense of duty, rather than from literary curiosity; but there was also a tinge of enthusiasm in his character, like that which carries a traveller to the wastes of Africa or the ice-bound regions of the Pole. When there was work ready for him, he was ready for the work. But he had no theories to substantiate, no preconceived objects to attain. Sobriety and thoroughness are the distinguishing features of all his works. There is in them no trace of haste or carelessness; but neither is there evidence of any extraordinary effort, or minute professional scholarship. In the same business-like spirit in which he collected the revenue of his province, he collected his knowledge of Sanskrit literature; with the same judicial impartiality with which he delivered his judgments, he delivered the results at which he had arrived after his extensive and careful reading; and with the same sense of confidence with which he quietly waited for the effects of his political and financial measures, in spite of the apathy or the opposition with which they met at first, he left his written works to the judgment of posterity, never wasting his time in the repeated assertion of his opinions, or in useless controversy, though he was by no means insensible to his own literary reputation. The biography of such a man deserves a careful study; and we think that Sir Edward Colebrooke has fulfilled more than a purely filial duty in giving to the world a full account of the private, public, and literary life of his great father.

Colebrooke was the son of a wealthy London banker, Sir George Colebrooke, a Member of Parliament, and a man in his time of some political importance. Having proved himself a successful advocate of the old privileges of the East India Company, he was invited to join the Court of Directors, and became in 1769 chairman of the Company. His chairmanship was distinguished in history by the appointment of Warren Hastings to the highest office in India,

and there are in existence letters from that illustrious man to Sir George, written in the crisis of his Indian administration, which show the intimate and confidential relations subsisting between them. But when, in later years, Sir George Colebrooke became involved in pecuniary difficulties, and Indian appointments were successively obtained for his two sons—James Edward and Henry Thomas, it does not appear that Warren Hastings took any active steps to advance them, beyond appointing the elder brother to an office of some importance on his secretariat. Henry, the younger brother, had been educated at home, and at the age of fifteen he had laid a solid foundation in Latin, Greek, French, and particularly in mathematics. As he never seems to have been urged on, he learned what he learned quickly and thoroughly, trying from the first to satisfy himself rather than others. Thus a love of knowledge for its own sake remained firmly engrained in his mind through life, and explained much of what would otherwise remain inexplicable in his literary career.

At the age of eighteen he started for India, and arrived at Madras in 1783, having narrowly escaped capture by French cruisers. The times were anxious times for India, and full of interest to an observer of political events. In his very first letter from India Colebrooke thus sketches the political situation:—

'The state of affairs in India seems to bear a far more favourable aspect than for a long time past. The peace with the Mahrattas and the death of Hyder Ally, the intended invasion of Tippoo's country by the Mahrattas, sufficiently removed all alarm from the country powers; but there are likewise accounts, arrived and which seem to be credited, of the defeat of Tippoo by Colonel Matthews, who commands on the other coast.'

From Madras Colebrooke proceeded, in 1783, to Calcutta, where he met his elder brother, already established in the service. His own start in official life was delayed, and took place under circumstances by no means auspicious. The tone, both in political and private life, was at that time at its lowest ebb in India. Drinking, gambling, and extravagance of all kinds were tolerated even in the best society, and Colebrooke could not entirely escape the evil effects of the moral atmosphere in which he had to live. It is all the more remarkable that his taste for work never deserted him, and that he would retire to his midnight Sanskrit studies unaffected by the excitement of the gambling-table. It was not till 1786—a year after Warren Hastings had left India—that he received his first official appointment, as Assistant Collector of Revenue in Tirhut. His father seems to have advised him from the first to be assiduous in acquiring the vernacular languages, and we find him at an early period of his Indian career thus writing on this subject: 'The one, and that the most necessary, Moors (now called Hindustani), by not being written, bars all close application; the other, Persian, is too dry to enter, and is so seldom of any use, that I seek its acquisition very leisurely.' He asked his father in turn to send him the Greek and Latin classics, evidently intending to carry on his old favourite studies, rather than begin a new career as an Oriental scholar. For a time he seemed, indeed, deeply disappointed with his life in India, and his prospects were any thing but encouraging. But although he seriously thought of throwing up his position and re-

turning to England, he was busy nevertheless in elaborating a scheme for the better regulation of the Indian service. His chief idea was, that the three functions of the civil service—the commercial, the revenue, and the diplomatic—should be separated; that each branch should be presided over by an independent board, and that those who had qualified themselves for one branch should not be transferred to another. Curiously enough, he lived to prove by his own example the applicability of the old system, being himself transferred from the revenue department to a judgeship, then employed on an important diplomatic mission, and lastly raised to a seat in Council, and acquitting himself well in each of these different employments. After a time his discontent seems to have vanished. He quietly settled down to his work in collecting the revenue of Tirhut; and his official duties soon became soon absorbing, that he found little time for projecting reforms of the Indian Civil Service.

Soon also his Oriental studies gave him a new interest in the country and the people. The first allusions to Oriental literature occur in a letter dated Patna, December 10, 1786. It is addressed to his father, who had desired some information concerning the religion of the Hindus. Colebrooke's own interest in Sanskrit literature was from the first scientific rather than literary. His love of mathematics and astronomy made him anxious to find out what the Brahmins had achieved in these branches of knowledge. It is surprising to see how correct is the first communication which he sends to his father on the four modes of reckoning time adopted by Hindu astronomers, and which he seems chiefly to have drawn from Persian sources. The passage (pp. 23-26) is too long to be given here, but we recommend it to the careful attention of Sanskrit scholars, who will find it more accurate than what has but lately been written on the same subject. Colebrooke treated, again, of the different measures of time in his essay 'On Indian Weights and Measures,' published in the 'Asiatic Researches,' 1793; and in stating the rule for finding the planets which preside over the day, called *Hora*, he was the first to point out the coincidence between that expression and our name for the twenty-fourth part of the day. In one of the notes to his Dissertation on the Algebra of the Hindus he showed that this and other astrological terms were evidently borrowed by the Hindus from the Greeks, or other external sources; and in a manuscript note published for the first time by Sir E. Colebrooke, we find him following up the same subject, and calling attention to the fact that the word *Hora* occurs in the Sanskrit vocabulary—the *Medini-Kosha*, and bears there, among other significations, that of the rising of a sign of the zodiac, or half a sign. This, as he remarks, is in diurnal motion only *hour*, thus confirming the connexion between the Indian and European significations of the word.

(To be continued.)

THE PEPPER-VINE.

The spice, known commonly as pepper, is an eastern production, which was much prized among the civilised nations of antiquity from very early times. It is mentioned among the articles of export from India in Arrian's Periplos of the Erythrean Sea, believed to have

been written so far back as a century before the Christian Era. It was regarded as among the greatest luxuries by the Romans during the Empire; and its price in the Roman market, as given by Pliny, was equivalent to four shillings nine pence per pound in English money. Indeed, so highly was it esteemed by the masters of the ancient world that the poet Persius applied to it the epithet (*sacrum*) sacred. Pepper is grown chiefly in the Malabar forests, in the Northern Circars, in Sumatra, and some other islands of the Indian Archipelago where it is indigenous. The product of Malabar, Travancore and Sumatra are most exported.

The pepper-vine—*piper nigrum* of botany—is hardy and easily cultivated, and, as its produce is of such great commercial importance, it may well be worth trying whether it could not be successfully grown in other localities under congenial conditions of climate and soil.

The choice of a proper site for the plantation is a consideration of the first importance. Level ground lying along the banks of rivers and rivulets is to be preferred both on account of the vegetable mould commonly found in soil so situated as well as on account of the facilities of water-carriage, which such a situation generally affords. But the land should never be so low as to be liable to inundation. Declivities, unless very gentle, are to be avoided; because the soil loosened by culture is liable to be washed away by heavy rain. Plains, whether naked or covered with long grass, will not answer, unless broken up well with the plough and enriched by manure. Above all the pepper-vine loves a moist climate.

In Malabar the pepper-vine is often raised from seed; and experienced men have been known to express a decided preference for this mode of propagation, because the vine so raised bears for fourteen years. On the other hand, though the cuttings yield for only seven years or just half the period, the crops they give are larger and the berries are both of larger size and of superior quality. It is for this reason, therefore, that in Malabar the cultivation is followed with cuttings or suckers, which are put down into the ground before the rains set in, in June. The soil must be rich, but it must also be free from any accumulation of moisture below, or the young plants are apt to rot. The cuttings are usually planted at the foot of trees with rough or prickly bark, on which the vine as it grows finds a support. The creeper climbs up about 20 or 30 feet, but it is purposely kept lower for facility of collecting the berry. During its growth every sucker is removed and it is pruned, thinned and kept clear of weeds. In three years the vine begins to bear. After the berries have been gathered, they are dried on mats by exposure to the sun, when they change colour from red to black. Much experience is required as to the proper time for gathering. If plucked too early, the berry will spoil; but at the same time it must be collected before it is quite ripe. The white pepper is the same fruit, only freed from its outer shell by maceration in water, and it is smaller, of a greyish white colour and with a less pungent and aromatic taste. The trees, which are generally selected in Malabar to support and shade the pepper-vine, are the jack, the mango, the cashew-nut and other similar trees; so that the pepper is an additional crop which the cultivator gathers from his orchard lands, even while they also are bearing. Although the quality of the pepper grown in Malabar is considered

In fact, the European who wishes to estimate rightly the Indian Epics must be prepared not to judge them exclusively from his own point of view. He should bear in mind that to satisfy the ordinary Oriental taste, poetry requires to be seasoned with exaggeration.

Again, an Occidental student's appreciation of many passages will depend upon his familiarity with Indian mythology, as well as with Oriental customs, scenery, and even the characteristic idiosyncrasies of the animal creation in the East. Most of the similes in Hindu epic poetry are taken from the habits and motions of Asiatic animals, such as elephants and tigers,* or from peculiarities.

In the aspect of Indian plants and natural objects. Then, as to the description of scenery, in which Hindu poets are certainly more graphic and picturesque than either Greek or Latin,† the whole appearance of external nature in the East, the exuberance of vegetation, the profusion of trees and fruits and flowers, the glare of burning skies, the freshness of the rainy season, the fury of storms, the serenity of Indian moonlight,‡ and the gigantic mould in which natural objects are generally cast—these and many other features are difficult to be realized by a European. We must also make allowance for the difference in Eastern manners; though, after conceding a wide margin in this direction, it must be confessed that the disregard of all delicacy in laying bare the most revolting particulars of certain ancient legends which we now and then encounter in the Indian Epics (especially in the Maha-bharata) is a serious blot, and one which never disfigures the pages of Homer, notwithstanding his occasional freedom of expression. Yet there are not wanting indications in the Indian Epics of a higher degree of civilization than that represented in the Homeric poems. The battle-fields of the Ramayana and Maha-bharata, though spoiled by childish exaggerations and the use of super-

* Thus any eminent or courageous person would be spoken of as "a tiger of a man." Other favourite animals in similes are the lion (*siha*), the redly goose (*catravāsa* or *rathanga*), the buffalo (*mahisha*), the bear (*vardha*), the Koll of Indian cuckoo (*Kokila*), the heron (*Kraucā*), the ox (*gavya*), &c., &c. A woman is sometimes said to have a rolling gait like that of an elephant. It should be noted, however, that similes in the Indian Epics, though far too frequent, are generally confined to a few words, and not, as in Homer, drawn out for three or four lines.

† The descriptions of scenery and natural objects in Homer are too short and general to be really picturesque. They want more colouring and minuteness of detail. Some account for this by supposing that a Greek poet was not accustomed to look upon nature with a painter's eye.

‡ The immense profusion of flowers of all kinds is indicated by the number of botanical terms in a Sanskrit dictionary. Some of the most common flowers and trees alluded to in epic poetry are, the *catra* or mango; the *ashoka* (described by Sir William the Jones); the *Kinsuka* (*butea frondosa*, with beautiful red blossoms); the tamarind (*amlakā*); the jasmine (of which there are many varieties, such as *malati*, *jati*, *yuthika*, &c.); the *kuravaka* (*ammanthi*); the sandal (*candana*); *jigube* (*karkandhu*); the pomegranate (*rudima*); the Kadamba (*nipa*); tamarisk (*picula*); the *sakula*, *karāikaru* *stringata*, &c.

§ See the beautiful description of night in Ramayana (Gore) 1. XXXVI. 15.

natural weapons, are not made barbarous by wanton cruelties;* and the descriptions of Ayodhya and Lanka imply far greater luxury; and refinement than those of Sparta and Troy.

(To be continued.)

APPOINTMENTS, &c.

The Director of Public Instruction has granted leave of absence to S. R. Sabharoya Iyer, Deputy Inspector of Schools, Oosoor Circle, till the end of December 1876, in continuation of the leave published at page 477 of the Fort St. George Gazette of the 21st March 1876, under Section 9 Supplement F. of the Civil Leave Code.

The Director of Public Instruction cancels from the 11th instant the unexpired portion of the one month's leave of absence granted to S. Achaya-linga Madaliar, Deputy Inspector of Schools, Salem Circle, with Notification of the 10th July 1876, published in the Fort St. George Gazette of the 18th idem, page 1003, and of which he availed himself on the 18th August 1875.

The Director of Public Instruction has granted leave of absence to N. Vallbianatha Aiyar, B. A., 4th Assistant and Acting 3rd Assistant Master, Provincial College, Combaconum, from 1st to 13th September 1876 inclusive under Section 9, Supplement F. of the Civil Leave Code.

MISCELLANEOUS.

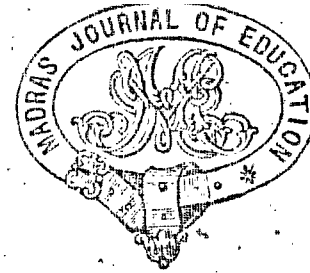
PLAIN ENGLISH.—"A plain Englishman" appeals to the editor of a Glasgow newspaper to put his foot down on the murderous changes of the Queen's English for which the reporters in Scotland are chiefly responsible. He says, nobody seems able now-a-days to say plainly, in describing a fatal accident, that the man died, but he must needs phrase it "death was the result," or "supervened." Suicide is the "rash act;" water is "the watery element;" and death by drowning is "a watery grave." Fire is much too simple a word to be any longer used by our ambitious penmen—"the devouring element" has pushed it from its form. No one now repays himself, but "recoups" himself. The exchange of "place" or "service" for "situation" and "appointment" is now fairly fixed; and whereas in old days a young man was described, and thought it no shame to describe himself as a Government clerk, he must needs figure at present as "a person holding an appointment under Government." Music apparently is never played now-a-days, but "discourised," which is a hateful barbarism. People apparently have left off taking dinner or lunch—they "partake of it," and it is well if the meal is not transformed into a "sumptuous repast." People are no longer fined ten shillings, but fined in such a sum, or "amerced" in a penalty. Not many years back a "subordinate Government employé" (the poor man was nothing but a park-keeper) having to report on a "flaccus" ("squabble," is too vulgar for ordinary use) which "occurred" ("took place," our fathers would have said) in a public park, after "narrating" the

* There is something savage in Achilles' treatment of Hector; and the cruelties permitted by Ulysses, in the 22nd Book of the Odyssey, are almost revolting. Compare with these Rama's treatment of his fallen foe Ravana, in the Yudhakanda.

circumstances of the row, had occasion to tell how one of the "parties implicated in the affair" threatened to punch the other's head—the only plain English in the whole story.

SNEEZING.—From the lowest savages to the most educated nation on the face of the earth, this simple physical event is viewed as an omen. A peculiarity attending this particular kind of manifestation is, that it is usual for those present, when it occurs, to notice it by saying something of favourable augury. In Samoa, one of the Polynesian islands, it was common to say, "Life to you!" an exclamation which in sense corresponds almost exactly to the German "Gesundheit!" (health), to the Italian "Salute!" and to our own "God bless you!" on the same occasion. South African savages have the same sentiment of the religious nature of the omen involved in sneezing. Thus, among the Kaffirs we learn that "it used always to be said when a man sneezed, 'May Utikxo [God] ever regard me with favour.'" Canon Callaway, who has acutely noticed the parallelism among various nations in respect of the feeling associated with this action, further informs us that "among the Amazulu, if a child sneezes, it is regarded as a good sign; and if it be ill, they believe it will recover. On such an occasion, they exclaim, 'Tabaka,' Grow. When a grown-up person sneezes, he says, 'Bakidi, ngi hambé kade,' Spirits of our people, grant me a long life. As he believes that at the time of sneezing, the spirit of his house is in some especial proximity to him, he believes it is a time especially favourable to prayer, and that whatever he asks for will be given; hence he may say, 'Bakwili, inkomo,' Spirits of our people, give me cattle; or 'Bakwili, abantwana,' Spirits of our people, give me children. Diviners among the natives are very apt to sneeze, which they regard as an indication of the presence of the spirits; the diviner adores by saying, 'Makosi, Lords, or Masters.'" A similar belief prevails among the Parsees, who consider a sneeze as a mark of the victory obtained over the evil spirits who besiege the interior of the body by the fire which animates men, and who accordingly render thanks to Ahuramazda when this event happens.

Classical antiquity presents us with an example of a famous sneeze. At a critical moment in the expedition of the Ten Thousand against Artaxerxes, when they were left in a hostile country, surrounded with perplexities and perils, Xenophon encouraged them by an address in which he urged that if they would take a certain course, they had, with the favour of the gods, many and good hopes of safety. Just at these words, *παύειναι τις*—"somebody sneezes," and immediately the drooping hearts of the soldiery were comforted by this assurance of Divine protection. With one impulse they worshipped the god; and Xenophon remarked that since, when they were in the very act of speaking of safety, this favourable augury of Zeus the Saviour had appeared, it seemed proper to him that they should vow thank-offerings to this deity, to be presented on their first arrival in a friendly country, and also that they should make a vow to sacrifice to the other gods according to their ability. Not only is it customary in Germany to welcome a sneeze with the above-mentioned exclamation of "Gesundheit!" but a notion is stated to prevail that should one person be thinking of something in the future, and another sneeze at the moment he is thus engaged, the thing thought of will come to pass. So that the commonest character ascribed to sneezing is that of an auspicious omen.



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THE MONTH.

IN the Order on the proposed new Results-grant-Rules, the Government recognize the important principle that the encouragement of pure results-grant schools should be regarded as a first step only, and that this should be superseded where possible by the establishment of schools aided partly by salaries and partly by results-grants. The Draft Rules submitted by the Director of Public Instruction are to be in various particulars altered and modified. To check a taste for gratuitous education, the Government propose to reduce the rates of results-grants to two-thirds of their present amount, thus rendering teachers more dependent on the fees of their pupils, but they are not prepared at present to insist on fees being paid in all cases where aid is given to schools on the results system.

The proposed rule that no school except for English-speaking children shall receive a grant for English unless it teaches up to the fourth standard, and unless the master who teaches English hold a certificate of the fourth grade, or has passed one of the University Examinations, or the General Test in the English or Anglo-Vernacular branch, has been cancelled.

THE Government have signified their approval of certain modifications in the Madras University Examinations about to be brought before the Senate, by which the University instead of the Commissioner for the U. C. S. Examinations will, in future, conduct the examination of undergraduates in writing and spelling; the *viva voce* in the B. A. Examination, which part of the Examination it has been found

impossible to carry out efficiently, will be abolished; the number of papers in Mathematics and Geography in the Matriculation Examination will be reduced, and the number of papers, and the Examiner's fees in the B. A. Examination will also be reduced. The fee to be paid by each Candidate for Matriculation will be raised from Rupees 10 to 12. This will include the fee for examination in Hand-writing. In submitting these alterations for the approval of Government, the Registrar of the Madras University observed that these examinations from which the revenue of the University is usually derived are of a much less searching and comprehensive, and therefore less expensive, character in Calcutta than in Madras.

The Syndicate do not intend that Hand-writing and Spelling should form a constituent part of the Matriculation Examination proper; but propose merely in addition to the subjects laid down by the University to examine in writing and spelling, so that matriculated candidates should not require to go up to the General Test Examination. This proposal is part of a scheme by means of which the Syndicate hope to be able to make the University self-supporting or nearly so. The share which the above proposal has in the general measure will appear from the following statement:—

	Rs.
Estimated profit from conducting the Examination in writing and spelling	3,750
Saving by abolition of extra fees in B. A. Examination	2,250
Saving by reducing the number of papers in Mathematics and Geography in the Matriculation Examination	2,750
Saving by reducing the number of papers and the Examiners' salaries in the B. A. Examination	5,000
Total	10,130

The number of papers in the various subjects set in the Madras and Calcutta Universities respectively, will be seen from the following statement:—

Madras Papers.		
English	3	3
Optional Language	2	2
Arithmetic	1	1
Algebra	1	1
Geometry	1	1
History	1	1
Physics and Physical Geography	1	1
General Geography	1	1
Total	10	10

Calcutta Papers.

English	2
Optional Language	2
Arithmetic and Algebra	1
Geometry	1
History	1
Physical and General Geography	1
Total	8

In assimilating the Madras scheme to that of Calcutta, we presume that Arithmetic and Algebra will form one paper while Physical and General Geography will also go together. The Syndicate do not look upon any of the above proposals as improvements. They have been led to make them merely in compliance with the repeated request of Government that they should endeavour to make the University self-supporting.

We have the pleasure to announce that the Tamil Text of the Introduction to the *Nannul*, one of the portions appointed for the next B. A. Examination, with an English Translation on opposite pages, and an Appendix containing Grammatical Terms with explanations and examples, by the Rev. Dr. Bower, is in the press, and will be published within a few days.

C. KUPPUSWAMY IYER, a passed Normal student, has been declared ineligible for any employment under Government for one year, and his Teacher's Certificate for that time suspended, he having accepted an appointment offered him as teacher in one of the Taluks of the Nellore district, and subsequently urged a plea of sickness for not joining the appointment, whereas it was discovered that his name had been registered for one of the Special Test Examinations.

SPECIAL TEST EXAMINATION.—We learn that out of about one hundred Candidates who presented themselves at the last quarterly examination for the fourth grade Accountants' Tests in the Public Works Department, five only have passed, most of them failing to obtain the required number of marks in writing. The subjects of Examination are two, viz., Arithmetic and Hand-writing.

MR. P. ROBINSON, one of the Professors at the Muir College, Allahabad, and Reporter on the Vernacular Press, having been reported absent without leave since the 2nd of June, his services are dispensed with, according to Saturday's *Gazette*, with effect from that date.

LEAVE RULES.—The following is portion of a letter from the Under Secretary to the Government of India, Financial Department, to the Chief Secretary to Government, Madras, dated Simla, 18th September 1876, No. 2879:—

I am directed to acknowledge the receipt of your letter, No. 866, dated 16th May 1876, regarding the admission of certain officers to the benefits of the more favorable leave rules for Uncovenanted Officers, and in reply to communicate the following remarks:—

I am first to observe that one of the principal conditions precedent to the special admission of an officer to the benefits of the favorable rules is that the officer should on the 3rd January 1872 have been holding substantively one of the offices included in Schedule A of the Civil Leave Code. The recent orders of the Secretary of State have not removed this condition. Upon this principle and with reference to the condition as to amount of salary imposed by the Secretary of State in paragraph 14 of his despatch, No. 48, dated 10th February 1876, the Government of India will include the names of the following officers in a supplementary list to be sent to the Secretary of State of officers recommended for admission to the benefits of the more favorable leave rules:—

Mr. W. A. Porter, Principal, Provincial College, Combaconum.
 „ J. T. Fowler, Inspector of Schools.
 „ A. A. Gordon, Professor of History.
 „ E. C. Caldwell, Inspector of Schools.
 „ T. Marden, do. do.
 „ L. Garthwaite, do. do.
 „ H. Bowers, do. do.
 „ H. Portey, do. do.

The undermentioned Educational Officers in the graded list having been appointed by the Secretary of State, no special orders are necessary in regard to their admission to the favorable rules:—

Mr. F. S. Evans, Professor of Mathematics.
 „ D. Durean, Professor of Logic.
 „ G. Oppert, Professor of Sanskrit.

Mr. T. M. Binstead, First Judge of the Court of Small Causes, Madras, is subject to the rules in Supplement B to the Civil Leave Code, and no orders therefore are required on his claim to be admitted to the more favorable leave rule for Uncovenanted Officers.

Mr. E. Thompson, Principal, Presidency College, Madras, was admitted to the favorable rules by the orders contained in the Secretary of State's despatch, No. 421, dated 16th September 1873. No further orders are required regarding his case.

From the Report of the U. C. S. Examination for 1875-76 we learn that the results are more favorable than those of 1874 in the Judicial

Criminal Tests; are less favorable in the case of the Judicial Civil and Revenue Tests; and almost stationary in the case of the rest.

The unusually large percentage of success in the case of the candidates for I.L.A. was due to the greater simplicity of the test, the paper in Criminal Rules of Practice being omitted by G. O., 27th August 1874, Educational Department, No. 293. In Test III., both higher and lower grades, the Examinees seem to have fallen to their old place without any explainable reason; while in Test I. and its part Test IX. the falling off may be attributed, perhaps, to more than usual stringency on the part of the Examiners.

The number of the candidates who passed the Judicial, Revenue, and Précis-writing Tests in the vernaculars was wholly insignificant as compared with the number who passed in English. This is due to the circumstance that the privilege of passing in a vernacular language is confined (1) to persons who were in the service of Government on the 1st January 1859 in the case of Tests II.B., III.B. and VIII.B.; (2) to candidates for the Police Inspector's Test II.B.; and (3) to candidates for the tests for Pleaders in District Munsifs' Courts. The first of these classes of persons coming up for examination is now a very small one, and in a few years more must disappear; while the second and third classes are not likely to materially increase. Part from the question of expense, it seems unnecessary to continue to hold this part of the Special Test Examinations every year as at present, and that it will be sufficient if the examination in the vernaculars in the above-named tests be held henceforth every two years. But the cost of conducting it is considerable, and, looking to the quite incommensurate results, the Commissioner has no hesitation in asking Government to sanction the change.

It will be a useful exercise for some of the pupils in our Fifth and Sixth classes to try their hands at correcting the following examples of bad English that we have culled from a book professing to instruct Tamil youths in the correct use of English:—

"The Mastali is a plantain tree producing fruits of a sweet favour. The natives are very fond of this fruit, than any other plantains; but few Europeans do not like this fruit, as they are strangers to this country."

"The Leaf-seller sells leaves which are very useful, and clean plates for the natives. They sell four for one pie and each will be consisted of one broad one after stitched together about 15 or 20 small pieces of leaves but the plantain leaves will be nicer and most useful than these and specially will be used in the time of entertainment; this sometimes very scarce to get 2 leaves for one pie; and that the natives will oblige to buy the said dried leaves whenever the necessity prevails them. By selling the leaves with bundle after well dried, these sorts of merchants become the people of wealthy. Thus by degrees, they use their exertions in another mode of trade."

"He has tried much as he pulls out the Punkah all the day long."

"For a rainy weather a monkey took a shelter under a root of a tree where a nest of Loxia bird was hanging; then the bird seeing the wretched monkey being wet entirely by rain, advised why do you never build a proper house for your residing against the day of winter? Upon hearing this, the monkey having given room to his rage, climbed over the tree and made the nest into pieces.—So, thou wilt be damaged, if thou wouldst give advice to a person who hath no learning and wisdom."

"I have no so much possibility."

"All the natives will prepare rice previously they set out from their house and of it be packed up in good order it will last about 2 or 3 days. There are two different ways to pack up this rice; first, by sprinkling milk; second, by putting the water of tamarind juice with fried chillies; then the last will be the best than the other."

GENERAL TEST.—The Commissioner for the Uncovenanted Civil Service Examination gives notice that the next Annual Examination of Candidates for employment in the Uncovenanted Civil Service will be held on the 5th and two following days of February 1877.

FEMALE STUDENTS IN THE MEDICAL COLLEGE.—We are informed that, on the suggestion of Doctor Farnell, Principal of the Madras Medical College, prior to his departure on leave, the Madras Government have recently ruled that all female students desirous of obtaining admission into the Medical College, in view to go through a regular course of instruction, will, hereafter, have to pass a preliminary examination in English, equal to that of the Matriculation University test.

RESULTS GRANTS.

We take the following from the order of the Madras Government passed on the 4th instant, on certain papers on the subject of the revision of the Results Grants rules:—

The three systems of aiding private schools, which are at present in force in this Presidency, are the salary-grant system, the result-grant system, and the combined system. The principle of the salary-grant system may be said to be that to make a good school a good schoolmaster is necessary; it accordingly sets up certain standards for schoolmasters, and broadly speaking the schoolmaster who conforms to one of these receives aid. The principle of the result-grant system is almost the converse of the above, being to the effect that a good school is the only proper test of a deserving schoolmaster; under this system certain standards are laid down which roughly measure the excellence of a school and thereby the deserts of the schoolmaster, and the latter receives aid accordingly. Each of these systems is open to criticism. The schoolmaster who is graded as more or less efficient by the salary-grant rules is frequently found to fail in making a good school. As observed by the Board of Revenue, "A salary-grant school of the lower or middle class too often works in sleepy obscurity, merely existing for and by the grant which it receives without reference to the results achieved." To test a school with a view to the withdrawal of a salary grant which is no longer deserved is a matter of considerable difficulty. The objections to which the results grant system is exposed have already been alluded to in the second paragraph of these Proceedings. The master here whose school earns results grants is not always found to be a deserving schoolmaster. He may be ignorant and unable to teach properly, and the pupils may be prepared by chance-assistants hired for a few hours a day some months before the examination; or he may be a mere wandering adventurer residing for a small portion of the year in a village where a few boys can be gathered together to earn him a

grant, and afterwards being no more heard of. These are perhaps the abuses of the results-grant system, which a further working of the method with the help of the rules now under notice will tend to eliminate; but it cannot be denied, that, as put by the local Committee of the Free Church of Scotland Mission, "the system gives no guarantee for the character of the teacher," and this is not a consideration which can be ignored. The combined system, as its name implies, combines the principles of the two other systems. It seeks guarantees both for the character of the teacher and the efficiency of his school; and these guarantees being independent and therefore cumulative, the probability of the school being really efficient is to that extent increased. Looking to the respective claims of each of the systems of educational aid, just described the Government are of opinion that, while the pure result-grants system is as above mentioned adapted for use in backward tracts, and while the salary-grant system is the most suitable where public opinion is active and where confidence placed in teacher will meet with response, the combined system occupying a middle ground between the other two may be relied upon for all intermediate sets of circumstances. If the results-grant system is viewed as a preliminary in educational policy to the combined system, and the combined system as a preliminary to the salary grant system the ground fit to be covered by the intermediate system, will probably be found to be very wide.

The Government are, at the inception of a scheme, averse to hampering local bodies with unnecessary restrictions; and looking to the small proportion which the number of schools aided on the combined principle bears at present to the number of those aided on either of the two other principles, and to the very partial distribution of such schools over the whole area of the Presidency, it would probably be premature at present to lay down fixed general rules on this subject. The Government, however, wish to see a considerable extension of the combined system, and desire that the Director will give the subject his serious and early consideration with a view to the settlement of such general principles as it may seem desirable to publish for the guidance of officers concerned in bringing this description of schools under aid or in establishing new schools on this principle. Under present circumstances each case must come up for special sanction but it will facilitate matters if district officials are made cognizant of the general intentions of the Government. As far as the Government are at present informed, it appears to them that it will be desirable to act on the following principles in administering the combined system:—

(a). The system should be so regulated as to cause only a slightly heavier charge on the public funds than is caused at present by the results-grant system. The object being to secure a better class of teachers, a small increase in the gross cost is probably to be anticipated; but a too expensive scale must be carefully avoided.

(b). It must apparently be left to the authorities, and not to the school itself, to decide whether a school shall be allowed to avail itself of this as opposed to any other form of aid.

(c). As regards the classes of school which may be allowed to avail itself of the combined system, it is observed that in principle the system might well be permitted to embrace schools of a somewhat higher denomination than those defined by rule 2 of the Results-

grant Rules now under notice. Having regard however to the fact that no standards higher than the fourth standard have as yet been proscribed, and to the necessity for confining the charges against the local bodies to those for "elementary" education, the Government do not see how in practice the combined system can at present be extended to schools other than those provided for by the Results-grant Rules. Should the Director be able to propose any plan under which without introducing practical complications the system can be extended to a certain section of middle-class schools, the Government will be happy to consider it. They would be glad to be informed whether the combined system has been applied to middle-class schools in Malabar and Canara, and if so under what arrangements.

(d). The giving of a salary should not be allowed to deprive a school of its character as a private school, or to justify any more interference than is already prescribed by the rules in the case of the results-grant system.

(e). With the same view, all fees should be left to the masters.

(f). If possible, only teachers holding some sort of certificates should be admitted to the benefits of the system, and teachers certificated only but not trained should receive less advantages than teachers both certificated and trained.

(g). The stipend should be distinctly lower than any salary grant to which the teacher might be eligible under the Salary-grant Rules, and not more than equivalent to a subsistence allowance. The stipend would be higher in localities where population was sparse, and where it would consequently be difficult to earn results grants in other cases it would be lower.

(h). If the amount of results grant earned were to sink to an extent indicating inefficiency, the stipend would be liable to be suspended.

(i). The simplest way of working the system would probably be to give yearly results grants up to a certain modified scale under the Results-grant rules, and to add a fixed monthly stipend. In so, the Results-grant Rules would apply to that portion of the grant which was given in the form of results grants except in points specially contradicted.

(j). The obligation devolving on the Government, under rule 32 of the draft rules now under review, would remain in the case of the combined system.

The Director is requested to report on each of these points, and on any others which may occur to him. He should state succinctly what principles he would wish to see announced as the basis of the combined system.

NOTES ON COWPER'S TABLE TALK.

(Continued from page 400.)

53. 'Such reasoning.' I. e., that as the world was made for man so man was made for kings. Both assumptions are groundless.

'Optics.' Eyes. Cf. Pope:—

'Why has not man a microscopic eye?

For this plain reason; man is not a fly.

Say where the use were finer optics given,

To inspect a mite not comprehend the heaven.'

'They' Kings.

'Him' Man. Kings were made for mankind.

Professor Stubbs justly observes:—"The greatest sin for which a king can be brought to account is not personal vice or active tyranny, but the dereliction of kingly duty; the selfish policy which treats the nation as if it were made for him, not he for the nation. It is the greatest sin and the greatest folly, for it at once draws down the penalty and leaves the sinner incapable of avoiding it or resisting it; it leaves the nation to be oppressed by countless tyrants, and is by so much worse than the tyranny of one. It allows the corruption of justice at the fountain."

'Could they?' Could kings.

54. 'The diadem, &c.' The crown that is worn by a monarch whose head is full of schemes of personal aggrandizement at the expense of mankind, &c.

61. 'Glittering store.' Precious stones.

'The toy.' The bauble.

'Will sell for.' An idiom = will fetch (procure) if sold.

63. 'Bright occasions.' Splendid opportunities.

67. 'Quell.' Lit. to choke. Kill is really the same word.

'The faction that affronts the throne.' Cf. Goldsmith:

"Yea, brother, curse with me that baleful hour

When first ambition struck at regal power."

69. 'To nurse, &c.' To encourage artists, inventors and manufacturers, and to be the patrons of men of science and learning.

71. 'To give Religion, &c.' To allow to all liberty of conscience in religious matters. Lines 65 to 82 give Cowper's estimate of the character of George III. They are much more applicable to a prince like Marcus Aurelius, who is thus described by one of his latest biographers:—

"He was seated on the dizziest and most splendid eminence which it was possible for human grandeur to obtain. But this imperial elevation kindled no glow of pride or self-satisfaction in his meek and chastened nature. He regarded himself as being in fact the servant of all. It was his duty, like that of the bull in the herd, or the ram among the flocks, to confront every peril in his own person, to be foremost in all the hardships of war and most deeply immersed in all the toils of peace. The registry of the citizens, the suppression of litigation, the elevation of public morals, the restraining of concubinage, the care of minors, the retrenchment of public expenses, the limitation of gladiatorial games and shows, the care of roads, the restoration of senatorial privileges, the appointment of none but worthy magistrates—even the regulation of street traffic—these and numberless other duties so completely absorbed his attention that, in spite of indifferent health, they often kept him at severe labour from early morning till long after midnight."

85. 'Guard what you say.' Be guarded in your statements. Guard = mind.

'The patriotic tribe.' A clamorous party in the reign of George III was known as "The Patriots." It was this party that brought about the retirement of Walpole. They are thus described by Maculay:—"These men wished to transfer the disposal of employ-

ments and the command of the army from the Crown to the Parliament.....Constantly talking in magnificent language about tyranny, corruption, wicked ministers, servile courtiers, the liberty of Englishmen, the Great Charter, the rights for which our fathers bled, Timoleon, Brutus, Hampden, Sydney, they had absolutely nothing to propose which would have been an improvement on our institutions. Instead of directing the public mind to definite reforms which might have completed the work of the revolution, which might have brought the legislature into harmony with the nation, and which might have prevented the Crown from doing by influence what it could no longer do by prerogative, they excited a vague craving for change, by which they profited for a single moment, and of which, as they well deserved, they were soon the victims."

85. 'His,' George the Third's.

87. 'Be that one poet's boast.' Although poets as a rule are given to flattery, let it be the glory of at least one poet (i.e., myself) that he abhorred such macanness.

89. 'These arts be, &c.' Let these arts be, &c.

91. 'Crown.' A common metonymy for king.

92. 'Censure.' This word meant originally an opinion. It has now come to mean an unfavourable opinion. Cf. the change in the connotation of the word *prejudice*.

93. 'Quevedo.' A famous Spanish writer who died in 1645. Cowper refers to a passage in his *Vision of Hell*, a work that had previous to Cowper's time been translated into English by Sir Roger L'Estrange.

95. 'Their.' The antec. must be gathered up from the sense.

96. This line gives a question supposed to be put by Quevedo to the guide. Note the abrupt change from the oblique to the direct mode of narration.

98. 'Don.' A Spanish title contracted from the Latin *dominus*, a lord. In old English it was corrupted into Dan; e.g., Dan Chaucer.

99. 'Disdain'd?' Rejected, or denied with wrath.

'Few, fellow?' The meaning would be expressed better by the following punctuation: — "Few? fellow?" Cowper is particularly fond of introducing short epigrammatic stories like this into his lighter poems.

103. 'Sarcasm.' Lit. a tearing of the flesh. Greek *sarz*, *sarkos*, flesh. Hence, applied to a severe or biting remark.

104. 'Here.' In England.

109. 'The courtly laureate.' The poet laureate was appointed by the king. One of his duties was to present a yearly ode on the anniversary of His Majesty's Birth-day. The term *laureate* is derived from an ancient practice in the universities of crowning graduates in rhetoric and poetry with laurels. When *Table-Talk* was published, the poet laureate was William Whitehead, whose works are now forgotten. Chaucer, Spenser, Dryden, Ben Jonson, Southey, Wordsworth and Tennyson are the most distinguished names in the list of our poets laureate.

'His quit-rent ode, his pepper-corn of praise.' We take the following note from the Globe Edition of Cowper's works:

"A quit-rent was the nominal rent (it might be a handful of corn, or a pepper-corn, or a flower) by the payment of which the tenant of an old manor was able to go quiet and free. The satire of this and the following

lines will be abundantly illustrated by the poetical pages of any old Magazine."

112. 'Add, as he can.' Tries his best to add.

114. 'Forbidden game.' The metaphor is taken from the severity of the old game laws which made it penal for a low-born man to kill any animal of the chase, such animals being reserved to furnish sport to lords and nobles.

115. 'Overawed by fear.' Attributive to "censure"; free from censure, because censure is overawed by fear.

116. 'To wear.' To practise.

117. Kings, as they play their brief part in the world, command the admiration of the vulgar. When they die, they are estimated at their true value.

119. Cf. Johnson's lines on Charles XII of Sweden:

"He left the name at which the world grew pale,
To point a moral or adorn a tale."

(To be continued)

ALGEBRA.

(Solutions to Questions on page 103.)

$$1. 5^{2n} (2^{2n+1} + 2^{2n}) + 7^{2n} (2^{2n+1} - 2^{2n}) = 5^{2n} \cdot 2^{2n} (1 + 1) \\ + 7^{2n} \cdot 2^{2n} (2 - 1) = 5^{2n+1} \cdot 2^{2n} + 7^{2n+1} \cdot 2^{2n} = 2^{2n} (5^{2n+1} + 7^{2n+1}).$$

$$\text{Again } \frac{2^{2n+1} + 2^{2n}}{2^{2n+1} - 2^{2n}} = \frac{2^{2n+1} + 2^{2n}}{2^{2n+1} - 2^{2n}} = \frac{2^{2n+1} (2 + 1)}{2^{2n+1} (2 - 1)}$$

$$= \frac{2^{2n+1} (2 + 1)}{2^{2n+1} (2 - 1)}$$

$$= \frac{2 \times 5}{2^{2n}} = \frac{5}{2^{2n-1}} = \frac{50 - 5}{5 \times 2^{2n}} = \frac{25}{5 \times 2^{2n}}$$

$$\therefore \text{The question} = 2^{2n} (5^{2n+1} + 7^{2n+1}) \times \frac{25}{3 \times 2^{2n}}$$

$$= \frac{25}{3} (5^{2n+1} + 7^{2n+1})$$

If n be any positive integer, $2n+1$ is an odd number.

$\therefore 5^{2n+1} + 7^{2n+1}$ is divisible by 5+7 or 12.

$\therefore$ The given question is divisible by $\frac{25}{3} \times 12$ or 100; $\therefore$ the given expression, when simplified, ends in two ciphers.

II. By actual division, the remainder in the division of $x^4 + ex^3 + bx^2 + ax - 81$ by $x - 3$ is $30a + 9b$

$$\text{And this} = 30 + 39b \therefore 30a + 9b = 30 + 39b$$

$$\therefore 30(a-b) = 30$$

$$\therefore a-b=1$$

$$\therefore (a-b)^2 = 1$$

$$\therefore a^2 - 2ab + b^2 = 1$$

$$\therefore \frac{a^2 + b^2 - 1}{2} = ab$$

Since $a - b = 1$.

$$\therefore (a-b)^2 = 1$$

$$\therefore a^2 - b^2 - 2ab(a-b) = 1$$

$$\therefore a^2 - b^2 - 2ab = 1$$

$$\therefore \frac{a^2 - b^2 - 1}{2} = ab$$

$$\therefore \frac{a^2 - b^2 - 1}{2} = \frac{a^2 + b^2 - 1}{2}$$

III. By actual division we have,

$$= 1 + x^2 a^2 \quad (x^2 - x^3 + x^4 - x^5 + \dots)$$

$$x^2 + x^4$$

$$-x^3$$

$$-x^4 - x^6$$

$$-x^6, \dots$$

Here the 1st term $= + x^2 a^2 + (x^2)^1$

2nd term $= - x^3$ or $-(x^2)^2$

3rd term $= + x^4$ or $+(x^2)^3$

and so on

Here we see that the sign of the odd terms in the quotient is plus and that of even terms minus; and since $(2p+1)^{\text{th}}$ term is an odd term and $2p^{\text{th}}$ term is an even one, the sign of the former must be + and that of the latter —

Thus we have;

$$(2p+1)^{\text{th}} \text{ term} = + (x^2)^{2p+1}$$

$$\dots 2p^{\text{th}} \text{ term} = - (x^2)^{2p}$$

$$\therefore \text{Their difference} = (x^2)^{2p+1} + (x^2)^{2p}$$

$$= x^{4p} (1 + x^2) \text{ by the question.}$$

$$\therefore x^{4p} (1 + x^2) = x^{4p} (1 + x^2)$$

$$\therefore x^{4p} = x^{4p} \therefore 4p = 4p$$

$$\therefore n = 4$$

IV. The common factor of the given expressions is also a factor of the difference of any of their multiples. (See Exercises in Algebra chap. IX) i.e., of $x(x^2 + x + a) - (x^2 + ax + 4)$ i.e., of $x^2 - 4$, or of $(x+2)(x-2)$.

Since each of the expressions $x+2$ and $x-2$ is of the form $x+p$, either of them may be the factor of the given expressions.

1st let $x+2$ be the factor

$$x+2 \mid x^2 + x + a(x-1)$$

$$x^2 + 2x$$

$$-x + a$$

$$-x - 2$$

$$a+2$$

and this remainder $= 0$

$$\therefore a = -2$$

Let $x-2$ be the factor

$$x-2 \mid x^2 + x + a(x+3)$$

$$x^2 - 2x$$

$$3x + a$$

$$3x - 6$$

$$a+6$$

and this remainder $= 0$

$$\therefore a = -6$$

$$\therefore a = -2 \text{ or } -6$$

V. $\frac{a}{b+c} + \frac{b}{a+c} + \frac{c}{a+b} = 1$, multiplying both sides by

$$a+b+c,$$

$$\frac{a^2}{b+c} + \frac{a(b+c)}{b+c} + \frac{b^2}{a+c} + \frac{b(a+c)}{a+c} + \frac{c^2}{a+b} + \frac{c(a+b)}{a+b}$$

$$= a+b+c$$

$$\text{i.e., } \frac{a^2}{b+c} + \frac{b^2}{a+c} + \frac{c^2}{a+b} + a+b+c = a+b+c$$

$$\therefore \frac{a^2}{b+c} + \frac{b^2}{a+c} + \frac{c^2}{a+b} = 0$$

Otherwise thus

$$\frac{a}{b+c} + \frac{b}{a+c} + \frac{c}{a+b} = 1 = \frac{a+b+c}{a+b+c}$$

$$\therefore \left(\frac{a}{b+c} - \frac{a}{a+b+c} \right) + \left(\frac{b}{a+c} - \frac{b}{a+b+c} \right)$$

$$+ \left(\frac{c}{a+b} - \frac{c}{a+b+c} \right) = 0$$

$$\frac{c^2}{(b+c)(a+b+c)} + \frac{b^2}{(a+c)(a+b+c)}$$

$$+ \frac{a^2}{(a+b)(a+b+c)} = 0$$

$$\therefore \frac{a^2}{a+b} + \frac{b^2}{a+c} + \frac{c^2}{a+b} = 0$$

VI. Let $\frac{bc(1-bc)}{b+c} = \frac{ac(1-ac)}{a+c} = x$,

$$\therefore bc(1-bc) = x(b+c)$$

$$\text{and } ac(1-ac) = x(a+c)$$

$$\therefore c(b-a) - c^2(b^2-a^2) = x(b-a)$$

$$\text{i. e., } c - c^2(b+a) = x \dots (d)$$

$$\therefore c - x = c^2(b+a)$$

$$\therefore c - \frac{bc(1-bc)}{b+c} = c^2(b+a)$$

$$\therefore \frac{bc + c^3 - bc + b^2c^2}{b+c} = c^2(b+a) \therefore \frac{c^2(1+b^2)}{b+c} = c^2(b+a)$$

$$\therefore 1+b^2 = (b+a)(b+c) = b^2 + (a+c)b + ac$$

$$\therefore ab + ac + bc = 1 \dots (e)$$

$$\therefore c(a+b) = 1 - ab$$

$$\therefore c = \frac{1-ab}{a+b}$$

$$\therefore \frac{ab(1-ab)}{a+b} = abc$$

$$= a(1-1+ab)$$

$$= a(1-a(a+b))$$

$$= c - c^2(a+b) = x \text{ from (a)}$$

Again from (e) $ab + ac + bc = 1$, add c^2 to both sides,

$$\therefore ab + ac + bc + c^2 = 1 + c^2 \therefore (a+c)(b+c) = 1 + c^2$$

$$\text{Similarly } (a+b)(c+b) = 1 + b^2$$

$$(b+a)(c+a) = 1 + a^2$$

Substituting these in (2) we get

$$\frac{a(b^2-c^2)}{(b+c)^2(a+b)(a+c)} + \frac{b(c^2-a^2)}{(c+a)^2(b+a)(b+c)}$$

$$+ \frac{c(a^2-b^2)}{(a+b)^2(c+a)(c+b)}$$

$$= \frac{a(b-c) + b(c-a) + c(a-b)}{(a+b)(b+c)(c+a)} = \frac{0}{(a+b)(b+c)(c+a)} = 0.$$

VII. If a number contain from,

1 to 3 digits its cube root contains 1 digit

4 to 6 2 "

7 to 9 3 "

and so on

i. e., a number containing from 1 to 3 digits has for its cube

root $\frac{1+2}{3}$, or $\frac{2+1}{3}$, or $\frac{3}{3}$ digits.

..... 4 to 6 $\frac{4+2}{3}$ or, $\frac{5+1}{3}$ or, $\frac{6}{3}$..

..... 7 to 9 $\frac{7+2}{3}$ or, $\frac{8+1}{3}$ or, $\frac{9}{3}$..

thus ... a number containing n digits has for its cube root,

$\frac{n+2}{3}$ or, $\frac{n+1}{3}$ or, $\frac{n}{3}$..

These three forms are included in the formula

$$\frac{1}{3} \{ (2n \pm 1) - (-1)^n \} \dots (a)$$

Now n is of one of the forms 3m, 3m+1, 3m-1 where

m is either even or odd.

First let n = 3m; if m be even,

$$(a) = \frac{1}{3} \{ 6m \pm 1 - 1 \} = m \text{ or } \frac{6m-1}{3}$$

$$\text{If m be odd, } (a) = \frac{1}{3} \{ 6m \pm 1 + 1 \} = \frac{6m+1}{3} \text{ or } m.$$

Secondly let n = 3m+1, if m be even,

$$(a) = \frac{1}{3} \{ 6m+2 \pm 1 + 1 \}$$

$$= \frac{6m+2}{3} \text{ or } \frac{6m+1}{3}.$$

$$\text{if m be odd, } (a) = \frac{1}{3} \{ 6m+2 \pm 1 - 1 \} = \frac{6m+1}{3} \text{ or } m.$$

Thirdly let $n = 3m - 1$, if m be even, $(a) = \frac{1}{3} (6m - 2 \pm 1 + 1)$

$$= m \text{ or } \frac{3m-1}{3}$$

if m be odd $(a) = \frac{1}{3} (6m - 2 \pm 1 - 1) = \frac{3m-1}{3} \text{ or } \frac{3m-2}{3}$

Thus we see from the above twelve results, that there are only four different forms, viz., m , $\frac{3m+1}{3}$, $\frac{3m+2}{3}$ or $\frac{3m-1}{3}$. The last two are the same in value. Hence the three forms which the formula, when simplified, assumes are, $\frac{n}{3}$, $\frac{n+1}{3}$, $\frac{n+2}{3}$.

$$\begin{aligned} \text{VIII. } 4a^2 + 6 &= \frac{36a^3 + 81a^2 + 81a + 45}{4a^3 + 16a^2 + 25a + 21a + 9} \\ &= 4a^2 + 6 - \frac{9(a^2 + a + 1)(4a + 5)}{(4a^3 + 12a + 9)(a^2 + a + 1)} \\ &= 4a^2 + 6 - \frac{9(4a + 5)}{4a^3 + 12a + 9} \\ &= \frac{16a^4 + 48a^3 + 60a^2 + 36a + 9}{(2a + 3)^2} = \left(\frac{4a^2 + 6a + 3}{2a + 3} \right)^2 \\ \therefore \text{The square root} &= \frac{4a^2 + 6a + 3}{2a + 3} = 2a + \frac{3}{2a + 3} \end{aligned}$$

IX. (1) Dividing the numerator by the denominator

$$1 + \frac{2}{4x-5} - \left(1 + \frac{2}{4x-9} \right) = 1 + \frac{2}{4x-13} - \left(1 + \frac{2}{4x-17} \right)$$

$$\therefore \frac{2}{4x-5} - \frac{2}{4x-9} = \frac{2}{4x-13} - \frac{2}{4x-17}$$

$$\therefore \frac{(4x-5)(4x-9) - (4x-13)(4x-17)}{(4x-5)(4x-9)(4x-13)(4x-17)} = 0$$

$\therefore$ The denominators are equal.

$$\therefore 16x^2 - 56x + 45 = 16x^2 - 120x + 231$$

$$\therefore 64x = 176$$

$$\therefore x = \frac{176}{64} = \frac{11}{4}$$

(2) Dividing the numerator by the denominator we get

$$(x + 3a - \sqrt{6ax}) - (x + 5a - \sqrt{10ax}) = a$$

$$\therefore \sqrt{10ax} - \sqrt{6ax} = 2a$$

$$\therefore \sqrt{x} = \frac{3a}{(\sqrt{10} - \sqrt{6})\sqrt{a}} = \frac{3\sqrt{a}}{\sqrt{10} - \sqrt{6}}$$

$$\therefore x = \frac{9a}{(\sqrt{10} - \sqrt{6})^2}$$

$$\left. \begin{aligned} (3) \quad \frac{1}{x} + \frac{1}{y} + \frac{1}{z} &= a + b + c \\ \frac{c}{x} + \frac{2b}{y} + \frac{2a}{z} &= a^2 + b^2 + c^2 + ab + ac + bc \\ \frac{a-b}{x} + \frac{c-a}{y} + \frac{b-c}{z} &= 0 \end{aligned} \right\} \begin{aligned} (1) \\ (2) \\ (3) \end{aligned}$$

Dividing (3) by $(a-b)$ and subtracting it from (1)

$$\frac{1}{y} \left\{ 1 - \frac{c-a}{a-b} \right\} + \frac{1}{z} \left\{ 1 - \frac{b-c}{a-b} \right\} = a + b + c$$

$$\therefore \frac{1}{y} + \frac{1}{z} \left\{ \frac{1 - \frac{b-c}{a-b}}{1 - \frac{c-a}{a-b}} \right\} = \frac{a+b+c}{1 - \frac{c-a}{a-b}} \dots\dots\dots (a)$$

Again multiplying (1) by $2z$, and subtracting (2) from it

$$\frac{2}{y} (b-c) + \frac{2}{z} (a-c) = a^2 + b^2 - c^2 - ac - bc + ab$$

$$\therefore \frac{1}{y} + \frac{1}{z} \left(\frac{a-c}{b-c} \right) = \frac{a^2 + b^2 - c^2 - ac - bc + ab}{2(b-c)}$$

$$\text{But } \frac{1}{y} + \frac{1}{z} \left(\frac{a+c-2b}{2a-b-c} \right) = \frac{(a+b+c)(a-b)}{2a-b-c} \text{ from (a)}$$

$$\therefore \frac{1}{z} \left\{ \frac{a-c}{b-c} - \frac{a+c-2b}{2a-b-c} \right\} = \frac{a^2 + b^2 - c^2 - ac - bc + ab}{2(b-c)} - \frac{(a-b)(a+b+c)}{2a-b-c}$$

$$\therefore \frac{2}{z} \left\{ (a-c)^2 + (b-c)^2 + (c-a)^2 \right\} = (a^2 + b^2 + c^2 - ab - ac - bc) (b+c+2a)$$

$$\therefore \frac{4}{z} (a^2 + b^2 + c^2 - ab - ac - bc) = (a^2 + b^2 + c^2 - ab - ac - bc) (b+c+2a)$$

$$\therefore \frac{1}{z} = \frac{b+c+2a}{4} \dots\dots\dots \therefore z = \frac{4}{b+c+2a}$$

$$\text{Similarly } x = \frac{4}{a+b+2c}$$

$$\therefore y = \frac{4}{a+c+2b}$$

$$m = \frac{m_2}{1} \cdot \frac{a}{1} \cdot \frac{m_3}{1} \cdot \frac{m_1}{1} \cdot \frac{b}{1}$$

X. Let $x = A$'s rate, $y = B$'s rate and $2d =$ length of the course; and let m_1, m_2, m_3 be the points of 1st, 2d and 3d meetings respectively, and a the middle point of the course.

$$\frac{x}{y} = \frac{d + 7\frac{1}{2}}{d - 7\frac{1}{2}} \dots (1)$$

$$\frac{x - 2}{y + 2} = \frac{d - 2\frac{1}{2}}{d + 2\frac{1}{2}} \dots (2)$$

When P gets to the middle point a , let Q reach b ; $\therefore a = \frac{d}{x} \times y$ miles, for $\frac{d}{x} =$ time in which A gets to the middle point of the course.

$$\therefore \text{Space } cb = d - \frac{dy}{x} \text{ miles}$$

They now travel with their rates interchanged, and meet in

$$\frac{d}{x+y} \text{ hrs.}$$

$\therefore A$ has walked before coming to m_3 (i. e., the point of meeting)

$$\frac{d(x-y)}{x+y} \times \frac{2}{x} \text{ miles which by the question,} \\ = 5\frac{1}{2} \dots \dots (3)$$

$$\text{From (1) } \frac{x+y}{x-y} = \frac{2d}{15} \therefore \frac{x+y}{2d} = \frac{x-y}{15}$$

$$\text{--- (2) } \frac{x+y}{-y-4} = \frac{2d}{-5} \therefore \frac{x+y}{2d} = \frac{x-y-4}{-5}$$

$$\therefore \frac{x-y}{15} = \frac{-3(x-y-4)}{15} \therefore x-y = -3(x-y) + 12$$

$$\therefore 4(x-y) = 12$$

$$\therefore x-y = 3 \dots \dots \dots (4)$$

$$\therefore x = y + 3 \dots \dots \dots (5)$$

Substituting in (3) the value of $\frac{x-y}{x+y}$, which is $\frac{15}{2d}$

$$d \times \frac{15}{2d} \times \frac{2}{x} = 5\frac{1}{2}$$

$$\therefore \frac{y}{x} = \frac{21}{4} \times \frac{2}{15} = \frac{7}{10}$$

$$\text{but } x = y + 3$$

$$\therefore \frac{y}{y+3} = \frac{7}{10} \therefore 10y = 7y + 21$$

$$\therefore 3y = 21$$

$$\therefore y = 7 \text{ miles}$$

$$\therefore x = 10 \text{ miles}$$

$$\therefore 2d = 15 \left(\frac{x+y}{x-y} \right) = \frac{15 \times 17}{5} = 51 \text{ miles.}$$

A. V. PANCHANATHIAI.

CORRESPONDENCE.

[The Editor is not responsible for Correspondence.]

TO THE EDITOR OF THE MADRAS JOURNAL OF EDUCATION.

DEAR SIR.—Allow me to represent through your columns the grievance of a department as important as it is neglected. I refer to the Educational Department. It would not be fair to place it even on a level with other departments, as it is most essentially the foundation of them all. Every department is indebted to it for the intellectual efficiency of its agents. Were it not for Education every other profession would come to a standstill; civilization would degenerate; justice would come to naught and might would be right. Hence the necessity that the department should receive all the care that can possibly be spent upon it. There is nothing that does not come within the range of its mighty influence. Prince and peasant, aristocrat and plebeian, high and low, rich and poor, all have an interest in it. Most men are what they are from the education they have received. The teacher therefore, exerts a vast influence for evil or for good. He more or less moulds the hearts of his pupils, and instils into them the principles by which he himself is actuated. Hence the necessity of having really good teachers. "The art of teaching no more comes by instinct than the art of healing, and it is a grievous mistake for any one to suppose, because he himself has had a fair education, that therefore he is qualified to teach others."

The above quotation is regularly displayed every month on the title-page of the *Madrass Journal of Education*. A more suitable motto it would be hard to find. It would be matter for congratulation if the truth it teaches were more generally acted upon. But it is evident that while the truth is admitted in theory, it is practically denied. The mania for passing examinations is terribly on the increase, education in the former and real sense of the term is considered an anachronism. Education now-a-days means cramming for and passing certain examinations. And what are the effects of this extensive spread of so-called education. There is such an overflux of passed candidates that there are no places for them to fill and their services are becoming so absurdly cheap that it will be no wonder if we shortly have matriculated horsekeepers and graduated coachmen and butlers. And instead of diplomas of passing being estimated at

their proper value, we see teachers of knowledge and experience thrown out of their posts, because they do not possess a Certificate of matriculation or some higher grade, and their places filled by under graduates or graduates who have little or no knowledge of teaching. Nor are passed candidates free from molestation. First Arts men are to be substituted for matriculates, and graduates for first arts men. Now suppose this rule were to be carried out fairly, what a number of queer consequences would ensue. Old standing professors and inspectors of schools would have to be superseded perhaps by their own pupils. Our worthy Director of Public Instruction himself would have to be considered ineligible for the post which he so ably fills, and he too must give place to some "bo yea" or "yum yen." The sooner this state of affairs comes to an end, the better for the Educational, and through it for all other departments. Not that degrees and tests are to be despised (for they display at least considerable industry in cramming) but let them not be deemed superior to sound ability and experience. Another crying evil in the teaching line is the meagreness of its emplacements. If a teacher conscientiously performed his duty there is no department that makes more demands on one's time and strength than the educational. The prospects of a teacher, especially in a private institution, are anything but bright. While those instructed by him, fill easy and lucrative employments, he has to plod his weary way without murmur till old age, disease of the lungs, or general debility, puts him out of the way. Such privations are not the lot of those in other departments. Men of little ability, less education, and perfectly innocent of a university course fill responsible and lucrative posts in courts and cutcheries. No wonder then that men are discontented with the educational service. Many enter it only as a last resource, or as a stepping stone to some other career. To some it is a matter of choice, as far as the profession is concerned but there is nothing to encourage them to remain in it. Once more let it be repeated, the sooner this state of affairs comes to an end, the better for the educational, and through it for all other departments.

A SCHOOLMASTER.

Vizagapatam, 21st October 1875.

SIR,—As the following solutions of two of the questions worked out in the September number of your valuable Journal are much shorter and more easily understood than those given in the Journal, I shall be much obliged if you will publish them in a corner of your paper.

Yours truly,

BHEEMA ROW.

1. Shew that the coefficient of x^{n+r-1} in the expansion of $\frac{(1+x)^n}{(1-x)^2}$ is $(n+2r) 2^{n-1}$ (n, r being positive integers)

$$\frac{(1+x)^n}{(1-x)^2} = \left\{ \frac{2 - (1-x)}{(1-x)^2} \right\}^n$$

$$= \frac{2^n}{(1-x)^2} - \frac{n 2^{n-1}}{1-x} + \frac{n(n-1)}{1^2} 2^{n-2} + \dots + (-1)^n (1-x)^{n-2}$$

It is clear that x^{n+r-1} occurs only in the first two terms

∴ Coefficient of x^{n+r-1} in the expansion

$$= \text{Coefficient of } x^{n+r-1} \text{ in } \frac{2^n}{(1-x)^2} - \frac{n 2^{n-1}}{1-x}$$

$$= 2^n (n+r) - n 2^{n-1} = (n+2r) 2^{n-1}$$

2. Shew that

$$1 - n \cdot \frac{1+x}{1+nx} + \frac{n(n-1)}{1^2} \cdot \frac{1+2x}{(1+nx)^2} - \frac{n(n-1)(n-2)}{1^3} \cdot \frac{1+3x}{(1+nx)^3} + \dots = 0$$

Splitting up the second factor in each term into the sum of two fractions we have the given expression

$$\begin{aligned} &= 1 - n \cdot \frac{1}{1+nx} + \frac{n(n-1)}{1^2} \cdot \frac{1}{(1+nx)^2} \\ &\quad - \frac{n(n-1)(n-2)}{1^3} \cdot \frac{1}{(1+nx)^3} + \dots \\ &= \frac{nx}{1+nx} + \frac{n(n-1)}{1} \cdot \frac{x}{(1+nx)^2} - \frac{n(n-1)(n-2)}{1^2} \cdot \frac{x}{(1+nx)^3} + \dots \end{aligned}$$

$$= \left\{ 1 - \frac{1}{1+nx} \right\}^n - \frac{nx}{1+nx} \left\{ 1 - (n-1) \frac{1}{1+nx} \right\}^{n-1} + \frac{(n-1)(n-2)}{1^2} \cdot \frac{1}{(1+nx)^2} - \dots$$

$$= \left\{ \frac{nx}{1+nx} \right\}^n - \frac{nx}{1+nx} \left\{ 1 - \frac{1}{1+nx} \right\}^{n-1} = \left\{ \frac{nx}{1+nx} \right\}^n - \left\{ \frac{nx}{1+nx} \right\}^n = 0$$

MATRICULATION ENGLISH IN CALCUTTA UNIVERSITY.

The following Minute, which has been recorded by the Examiners in English at the last Entrance Examination of the Calcutta University, will be both very interesting and very useful to our readers. The number of candidates who have failed in English this year being somewhat above the average, the Examiners wish to record to what, generally speaking, the failures seem to be due.

The papers were, if anything, easier than usual, being set on the principle of giving questions within the scope of every candidate, and requiring good grammar and correct expression in the answers. The points in which failure was most common were as follow:—

(I.) *Composition*.—Three questions were set on composition, the ideas being supplied in the questions, and little more than correctness of expression being asked from the candidates. These questions were marked, so that almost every candidate who answered them fairly had no difficulty in passing. With hardly any exception, those who failed were unable to write out a couple of pages of simple English without gross errors in idiom, and often in mere grammar. For example, a large number of the letters sent in were signed "yours obedient son," and abounded with mistakes in the first rule of concord, such as, "There is considerable expectations for my succeeding this examination." It is evident to the Examiners that in too many schools composition, whether in the shape of essays and letters, or of recasting passages from the reading book, and translation into and from the vernacular, are either wholly neglected, or at best practised in a superficial and perfunctory manner.

(II.) *Knowledge of Idiom*.—The questions that required the correction of sentences involving common errors of idiom were very badly answered. The examples selected were of mistakes which are heard daily in the class-room, and which must have been made many times in almost every teacher's hearing. When a candidate sees nothing un-English in "I said him to come with me; he replied that, very well, I am going with you just now," a sentence not properly corrected by more than five per cent. of the native candidates, it is tolerably certain that many mistakes in his everyday speech in school are allowed to pass unnoticed. These errors are nearly all of one kind, consisting of a rendering of vernacular phrases, word for word, into unidiomatic English. Those that recur oftenest are not many in number. They could easily be corrected in one day's lesson, and the right expression learnt once for all.

(III.) *Knowledge of Words*.—Here again the ignorance of common things was very marked. Though the words chosen for definition and explanation were of the most commonplace character, and such as are most ordinarily misused by natives, correct answers were very few. A good instance is the word *circumstance* as distinguished from *circumstances*. In by far the larger number of the answers no distinction between the words is recognized, and "my circumstance is very miserable" is regarded as quite correct. So also with *grain* and *grains*, the difference between which seems hardly ever to be comprehended by native students. The question on synonyms was poorly answered, showing a great want of practice in stringing sentences together and in varying the form of expression.

(IV.) *Grammar*.—In the ability to quote the formal rules of grammar from the class book there was no general deficiency. Many, however, would apparently have learnt the rule, but would quote it short of the one important word, or would slightly alter the form of this word so as to make utter nonsense of their answers. This proves that the how and the why of the rule had never been grasped.

When it came to applying the rule and giving examples of its use there was a great falling off.

Students seem to need warning that a mechanical learning by rote of rules of syntax without practice in applying them, a knowledge of the words of the grammar and an ignorance of their practical force, is an utterly barren acquirement. The parsing was badly done throughout.

(V.) *Handwriting*.—In this, taken as a whole, there has been a praiseworthy improvement. Many papers were models of clear and neat hand writing; they reaped the full benefit of their excellence in this point. Attention to calligraphy seems to go by schools, all the candidates from one school writing well, and all those from another being careless and slovenly; blots and slipshod handwriting often go along with inaccurate answers, and contribute not a little towards enspring failure.

Speaking generally, a want of accuracy in small points such as simple grammar and the use of every-day words and forms of speech, a knowledge of grammar that stops short at the words of the rule and is heedless of the meaning, and an almost universal ignorance of the differences of idiom between English and the vernaculars, are the causes of the large number of failures in English this year. Most of these defects, it is believed, may be remedied by more constant exercise in translation and re-translation and in original composition.—*Bombay Educational Record*.

THE SEAT OF WAR.

We append a series of carefully-condensed details regarding the various principalities and provinces in revolt against Turkey. The data given are the most recent, and can hardly fail to be of use for reference while negotiations for the future of these provinces are going on.

SERBIA.—Its area is 16,817 square miles. Its general character is mountainous and wooded. From the interior, numerous ramifications of the Carpathians, of the Balkans, and Dinaric Alps form the massive barriers which have hitherto been the best bulwarks of the kingdom. Along the swampy plains of the Save and the Danube the chains decline in elevation, but in the extreme north-east, near Orsova, they reach the Danube, which here breaks through the chain. The range on the other side of the river is known as the Eastern Carpathians, and between the two mountain barriers on either side the great river is imprisoned between the walls of rock known as the Iron Gate. The Rudnik Mountains are the highest of these chains. The Schumadia or Forest extends in an almost unbroken expanse for sixty miles southward from Belgrade (the capital) affording frequent exquisite landscapes. The chief rivers are the Morava and Timok, tributaries of the Danube and the Kolubara, an affluent of the Save, which itself flows into the Danube at Belgrade. The Drina which is now so frequently referred to, rises in the mountain chain on the borders of Herzegovina, and for some part of its course forms the boundary between Serbia and Bosnia, but finally joins the Save. The climate of the uplands is severe, but

mild in the valleys; in winter the thermometer ranges from 6 deg. to 74 deg. Fahr.

The low grounds are fertile, cereals being raised in abundance. Good white wine is produced near Semendria; tobacco, hemp, fruit and cotton are among the other staples, but horses, cattle, sheep and swine are the chief sources of wealth. Not more than one-twenty-fourth of the land is under tillage, and fully nine-tenths is forest or wilderness. The exports include grain, spirits made from the plum, skins, wool, cattle, staves for casks, and pigs; the imports include salt, sugar, and manufactured goods. Mines of copper and silver abound in the mountains.

The Turkish name of Serbia is *Syry*, and the Slavonic one *Serbia*, or rather *Srbia*. Hence the people are known as *Servians*, or *Serbs* (*S'rbs*). In 1873 they numbered 1,338,505 and with the exception of 110,000 Wallachians, 25,000 Gipsies, and about 15,000 Turks, Bulgarians, Jews, Germans and Hungarians, are all of Slavonic race. They are accounted one of the most spirited and talented divisions of that family, excelling in love of freedom, poetical imagination, valour, and in the picturesqueness of their mode of life. There is no nobility, and the peasants are freeholders. Community of interest prevails among the labouring classes, who live together under the authority of a chief, or a "house father," of their own election. Nearly all the population belong to the Greek Church, and secession from it is strictly prohibited; yet Roman Catholics, Protestants, and Jews, enjoy religious liberty. Higher instruction is better provided for than the lower, but both are backward. The principal towns are Belgrade, Kragujevac, Semendria, Uzhitza, and Shabatz.

There is a regular army of about 12,000 men, and a national guard numbering about 115,000, which can be raised to 150,000, for every Serb carries arms, and is trained to the use of them. The tribute payable to Turkey—but not always paid—is 2,300,000 piastres per annum. Since 1834 the country has enjoyed a perfect autonomy, guaranteed by the European Powers. In 1875 Serbia commenced to coin her own money. The Government is a limited Monarchy, hereditary in the family of Milosh Obrenovitch, who in 1815 put a final end to the absolute dominion of the Turks. Its present ruler is Prince Milan a young man of twenty-four. The language is the Servian branch of the Slavonic.

MONTENEGRO.—The Slavic title is *Czernagora*, or the "Black Mountain," of which the name it is usually known by is only a translation in Italian. It was probably suggested by the dark appearance the wooded hills presented to the eyes of the sailor's on the Adriatic. The Turks also call it *Karadagh*, which means exactly the same thing.

The country is very mountainous. The mountains have often fantastic caverns in their sides and base, in which streams plunge and are lost to sight until they again appear after a subterranean passage through the rocks. Deep and narrow ravines intersect the range of mountains. In one place they almost cut the territory in two. The Turks hold these latter, and at each end stands a Turkish fortress. Altogether the length of the country is but sixty miles, and the breadth forty-five. There is hardly anything in it which can be called a road, and the inhabitants are naturally averse to any

science which might make access to their country easier to the Moslems.

Though the population is only 120,000, yet the producing capacity of this little territory is insufficient for the supply of that number of people. Sheep and goats are their chief riches but, they also are notorious plunderers of the flocks and herds of their Austrian and other neighbours. There is no regular army, but all the male inhabitants carry arms.

Great respect is shown to women, but the men are turbulent, unsettled, wild, pugnacious, and unconquerable in their love of freedom. They are of Servian race, and though, again and again, the Turks have tried to conquer them, yet hitherto they have never thoroughly succeeded. They refuse to recognize the suzerainty of the Ottoman Porte, and are anxious to obtain fields to grow grain, and a port to ship their produce. Until this wish is met they can never lead an honest, peaceable life. They are exceedingly well disposed to the Russians, and their ruler (Prince Nikita) receives a pension from the Czar. *Tetova* (or *Gettinge*), the capital, is placed high in the mountains, and is ascended by a path, or rather shattered irregular steps.

BOSNIA.—The name is properly *Bosna*, or, in Turkish, *Hoshmali*. It is the extreme north-west province or vilayet of European Turkey, and comprises *Bosnia Proper*, *Herzegovina*, and *Turkish Croatia*.

Its area is estimated at from 22,500 to 24,450 square miles. The surface is mountainous—the elevations reaching from 3,000 to 8,000 feet. A branch of the Dinaric Alps forms the watershed between the tributaries of the Danube and the rivers flowing south. The valleys are well watered. The chief rivers are the Sava on the northern frontier, and its affluents, the *Unna*, *Verbas*, *Bosna*, and *Drina*, and the *Narenta*, which flows into the Adriatic. The mountains are densely covered with forests, which have not only impeded the Turkish troops, but have afforded shelter to the insurgents. The most important towns are the capital, *Bosna-Sera* (or *Serajero*), *Banyaluka*, *Travucz*, *Mostar*, *Fotcha*, and *Novi Bazar*. Of military importance are the fortresses of *Scutetza*, *Vishegrad* (near the Servian frontier), *Nikles* (near the frontier of Montenegro), and *Bizlina* and *Trebinje*, on the main road leading to Ragusa. The towns are usually divided into fortresses, city proper, the gates of which are closed at night, and the quarter inhabited by the poorer classes.

Sheep, goats, and poultry are reared, and droves of swine feed in the oak forests. Maize, wheat, and barley are the chief cereals, and hay and hemp are cultivated to some extent. There are good fisheries on the *Bosna* and *Narenta* rivers, and some mines of copper, lead, iron, marble, and mercury are worked. Cutlery and firearms are the chief manufactures. Staves, timber, wool, honey, wax, &c., are exported, and the imports, of which salt forms an important portion, amount to about one million sterling. Bad roads, monopolies on the land, and sand banks and trees in the rivers, are great obstacles to commerce.

In 1874 the Bosniaks numbered about 1,000,000 nearly all of whom are southern Slavs. About 30,000 Albanians still inhabit the country. The majority of the people are Christians, 451,000 being orthodox Greek Christians, and 102,000 belong to the Roman Catholic Church. There are 418,000 Mohammedans. The Bosniaks

especially the Christians, are brave but intractable and vindictive, though bearing a good reputation for hospitality and piety.

The legal contingent to the Turkish army is 80,000 men, but actually it does not exceed 30,000. The Turkish possession of the country dates from 1520, though since then there have been frequent rebellions of the native nobility, and in 1857-58 the peasants rebelled against the exactions of the tax gatherers and begs. In 1861 another insurrection broke out, and was with difficulty suppressed, owing to the fact that Montenegro aided it.

HERZEGOVINA.—The Herzegovina, as distinguished from Bosnia Proper, derives its name from being in the sixteenth century the government of the Herzog or Duke of that part of the country, under the Emperor of Germany, when the Viceroy threw off his allegiance to the King of Bosnia. It soon, however, followed Bosnia by becoming tributary to Turkey. According to the latest official statistics, the population is 1,216,816 thus divided—Bosnian Mussulmans, 442,050; Christians of the Greek Church, 578,756; Roman Catholics, 188,503; Jews, 3,000; and Gipsies, 9,537. There are, in addition, about 5,000 Austrian subjects, and several hundred Turkish officials. What has been said in regard to the topography of Bosnia applies almost equally to the Herzegovina. The climate is, however, milder—especially in the south—than that of Bosnia, and in its lower valleys the vine and olive flourish. Mulberries, figs, rice and tobacco are also among the products of its teeming soil. The people are grossly ignorant. Not one in a hundred knows how to read, and though the chief town of Bosnia contains 40,000 to 50,000 inhabitants, there is not a single book-seller's shop in it. Cereals, hides, and wool are the chief articles of trade, but since the cattle disease broke out in 1862, the trade in cattle seems to have entirely ceased.

BULGARIA.—This is also a province of Turkey, which is bounded on the north by the Danube, which separates it from Roumania, and by the Black Sea on the east. On the south its boundary is the Balkan range which separates it from Roumelia, while on the south-west and north-west Prizrend and Servia form its respective boundaries. It has an area of 30,000 square miles, and a population estimated at 2,500,000. Of these about 40 per cent are Bulgarians and 20 per cent Turks, the remainder being Jews, Serbs, Greeks, Armenians, Tartars, Circassians, Albanians, Bosniaks, Wallachians, Gipsies, and a few settlers from European countries. With the exception of about 170,000 Mohammedans and 6,000 Roman Catholics, the Bulgarians are Greek Christians. Officially Bulgaria is known as the vilayet of Tuna, or principality of the Danube. Sophia, Nissa, Trnova, Sistova and Nicopolis are among the chief cities. The principal fortified towns are Silistria, Rustchuk, Widdin on the Danube, and Shumla in the interior, commanding the main pass through the Balkan Mountains. Chief among the rivers are the eastern branch of the Morava, the Isker, Vid, Yantra, and Taban. The Kamtchik and Pravacl flow into the Black Sea and the Struma south into Macedonia. Nearly the whole south is traversed by mountains of the Balkan range. Agriculture and cattle rearing are the chief industries, and the products of the country are sufficient for the wants of the people. In 1889 Bulgaria

under the power of the Turks, but has been frequently, during the last 500 years, the scene of revolts and warfare.

ALBANIA.—This province (known to the natives as Shkiperia and to the Turks as Armaoutlik) has an estimated population of 2,000,000. It is, in general, rugged and mountainous, with elevations reaching 4,000 ft. to 8,900 ft. above the sea, and covered with snow three-fourths of the year. The rivers are of no great size, and in the summer many of them are quite or nearly dry. The most important are the Drin and the Vozuza. Among the lakes are those of Scutari, Chirida, and Janina. Oil, wool, maize, tobacco, horses, sheep, goats, timber, and the manufacture of embroidered velvets and cloths, are among the products and industries. The people are wretchedly poor, but warlike, and make the best soldiers in the Turkish army. They call themselves Shkipetars, though by the Turks they are known as Armaouts. Their religion is a corrupt Mohammedanism, which has gradually supplanted the original Christianity of the country. Notwithstanding the heroism of George Scanderbeg (or Iskander), the country fell under the Ottoman Empire in 1467. More than once since that date they have attempted to regain their freedom, but without any other result than being ruthlessly massacred by their merciless masters.

ROUMANIA.—Roumania, Rumelia, or Romania (Turkish—Rumili or the Roman Land), is the name applied by the Turks to one of the largest of their European provinces, but the title of Rumelia is restricted to that province, while Roumania is now universally used to designate a principality tributary to Turkey, consisting of the Danubian Provinces of Wallachia and Moldavia. Roumania is mostly flat, and the soil fertile; there are 46,708 square miles, and the population about 4,000,000, chiefly Roumanians. Its capital is Bucharest, and its ruler Prince Charles, a scion of the House of Hohenzollern, whose power is accordingly protected by Germany. His annual tribute to Turkey is between 30,000*l.* and 40,000*l.*, but in other respects the country is virtually independent.

EXAMINATION PAPERS.

CERTIFICATE EXAMINATION, 1876.

ENGLISH—FIRST GRADE—SCHOOLMISTRESSES.

Examiner:—MR. D. SINCLAIR, M.A.

- I. The lapse of time and rivers is the same,
Both speed their journey with a restless stream;
The silent pace with which they steal away.
No wealth can bribe, no prayers persuaded to stay:
Alike irrevocable both when past,
And a wide ocean swallows both at last.
Though each resemble each in every part,

A difference strikes at length the musing heart;
Streams never flow in vain; where streams abound,
How laughs the land with various plenty crowned!
But time, that should enrich the nobler mind,
Neglected leaves a dreary waste behind.

- (a). Paraphrase the above passage.
- (b). Give the construction of the words in italics.
- (c). Point out the figures of speech in the last three lines, and explain the nature of each.
- (d). Complete the comparison in "That should enrich the nobler mind."

II. What is the construction of the subordinate clauses in—

"Whether you are reflecting for yourself, or reasoning with another, make it a rule to ask yourself the precise meaning of the word on which the point in question appears to turn; and if it may be used in several senses, then ask which of these the word is at present intended to convey."

III. State what kind of a sentence each of the following is and give reasons for your answers:—

- (a). Learn while you are young, so that you may get on in the world.
- (b). The life of the queen bee seems to be all enjoyment, yet it is only an idle life.
- (c). To be or not to be, that is the question.

IV. Express the substance of all the following notes in one simple sentence:—

- (a). Samuel Johnson was born at Lichfield.
- (b). He was of a huge slovenly figure.
- (c). His manner was often overhearing.
- (d). His conversational powers were of the highest order.
- (e). He died in 1784.

V. Distinguish between the meanings of each, either, both—a finite and an impersonal verb—a Cromwell and the Cromwell of our time—Cicero's bust and a bust of Cicero.

VI. Write the following sentences substituting some form of the words given after each for the word in italics.

- (a). I *assent* to his proposal.—Dissent, Prejudice, Blash, Reconcile.
- (b). This boy is *deficient in* Mathematics.—Thirst, Versed, Indifferent, Abhorrence.

VII. Write the following, making the changes indicated in each

- (a). You are so good that I cannot but respect you. Changing *so*—not into *too*.
- (b). Jane is as clever a girl as is in the class.
Changing *clever* into the comparative.
- (c). Gibraltar is so strongly fortified that it cannot be captured. Using *one word* for the words in italics.
- (d). That picture is inexpressibly beautiful. Using a clause instead of *inexpressibly*.

VIII. Correct the errors in the following, and say what grammatical rules are violated in each.

- (a). Who did you expect to find but John and I.
- (b). The rising and the falling inflection is to be carefully distinguished.
- (c). I have lost the game though I thought I should have won it.
- (d). We cannot all be masters, nor all masters cannot be truly followed.

IX. Form sentences containing—

- (1). *But* as a conjunction, an adverb, and a preposition.
- (2). *What* as an interrogative, and a relative pronoun and as an adjective.
- (3). A noun sentence standing as the subject of the principal verb.

X. Write, as a composition exercise, one page on "The value of Time."

XI. Write the following in the indirect narration:—

"I was glad," observed Reynolds, "to hear Charles Fox say 'The Traveller' was one of the finest poems in the English language." "Why were you glad?" rejoined Langton, "you surely had no doubt of this before." "No," interposed Johnson, decisively, "the merit of 'The Traveller' is so well established, that Mr. Fox's praise cannot augment it, nor his censure diminish it."

ENGLISH—SECOND GRADE—SCHOOLMISTRESSES.

Examiner—Ms. D. SINGLARI, M.A.

- I. Be careful how you ever make
A promise, and when made,
Be still more careful not to break;
The word which you have said,
Although you may not mean to say
The thing which is not true;
Yet if you promise, cleave in twain,
To do and *do not do*;
'Tis much the same as if you told
A falsehood, and will bring
Its punishment, and you must hold
Your word a sacred thing.
If others see your words are vain,
Then they will slight *their* too;
And though you often may complain,
They will not care for you.

- (a). Write the meaning of the above in simple prose.
- (b). Write out in full all the subordinate sentences in the first three verses, and say what part of speech each is equivalent to.
- (c). Write the third verse, changing all the transitive verbs into the passive voice.
- (d). Parse all the words in italics giving their construction.
- (e). What is the meaning of *to break the word, hold your word, your words are vain, slight*.

(f) What words are understood in the *second* lines of the *first* and *third* verses respectively?

II. (a) What is meant by *inflection* in grammar. What parts of speech are inflected and for what purposes are they inflected?

(b) Distinguish between a regular and an irregular verb. By what other name is each known? Why are they so named?

(c) What is meant by gender, voice, mood, tense?

(d) Wherein does a relative pronoun differ from a personal pronoun?

III. Give a description of the indigo plant, and of the way in which indigo is prepared.

IV. Parse in full all the words in the following sentence:—

Arrowroot may be used with advantage as the food of young children.

V. Distinguish between the meanings of each pair of the following sentences:—

(a) I met the secretary and the treasurer.

I met the secretary and treasurer.

(b) Harry loves John better than me.

Harry loves John better than I.

(c) Only twenty men attended the meeting.

Twenty men only attended the meeting.

VI. Explain in what respects the following extracts differ from those:—

(a) On the goods that are not thine

Take good heed thou lay no finger.

(b) Though I am now in youthful days

Nor can tell what shall befall me.

(c) Their beauties I intent surveyed

And one I wished my own.

(d) For far and wide the plains were lost

For months in the winter dark.

VII. Write the following sentences adapting them so as to introduce the *verbal* forms of the words italicized:

(a) The *weight* of a cubic foot of water is 1000 oz.

(b) Great was the *joy* of the slave when he was set free.

(c) Assam tea is held in the highest *estimation*.

(d) How *vigorous* one feels in a cold climate.

(e) The *rage* of the storm was most terrific.

VIII. Correct the errors in the following letter:—

Dear Ramasawmy.

I am expecting hearing from you since three days and no letter had come. I hope you are not angry at me or object gently my proposal to have visited to you. My mind having turned, I have intention for staying same where I am. It is more better for me to have done that to going so too far in railway train with too much hot weather. Hoping to excuse all mistakes in this letter as pea cannot write well.

I am, yours, etc."

ANASAWMY.

ENGLISH—THIRD GRADE—SCHOOLMISTRESSES.

Examiner:—MR. D. SINCLAIR, M.A.

I. Write, as an exercise in composition, *one* page on the properties and uses of any one of the metals.

II. Write the following extract substituting other words or phrases of a similar meaning for those printed in *italics*. *Underline* the words you substitute.

"The tailor, however, from mere wantonness and mischief, pricked the trunk with his needle, upon which the elephant quickly withdrew. The elephant went quietly on his way to the water-side, and taking up a great quantity of water into his trunk, soon after re-appeared at the tailor's shop, and discharging the whole of the water at him, wet him all over and made him an object of laughter to all his neighbours.

III. Write the following, supplying all the words that are understood in each.

(a) How good this rice is! and this curry!

(b) I love my son better than ever.

(c) Oh! What a fine large tank!

IV. (a) Distinguish between a Personal, a Relative and a Demonstrative pronoun. What is the possessive plural of each of the personal pronouns.

(b) Mention *sic* nouns that have the same forms for both numbers, *sic* adjectives that cannot be compared, and *sic* defective verbs.

(c) What are the two forms of the plural of the nouns penny, pea, die, cow; and what is the distinctive use or meaning of each.

(d) Mention all the rules for the comparing of adjectives, and give the superlative degree of up, far, ill, gay, dry.

V. Say what part of speech each of the following words is, and why.

"We should not therefore do them any harm by giving them too much work."

VI. Write the following sentences changing the active voice into the passive, and the passive into the active.

(a) Britannia rules the waves.

(b) Powerfully was the ship borne along by the billows.

(c) She was beloved by all who knew her.

(d) No one has yet discovered the sources of the Nile.

(e) We can see trees bringing forth their fruit.

VII. Supply words for those omitted in the following sentence, and say what part of speech each of the words you supply is.

Never _____ a lie to screen _____ companions or _____ else _____ punishment; but _____ speak _____ the faults of _____ in _____ to hide your _____.

VIII. Connect the following pairs of nouns by verbs.

Reaper..... Corn.

Engineer..... Bridge

Mouse..... Train.

Smith..... Iron.

Cat..... Tiger.

- IX. Write one sentence containing
- (1) An irregular verb and an irregular adjective.
 - (2) An abstract noun and an intransitive verb.
 - (3) A proper noun, a relative and a transitive verb.
 - (4) The article coming between the adjective and the noun, and a noun used as an adjective.
 - (5) An adjective used as an adverb and an adjective used as a noun.

LONDON MISSION INSTITUTION.

PHYSICS.

Examiner:—W. Ross, Esq., M.A.

- I. Explain on scientific principles the following facts:—
- (a) A man walked in the same direction on a raft of timber, which was floating near the bank of a river at the rate of 3 miles an hour, and then stepped on to the same part of the shore that he had left. How many kinds of motion was he subject to?
 - (b) In a game of cricket after three successive balls reached the batman it was noticed that—
 - (1) The first remained on the spot where it was struck.
 - (2) The second went back about half-way towards the bowler.
 - (3) The third struck the bat and knocked the wickets down.
 - (c) A guard of a train applies a brake when he wishes to stop it, although the engine slackens its speed.
- II. What is meant by the "trajectory" of a rifle? State whether a high or a low trajectory is of most advantage, and why; and state the causes of the trajectory.
- III. Explain the expression, "The tides up and down depend upon the earth's force."
- IV. Name the forces that enable us to build houses of brick and to ornament them with plaster.
- V. Explain fully the reason of the following:—"A man built a house with blocks of ice, making the walls 12 feet high, and he put on a flat roof. A few days after the hot weather set in he found the roof lying on the ground."
- VI. What physical forces are chiefly employed in the manufacture of bricks, gold-leaf, and paint?
- VII. Why should the depth of the beams and rafters of a house be greater than their thickness? Can this rule be ignored with safety? If so, what other faults may be committed by doing so?
- VIII. Explain fully when a railway bridge across a river is likely to be destroyed by
- (a) A train crossing it.
 - (b) The water of the river.
- IX. Why does a blacksmith heat a piece of iron to a high temperature when he wishes to alter its shape?
- X. Explain the properties of a correct balance. And state
- (a) How they may be tested.
 - (b) How false results may be corrected without altering the balance.

(c) The physical force that affects the results of the balance, and give examples.

XI. Define Gravity, Force, Velocity, Motion, Experiment, Equilibrium, Centre of Gravity, Repulsion of heat.

XII. Explain the difference between—
Stable and Unstable Equilibrium; Attraction of Adhesion and Cohesion.

MORAL TEACHING IN SCHOOLS.

(Concluded from page 384.)

A very wide field lies open to the teacher: poems, fables, proverbs, wise sayings, will pleasantly diversify the lesson; he can glean helpful material from philology, mental philosophy, and other sciences; he will continually appeal to the ethics of nature and the symbolism of art. Certain that in some way or other he can gain admittance for his subject into the children's minds, if one road is blocked he will try another, and, though gate after gate prove closed, he will make fresh endeavours till he triumphs. Methods that answer with some pupils will fail with others, but each occasion will add to his experience, and will give him greater skill and facility. The essential point to remember is, that every element introduced into the lessons must tend to make more vivid and more welcome the ethical idea under consideration, for concentration of aim is always important to success.

Now, in spite of the traditional dullness which is said to attach to all moral teaching, I believe that lessons of this nature will be felt to be strongly interesting. Children take a keen delight in questions regarding social action: their minds turn naturally in that direction; and ethical lessons, which, instead of consisting of dry didactic admonitions, call their imaginations and their sympathies into play, may be rendered not less attractive (and this is saying a great deal) than lessons on beavers, cocoanuts, or icebergs. Nor need we fear that the pupils will acquire the art of chattering forth fine phrases. Superficiality cannot but be discouraged when the teacher's deep ulterior aim is (as I am supposing) not to stock the memory and to stimulate to display, but wisely and earnestly to try to mould the character; and his personal influence will help to check all that is not sincere, humble, and reverential.

III. But, what, after all, is the reason for this teaching? Why should it be given? Because it is one powerful means of cultivating goodness. Happily, moral training is now very generally acknowledged as an important part of education, so that conscientious teachers, attend in a greater or less degree to the conduct of their scholars, besides to the quickening of their mental faculties. Happily, too, the old blundering punishments have been greatly abandoned, and good behaviour is secured more than formerly by the careful encouragements of praiseworthy habits. But though habits are most useful, they need the added strength of principles, and I think we ought to supplement methods of discipline by giving to young people intellectual views of moral truth. Right thinking is essential to right acting. The very expression *moral ideas* shows how nearly intellect is allied with conscience. In fact there is no

to be better, the largest quantity of the spice is produced in Sumatra, where the method of cultivation is somewhat different. In that Island the pepper-vine is raised in plantations regularly laid out. The ground is previously cleared of wood, ploughed up and sowed with rice, among which the cuttings are put down at a distance of five feet from each other in every direction, with the green sapling of some tree of quick growth and rough or prickly bark, which soon takes root and affords support and shade to the vine as it grows. It grows most luxuriantly in moist, rich soils, provided it obtains good shade. Like most other vegetable productions in hot climates, it requires but little trouble or attention, after it has once been planted, but to watch the proper season for collecting the berry. In Sumatra, the layers or cuttings are put down in September. The plant is afterwards left to itself for twelve or eighteen months, after which it is buried with all its branches so, as to leave only a small arch of the stem above ground. From this arch new shoots sprout out, three or four of which are allowed to climb up the tree and are expected to produce flowers and fruit in a year after. It is inferred that, by this practice, the strength and vigor of the plant are so much increased by the multiplication of its organs of nourishment, namely the roots, that it cannot only yield a larger crop of flowers, but also bring out its fruit in the greatest perfection. The neglect of this precaution might seriously affect the outcome of a crop, both in quantity and quality.*

The vine produces fruit in two seasons of the year. The flowers of the principal crop appear in September with the rains of the first monsoon. In the latter end of December the berries begin to ripen and are gathered in January, as they get to maturity. The finest berries in the second state towards maturity are selected for making white pepper. The process in Sumatra consists in steeping these berries for three or four days in running water and then drying them well in the sun. The flowers of the second crop appear in March and April with the rains of the little monsoon; and the fruit ripens and is gathered about July and August; and it is probably to the want of moisture at the time the fruit is setting that the inferior quality and scanty outturn of this crop is to be attributed. One thousand vines are estimated to yield about 10½ cwt. of pepper in the course of a year; so that each vine may be reckoned upon as producing 1½ lb. of the spice.

The subjoined is the latest estimate of the production of pepper, viz:—

	lbs
Sumatra (West Coast)	20,600,000
" " (East, ")	8,000,000
Islands in the Straits of Malacca	3,600,000
Malay Peninsula	3,700,000
Borneo	2,663,000
Siam	8,000,000
Malabar	4,060,000
Total	<u>50,000,000</u>

* Marco Polo says that pepper was gathered in May, June and July in the Coromandel Coast. Yule's Marco Polo Vol. II, p. 363.

The price of this spice, according to the latest valuation, is Rs. 25 per hundred weight.

The hilly parts of the Chittagong District are supposed by Hamilton [Descrip: Hindoostan II, p. 168] to be adapted to the cultivation of coffee, pepper and the spices of the East; and as coffee is already growing successfully there, experiments with the cultivation of the species also might perhaps be tried.—*Indian Agriculturist*.

THE SANSKRIT AND THE GREEK EPICS.

(From Montier Williams' "Indian Wisdom.")

In contrasting the two Indian poems with the *Iliad* and the *Odyssey* we may observe many points of similarity. We must expect to find the distinctive genius of two different people (though both of the Aryan race) in widely distant localities, colouring their epic poetry very differently, notwithstanding general features of resemblance. The *Ramayana* and *Maha-Bharata* are no less wonderful than the Homeric poems as monuments of the human mind, and no less interesting as pictures of human life and manners in ancient times, yet they bear in a remarkable degree the peculiar impress ever stamped on the productions of Asiatic nations, and separating them from European. On the side of art and harmony of proportion, they can no more compete with the *Iliad* and the *Odyssey* than the unnatural outline of the ten-headed and twenty-armed Ravana can bear comparison with the symmetry of a Grecian statue. While the simplicity of the one commends itself to the most refined classical taste, the exaggerations of the other only excite the wonder of Asiatic minds, or if attractive to European, can only please imaginations nursed in an Oriental School.

Thus, *Jyāse* (1-782), *Kurmi* (111-10943, and *Rāmy*. 11. xii. 33), *dhita* for *hita* (Harj. vāṇu 7799), *parinayamasa* for *parinayazamasa*, etc. *dhāt* for *mabhaishit*, *vyaraseshiyami* for *vyaratasyami*. The use of irregular grammatical forms is sometimes due to the exigency of the metre.

Thus, in the *Iliad*, time, space, and action are all restricted within the narrowest limits. In the *Odyssey* they are allowed a wider though not too wide, a cycle; but in the *Ramayana* and *Mahabharata* their range is almost unbounded. The *Ramayana*, as it traces the life of a single individual with tolerable continuity, is in this respect more like the *Odyssey* than the *Iliad*. In other points, especially in its plot, the greater simplicity of its style, and its comparative freedom from irrelevant episodes, it more resembles the *Iliad*. There are many graphic passages in both the *Ramayana* and *Mahabharata* which, for beauty of description, cannot be surpassed by anything in Homer. It should be observed, moreover, that the diction of the Indian Epics is more polished, regular, and cultivated, and the language altogether in a more advanced stage of development than that of Homer. This, of course, tells to the disadvantage of the style on the side of nervous force and vigour; and it must be admitted that in the Sanskrit poems there is a great redundancy of epithets, too liberal a use of Metaphor, Simile, and Hyperbole, and far too much repetition, amplification, and prolixity.

done, that either poem has been imitated from the other, it is certainly true, and so far remarkable, that the subject of both is a war undertaken to recover the wife of one of the warriors, carried off by a hero on the other side; and that Rama, in this respect, corresponds to Menelaus, while in others he may be compared to Achilles, Sita answering to Helen, Sparta to Ayodhya, Lanka to Troy. It may even be true that some sort of analogy may be traced between the parts played by Agamemnon and Sugriva, Patroclus and Lakshmana, Nestor and Jambavat. Again, Ulysses, in one respect may be compared to Hanumat; and Hector, as the bravest warrior on the Trojan side, may in some points be likened to Indrajit, in others to the indignant Vibhishana,* or again in the *Maha-bharata* to Duryodhana, while Achilles has qualities in common with Arjuna. Other resemblances might be indicated; but these comparisons cannot be carried out to any extent without encountering difficulties at every step, so that any theory of an interchange of ideas between Hindu and Greek epic poets becomes untenable. Rama's character has really nothing in common with that of Menelaus, and very little with that of Achilles; although, as the bravest and most powerful of the warriors, he is rather to be compared with the latter than the former hero. If in his anger he is occasionally Achillean, his whole nature is cast in a less human mould than that of the Grecian hero. He is the type of a perfect husband, son, and brother. Sita also rises in character far above Helen, and even above Penelope†, both in her sublime devotion and loyalty to her husband, and her indomitable patience and endurance under suffering and temptation. As for Bharata and Lakshmana, they are models of fraternal duty; Kausalya of maternal tenderness; Dasaratha of paternal love; and it may be affirmed generally that the whole moral tone of the *Ramayana* is certainly above that of the *Iliad*. Again, in the *Iliad* the subject is really the anger of Achilles; and when that is satisfied the drama closes. The fall of Troy is not considered necessary to the completion of the plot. Whereas in the *Ramayana* the whole action points to the capture of Lanka and destruction of the ravisher. No one too can read either the *Ramayana* or *Maha-bharata* without feeling that they rise above the Homeric poems in this—that a deep religious meaning appears to underlie all the narrative, and that the wildest allegory may be intended to conceal a sublime moral, symbolizing the conflict between good and evil, and teaching the hopelessness of victory in so terrible a contest without purity of soul, self-negation, and subjugation of the passions.

In reality it is the religious element of the Indian Epics that constitutes one of the principal features of contrast in comparing them with the Homeric. We cannot of course do more than indicate here the bare outlines of so interesting a subject as a comparison between the gods of India, Rome, and Greece, thus:—

Indra and Siva certainly offer points of analogy to Jupiter and Zeus; Durga or Parvati to Juno; Krishna to Apollo; Sri to Ceres; Prithivi to

* Hector like Vibhishana, was indignant with the ravisher, but he does not refuse to fight on his brother's side.

† One cannot help suspecting Penelope of giving way to a little womanly vanity in allowing herself to be surrounded by so many suitors, though she repudiated their advances.

Cybele; Varuna to Neptune, and, in his earlier character, to Uranus; Sarasvati, goddess of speech and the arts, to Minerva; Kartikaya or Skanda, god of war, to Mars; Yama to Pluto or Minos; Kuvera to Pluto; Visvakarma to Vulcan; Rama, god of love, to Cupid; Rati, his wife, to Venus; Narada to Mercury; Hanumat to Pan; Ushas, and in the later mythology Anusa, to Eos (Hæa) and Aurora; Vayu to Aeolus; Ganesa, as presiding over the opening and beginning of all undertakings, to Janus; the Asvini—Kumaras to the Dioscuri (*Didymoi*), Castor and Pollux.

But in Greece, mythology, which was in many respects fully systematized when the Homeric poems were composed, never passed certain limits or outgrew a certain symmetry of outline. In the *Iliad* and the *Odyssey*, a god is little more than idealized humanity. His form and his actions are seldom out of keeping with this character. Hindu mythology, on the other hand, springing from the same source as that of Europe, but, spreading and ramifying with the rank luxuriance of an Indian forest, speedily outgrew all harmony of proportions, and surrounded itself with an intricate undergrowth of monstrous and confused allegory. Doubtless the gods of the Indian and Grecian Epics preserve some traces of their common origin, resembling each other in various ways; interfering in human concerns, exhibiting human infirmities, taking part in the battles of their favourite heroes, furnishing them with celestial arms, or interposing directly to protect them.

But in the *Ramayana* and *Maha-bharata*, and in the Puranas to which they led, the shape and operations of divine and semi-divine beings are generally suggestive of the monstrous, the frightful, and the incredible. The human form, however idealized, is seldom thought adequate to the expression of divine attributes. Brahma is four-faced; Siva, three-eyed and sometimes five-headed; Indra has a thousand eyes; Kartikaya, six-faces; Varuna, ten-heads; Ganesa has the head of an elephant. Nearly every god and goddess has at least four arms, with symbols of obscure import exhibited in every hand. The deeds of heroes, who are themselves half gods, transpire the imagination into the region of the wildest chimaera; and a whole pantheon presents itself, teeming with grotesque fancies, with horrible creations, half animals half gods, with man-eating ogres, many-headed giants and disgusting demons to an extent which the refined and delicate sensibilities of the Greeks and Romans could not have tolerated.*

Moreover, in the Indian Epics the boundaries between the natural and supernatural, between earth and heaven, between the divine, human, and even animal creations, are singularly vague and undefined; troops of deities and semi-divine personages appear on the stage on every occasion. Gods, men, and animals are ever changing places. A constant communication is kept up between the two worlds, and such is their mutual interdependence that each seems to need the other's help. If distressed mortals are assisted out of their difficulties by divine interposition, the deities are often turned, and perturbed gods, themselves reduced to pitiful straits, are forced to

* It is true that Homer too and then indulges in monstrous creations, but even the description of Polyphemus does not outrage all probability like the exaggerated horror of the demon Ekandha, in the 3rd book of the *Ramayana* (See p. 358.)

implore the aid of mortal warriors in their conflicts with the demons*. They even look to mortals for their daily sustenance, and are represented as actually *lying on the sacrifice* offered to them by human beings, and at every sacrificial ceremony assemble in troops, eager to feed upon their shares. In fact, sacrifice with the Hindus is not merely expiatory or placatory; it is necessary for the food and support of the gods. If there were no sacrifices, the gods would starve to death (See Introduction, p. xxxvii, note 1). This alone will account for the interest they take in the destruction of demons, whose great aim was to obstruct these sources of their sustenance. Much in the same way the spirits of dead men are supposed to depend for existence and happiness on the living, and to be fed with cakes of rice and libations of water at the Śraddha ceremonies.

Again, not only are men aided by animals which usurp human functions, but the gods also are dependent on and associated with birds and beasts of all kinds, and even with plants. Most of the principal deities are described as using animals for their *Vahanas* or vehicles. Brahma is carried on a swan, and sometimes seated on a lotus; Vishnu is borne on or attended by a being, half eagle, half man (called Garuda); Lakshmi is seated on a lotus or carries one in her hand; Siva has a bull for his vehicle or companion; Kartikeya, god of war, has a peacock; Indra has one elephant; Yama, god of death, has a buffalo (*Mūṣhaka*); Kamadewa, a parrot and fish; Ganesa, a rat; Agni, a ram; Varuna, a fish; Durga, a tiger. The latter is sometimes represented with her husband on a bull, Siva himself being also associated with a tiger and antelope as well as with countless serpents. Vishnu (Hae, *Narayana*) is also represented as the Supreme Being sleeping on a thousand-headed serpent called Śesha (or Ananta, 'the Infinite').

This Śesha is moreover held to be the chief of a race of Nagas or semi-divine beings, sometimes stated to be one thousand in number, half serpents, half men, their heads being human and their bodies snake-like. They inhabit the seven Patalas or regions under the earth, which, with the seven superincumbent worlds, are supposed to rest on the thousand heads of the serpent Śesha, who typifies infinity—inasmuch as, according to a common myth, he supports the Supreme Being between the intervals of creation, as well as the world created at the commencement of each Kalpa (Note, p. 332). Again, the earth is sometimes held to be supported by the vast heads and backs of eight male and eight female mythical elephants, who all have names; and are the elephants of the eight quarters. When any one of these shakes his body the whole earth quakes (See *Ramayana* I. xli).

In fact, it is not merely in a confused, exaggerated, and overgrown mythology that the difference between the Indian and Greek Epics lies. It is in the injudicious and excessive use of it. In the *Ramayana* and *Mahabharata*, the spiritual and the supernatural are every where so dominant and overpowering, that anything merely human seems altogether out of place.

In the *Iliad* and *Odyssey*, the religious and supernatural are perhaps scarcely less prevalent. The gods are constantly intervening and superintending; but they do so as if they were themselves

little removed from men, or at least without destroying the dramatic probability of the poem, or neutralizing its general air of plain matter of fact humanity. Again, granted that in Homer there is frequent mention of the future existence of the soul, and its condition of happiness or misery hereafter, and that the Homeric descriptions of disembodied spirits correspond in many points with the Hindu notions on the same subject,* yet even these doctrines do not stand out with such exaggerated reality in Homer as to make human concerns appear unreal. Nor is there in his poems the slightest allusion to the soul's pre-existence in a former body, and its liability to pass into other bodies hereafter—a theory which in Hindu poetry invests present actions with a mysterious meaning, and gives a deep distinctive colouring to Indian theology.

Above all, although priests are occasionally mentioned in the *Iliad* and the *Odyssey*, there is wholly wanting in the Homeric poems any recognition of a regular hierarchy, or the necessity for a mediatorial caste of sacrificers. This, which may be called the sacerdotal element of the Indian Epics, is more or less woven into their very tissue. Brahmanism has been at work in these productions almost as much as the imagination of the poet; and boldly claiming a monopoly of all knowledge, human and divine, has appropriated this, as it has every other department of literature, and warped it to its own purposes. Its policy having been to check the development of intellect, and keep the inferior castes in perpetual childhood, it encouraged an appetite for exaggeration more insatiable than would be tolerated in the most extravagant European fairy-tale. This has been done more in the *Ramayana* than in the *Mahabharata*; but even in the latter Epic, full as it is of geographical, chronological, and historical details, few assertions can be trusted. Time is measured by millions of years; space by millions of miles; and if a battle has to be described, nothing is thought of unless millions of soldiers, elephants, and horses are brought into the field.

The difference in the religious systems of Europe and India becomes still more noteworthy, when it is borne in mind that the wildest fictions of the *Ramayana* and *Mahabharata* are to this very day intimately bound up with the religious creed of the Hindus. It is certain that the more intelligent among them, like the more educated Greeks and Romans, regarded and still regard the fictions of mythology as allegorical. But both in Europe and Asia the mass of the people, not troubling themselves about the mystical significance of symbols, took emblem and allegory for reality. And this doubtless, they are apt to do still, as much in the West as in the East. Among European nations, however, the ductile faith of the masses is sufficiently controlled by common sense to prevent the fervour of religious men from imposing any great extravagance on their credulity; and much as the Homeric poems are still admired, no one in any

* See the following passages, which bear on the existence of the *Psychasth* death as to *Ekas* in *Hades*: II. XXIII. 72, 101 *Od.* XI. 218, 270; XX. 255; XXIV. 11. It is curious that the Hindu notion of the resurrection of the soul until the *Śraddha* is performed (see p. 255) agrees with the ancient Greek belief that the ghosts of the dead wandered about as long as their bodies remained unburied, and were not allowed to mingle with those of the departed. See *Odyssey* XI. 41, 11. 231-2, 72; and *cf.* *Ann.* VI. 225, Lucan VI. 411. See *Her.* 20.

* India does so in the *Sakuntala* and *Vikramorviśa*.

part of the world now dreams of placing the slightest faith in their legends, so as to connect them with religious opinions and practices. In India a complete contrast in this respect may be observed. The myths of the Indian Erics are still closely interwoven with present faith. In fact, the capacity of an uneducated Hindu for accepting and admiring the most monstrous fictions, is apparently unlimited. Hence the absence of all history in the literature of India. A plain relation of facts has little charm for the ordinary Hindu mind.

Even in the delineation of heroic character, where Indian poets exhibit much skill, they cannot avoid ministering to the craving for the marvellous which appears to be almost inseparable from the mental constitution of Eastern peoples.

(To be continued.)

LIFE OF COLEBROOKE.

(Continued from page 416.)

While Colebrooke thus felt attracted towards the study of Oriental literature by his own scientific interests, it seems that Sanskrit literature and poetry by themselves had no charms for him. On the contrary, he declares himself repelled by the false taste of Oriental writers; and he speaks very slightly of the amateurs who do not seek the acquisition of useful knowledge, but would only wish to attract notice, without the labour of deserving it, which is readily accomplished by an ode from the Persian, an apologue from the Sanskrit, or a song from some unheard-of dialect of Hindoe, of which the amateurs favour the public with a free translation, without understanding the original, as you will immediately be convinced, if you peruse that repository of nonsense, the *Asiatic Miscellany*. He makes one exception, however, in favour of Wilkins. 'I have never yet seen any book,' he writes, 'which can be depended on for information concerning the real opinions of the Hindus, except Wilkins's *Dialogues*. That gentleman was Sanskrit mad, and has more materials and more general knowledge respecting the Hindus than any other foreigner ever acquired since the days of Pythagoras.' Arabic, too, did not then find much more favour in his eyes than Sanskrit. 'Thus much,' he writes, 'I am induced to believe, that the Arabic language is of more difficult acquisition than Latin, or even than Greek; and, although it may be concise and nervous, it will not reward the labour of the student, since, in the works of scholars, he can find nothing new, and, in those of literature, he could not avoid feeling his judgment offended by the false taste in which they are written, and his imagination being heated by the glow of their imagery. A few dry facts might, however, reward the literary drudge.'

It may be doubted, indeed, whether Colebrooke would ever have overcome these prejudices, had it not been for his father's exhibitions. In 1789 Colebrooke was transferred from Tinsley to Parnesh; and such was his interest in his new and more responsible office, that, according to his own expression, he left far behind all the trifling of a young squire. Engrossed in his work, a ten years' settlement

of some of the districts of his new collectorship, he writes to his father in July 1790:—

'The religion, manners, natural history, traditions, and arts of this country may, certainly, furnish subjects on which my communications might, perhaps, be not uninteresting; but to offer anything deserving of attention would require a season of leisure to collect and digest information. Engaged in a public and busy scene, my mind is wholly engrossed by the cares and duties of my station; in vain I seek, for relaxation's sake, to direct my thoughts to other subjects; matters of business constantly recur. It is for this cause that I have occasionally apologised for a dearth of subjects, having no occurrences to relate, and the matters which occupy my attention being uninteresting as a subject of correspondence.'

When, after a time, the hope of distinguishing himself impelled Colebrooke to new exertions, and he determined to become an author, the subject which he chose was not antiquarian or philosophical, but purely practical.

'Translations,' he writes, in 1793, 'are for those who rather need to fill their purses than gratify their ambition. For original compositions on Oriental history and sciences is required more reading in the literature of the East than I possess, or am likely to attain, my subject should be connected with those matters to which my attention is professionally led. One subject is, I believe, yet untouched—the agriculture of Bengal. On this I have been curious of information; and, having obtained some, I am now pursuing inquiries with some degree of regularity. I wish for your opinion, whether it would be worth while to reduce into form the information which may be obtained on a subject necessarily dry, and which (curious, perhaps) is, certainly, useless to English readers.'

Among the subjects of which he wishes to treat in this work we find some of antiquarian interest, e.g. what quotes of Hindus are altogether forbid cultivating, and what castes have religious prejudices against the culture of particular articles. Others are purely technical; for instance, the question of the succession and mixture of crops. He states that the Hindus have some traditional maxims on the succession of crops to which they rigidly adhere; and with regard to mixture, he observes that two, three, or even four different articles, are sown in the same field, and gathered successively, as they ripen; that they are sometimes all sown on the same day, sometimes at different periods, &c.

His letters now become more and more interesting, and they generally contain some fragments which show us how the sphere of his inquiries became more and more extended. We find (p. 39) observations on the Psylli of Egypt and the snakecharmers of India, on the Sikhs (p. 45), on human sacrifices in India (p. 45). The spirit of inquiry which had been kindled by Sir W. Jones, more particularly since the foundation of the Asiatic Society of Bengal in 1784, had evidently reached Colebrooke. It is difficult to fix the exact date when he began the study of Sanskrit. He seems to have taken it up and left it again in despair several times. In 1793 he was removed from Parnesh to Nattoro. From that place he sent to his father the first volumes of the *Asiatic Researches*, published by the members of the Asiatic Society. He drew his

father's attention to some articles in them which would seem to prove that the ancient Hindus possessed a knowledge of Egypt and of the Jews, but he adds: 'No historical light can be expected from Sanskrit literature; but it may, nevertheless, be curious, if not useful, to publish such of their legends as seem to resemble others known to European mythology.' The first glimmering of comparative mythology in 1793.

Again he writes in 1793, 'In my Sanskrit studies, I do not confine myself now to particular subjects, but skim the surface of all their sciences. I will subjoin, for your amusement, some remarks on subjects treated in the "Researches."

What the results of that skimming were and how far more philosophical his appreciation of Hindu literature had then become, may be seen from the end of the same letter, written from Rajshahi December 6, 1793:—

'Upon the whole, whatever may be the true antiquity of this nation, whether their mythology be a corruption of the pure deism we find in their books, or their deism a refinement from gross idolatry; whether their religious and moral precepts have been engrafted on the elegant philosophy of the Nyaya Mimamsa, or this philosophy been refined on the plainer text of the Veda; the Hindoo is the most ancient nation of which we have valuable remains, and has been surpassed by none in refinement and civilization; though the utmost pitch of refinement to which it ever arrived preceded, in time, the dawn of civilization in any other nation of which we have even the name in history. The farther our literary inquiries are extended here, the more vast and stupendous is the scene which opens to us: at the same time that the true and false, the sublime and the puerile, wisdom and absurdity, are so intermixed, that, at every step, we have to smile at folly, while we admire and acknowledge the philosophical truth, though couched in obscure allegory and puerile fable.'

In 1794 Colebrooke presented to the Asiatic Society his first paper, 'On the Duties of a Faithful Hindu Widow,' and he told his father at the same time, that he meant to pursue his Sanskrit inquiries diligently, and in a spirit which seems to have guided all his work through life: 'The only caution,' he says, 'which occurs to me is, not to hazard in publication anything crude or imperfect, which would injure my reputation as a man of letters; to avoid this, the precaution may be taken of submitting my manuscripts to private perusal.'

Colebrooke might indeed from that time have become altogether devoted to the study of Sanskrit, had not his political feelings been strongly roused by the new Charter of the East India Company, which, instead of sanctioning reforms long demanded by political economists, confirmed nearly all the old privileges of their trade. Colebrooke was a free-trader by conviction, and because he had at heart the interests both of India and of England. It is quite gratifying to find a man, generally so cold and prudent as Colebrooke, warm with indignation at the folly and injustice of the policy carried out by England with regard to her Indian subjects. He knew very well that it was personally dangerous for a corroborated servant to discuss and attack the privileges of the Company, but he felt that he ought to think and act, not merely as the servant of a commercial company, but as the servant of the British Government. He wished, even at that early time, that India should become an integral portion

of the British Empire, and cease to be, as soon as possible, a mere appendage, yielding a large commercial revenue. He was encouraged in these views by Mr. Anthony Lambert, and the two friends at last decided to embody their views in a work, which they privately printed, under the title of 'Remarks on the present state of the Husbandry and Commerce of Bengal.' Colebrooke, as we know, had paid considerable attention to the subject of Husbandry, and he now contributed much of the material which he had collected for a purely didactic work, to this controversial and political treatise. He is likewise responsible, and he never tried to shirk that responsibility, for most of the advanced financial theories which it contains. The volume was sent to England, and submitted to the Prime Minister of the day and several other persons of influence. It seems to have produced an impression in the quarters most concerned, but it was considered prudent to stop its further circulation on account of the dangerous free-trade principles, which it supported with powerful arguments. Colebrooke had left the discretion of publishing the work in England to his friends, and he cheerfully submitted to their decision. He himself, however, never ceased to advocate the most liberal financial opinions, and being considered by those in power in Leaden-hall Street as a dangerous young man his advancement in India became slower than it would otherwise have been.

A man of Colebrooke's power, however, was too useful to the Indian Government to be passed over altogether, and though his career was neither rapid nor brilliant, it was nevertheless most successful. Just at the time when Sir W. Jones had suddenly died, Colebrooke was removed from the revenue to the judicial branch of the Indian service, and there was no man in India, except Colebrooke, who could carry on the work which Sir W. Jones had left unfinished, viz. 'the Digest of Hindu and Mohammedan Laws.' At the instance of Warren Hastings, a clause had been inserted in the Act of 1772, providing that 'Maulavies and Pandits should attend the Courts, to expound the law and assist in passing the decrees.' In all suits regarding inheritance, marriage, caste, and religious usages and institutions, the ancient laws of the Hindus were to be followed, and for that purpose a body of laws from their own books had to be compiled. Under the direction of Warren Hastings, nine Brahmins had been commissioned to draw up a code, which appeared in 1776, under the title of 'Code of Gentoo Laws.*' It had been originally compiled in Sanskrit, then translated into Persian, and from that into English. As that code, however, was very imperfect, Sir W. Jones had urged on the Government the necessity of a more complete and authentic compilation. Texts were to be collected, after the model of Justinian's Pandects from law-books of approved authority, and to be digested according to a scientific analysis, with references to original authors. The task of arranging the text-books, and compiling the new code fell chiefly to a learned Pandit, Jagannatha, and the task of translating it was now, after the death of Sir W. Jones, undertaken by Colebrooke. This task was no easy one, and could hardly be carried out without the help of really learned

* The word *Gentoo*, which was commonly applied in the last century to the Hindus, is according to Wilson derived from the Portuguese word *genti*, gentle or heathen. The word *Caste* too comes from the same source.

pundits. Fortunately Colebrooke was removed at the time when he undertook this work to Mirzapor, close to Benares, the seat of Brahmanical learning, in the north of India, and the seat of a Hindu college. Here Colebrooke found not only rich collections of Sanskrit MSS., but likewise a number of law pundits, who could solve many of the difficulties which he had to encounter in the translation of Jagannatha's Digest. After two years of incessant labour, we find Colebrooke on January 3, 1797, announcing the completion of his task, which at once established his position as the best Sanskrit scholar of the day. Oriental studies were at that time in the ascendant in India. A dictionary was being compiled, and several grammars were in preparation. Types also had been cut, and for the first time Sanskrit texts issued from the press in Devanagari letters. Native scholars, too, began to feel a pride in the revival of their ancient literature. The Brahmans, as Colebrooke writes, were by no means averse to instruct strangers; they did not even conceal from him the most sacred texts of the *Vedas*. Colebrooke's Essays on the Religious Ceremonies of the Hindus, which appeared in the fifth volume of the 'Asiatic Researches' in the same year as his translation of the Digest, show very clearly that he had found excellent instructors, and had been initiated in the most sacred literature of the Brahmans. An important paper on the Hindu schools of law seems to date from the same period, and shows a familiarity, not only with the legal authorities of India, but with the whole structure of the traditional and sacred literature of the Brahmans, which but few Sanskrit scholars would lay claim to even at the present day. In the fifth volume of the 'Asiatic Researches' appeared also his Essay 'On Indian Weights and Measures,' and his 'Enumeration of Indian Classes.' A short, but thoughtful memorandum on the origin of Caste, written during that period, and printed for the first time in his 'Life,' will be read with interest by all who are acquainted with the different views of living scholars on this important subject.

[To be continued.]

SCIENCE AND ART OF EDUCATION.

(Continued from page 326.)

In accordance with these views, it has been insisted on throughout the entire course of lectures, that teaching, in the true sense of the term, has nothing in common with the system of telling, cramming, and drilling, which very generally usurps its name. The teacher, properly so called, is a man who, besides knowing the subject he has to teach, knows moreover the nature of the mind which he has to direct in its acquisition of knowledge, and the best methods by which this may be accomplished. He must know the subject of instruction thoroughly, because, although it is not he but the child who is to learn, his knowledge will enable him to suggest the points to which the learner's attention is to be directed; and besides, as his proper function is to act as a guide, it is important that he should have previously taken the journey himself. But we discountenance the notion usually entertained that the teacher is to know because he has to communicate his knowledge to the learner; and maintain, on the contrary, that his proper function as a teacher does not consist in the communication of his own knowledge to the learner, but rather in such action as ends

in the learner's acquisition of knowledge for himself. To deny this principle is to give a direct sanction to telling and cramming, which are forbidden by the laws of education. To tell the child what he can learn for himself, is to neutralise his efforts; consequently to enfeeble his powers, to quench his interest in the subject, probably to create a distaste for it, to prevent him from learning how to learn—to defeat, in short, all the ends of true education. On the other hand, to get him to gain knowledge for himself stimulates his efforts, strengthens his powers, quickens his interest in the subject and makes him take pleasure in learning it, teaches him how to learn other subjects, leads to the formation of habits of thinking; and, in short, promotes all the ends of true education. The obvious objection to this view of the case, that as there are many things which the child cannot learn by himself, we must of course tell him them. My answer is, that the things which he cannot learn of himself are things ascribed to the actual state of his mind. His mind is not yet prepared for them; and by forcing them upon him prematurely, you are injuriously anticipating the natural course of things. You are cramming him with that which, although it may be knowledge to you, cannot possibly be knowledge to him. Knowing, in relation to the training of the mind, is the result of learning; and learning is the process by which the child reaches himself; and he teaches himself—he can only teach himself by personal experience. Take, for instance, a portion of matter which, for some cause or other, interests him. He exercises his senses upon it, looks at it, handles it, &c., throws it on the ground, flings it up into the air; and while doing all this, compares it with other things, gains notions of its colour, form, hardness, weight, &c. The result is, that without any direct teaching from you, without any telling, he knows it through his personal experience—he knows it, as we say, of his own knowledge; and has not only learned by himself something that he did not know before, but has been learning how to learn. But supposing that you are not satisfied with his piecemeal and unsystematic and surely in the career of self-acquisition, and you tell him something which he could not possibly learn by this method of his own. Let it be, for instance, the distance of the sun from the earth, the superficial area of Sweden, &c. When you have told him that the sun is 95 millions of miles from the earth, that the area of Sweden is so many square miles, you have evidently transcended his personal experience. What you have told him, instead of being knowledge gained, as in the other case, at first hand, is information obtained, probably at tenth or even fiftieth hand, even by yourself, and is therefore in no true sense of the word "knowledge" even to you, much less is it knowledge to him; and in telling it to him prematurely, you are cramming and not teaching him. Dr. John Brown ("How Subversive," Second series, p. 173) well says:—"The great thing with knowledge and the young is to secure that it shall be their own; that it be not merely external to their inner and real self, but shall go in *secundum et congruenter*; and therefore it is that the self-teaching that a baby and a child give themselves remains with them for ever. It is of their essence, whereas what is given them *ab extra*, especially if it be received mechanically, without relish, and without any energizing of the entire nature, remains pitifully useless and *versh* (insipid). Try, therefore, always to get the resident teacher *inside the skin*, and who is for ever giving his lessons, to help you, and be on your side." You easily see from these remarks of Dr. Brown's, that he means what I mean;—that matters of information obtained by other people's research, and which is true knowledge to these who have lawfully gained it, is not knowledge to a child who has had no share in the acquisition, and your dogmatic imposition of it upon his mind, or rather memory only, is of the essence of cramming. Such information is merely patchwork laid over the substance of the cloth as empirical

with the texture of the cloth itself. It is *not* but *not* of, the fabric. This expansive and comprehensive principle—which regards all learning by mere rote, even of such matters as multiplication-table or Latin declensions—before the child's mind has had some preliminary dealing with the facts of Number or of Latin—as essentially *grounding*, and therefore *anti-educational* in its nature—will be, of course, received or rejected by teachers, just in proportion as they receive or reject the conception of an art of teaching founded on psychological principles.

And this brings me to the next point for especial consideration. I said that the teacher who is to direct intellectual operations should understand what they are. He should, especially as a teacher of little children, examine well the method, already referred to, by which they gain all their elementary knowledge by themselves, by the exercise of their own powers. He should study children in the concrete,—take note of the causes which operate on the will, which excite the feelings, which call forth the intellect—in order that he may use his knowledge with the best effect when he takes the place of the great natural educator. To change slightly Locke's words, he is to "consider the operation of the discerning faculties of a child as they are employed about the objects which they have to do with;" and this because it is his proper function as a teacher to guide this operation. And if he wishes to be an accomplished teacher—a master of his art—he should further study the principles of Psychology, the true groundwork of his action, in the writings of Locke, Dugald Stewart, Bain, Mill, and others, who show us what these principles are. This study will give a scientific compass and co-ordination to the facts which he has learned by his own method of investigation.

(To be continued.)

APPOINTMENTS, &c.

Letter.—Mr J. Bradshaw, Acting Inspector of Schools, 2nd Division, is granted six months' leave to Europe on medical certificate, under Section 11, Supplement F to the 1st Leave Code.

MISCELLANEOUS.

THE PLANISPHERE. A rather novel method of instruction in geography has just been invented in Paris, and promises, if properly developed, to supersede all ancient experiments, and especially that most not quoted amongst them, known as "The Use of the Globe." The new device is of an eminently practical kind, and adapted especially to the wants of those who find a difficulty in the more elementary branches of the study. It is now to be seen in full working order in the city of its origin, and no doubt the Parisian children, young and old, will hasten to visit it as soon as its merits have been duly advertised by an appreciative press. Hitherto its charms have been modestly concealed whilst the elaborate apparatus necessary for its application has been in process of preparation; but it seems that now everything is ready, and an intelligent public is invited to come and drink at the new fountain of knowledge.

In the scientific neighbourhood of the Montmarais Observatory may be observed a huge signboard inscribed with the startling announcement, "Attention universelle—le Planisphere, a geographical garden above 1000 square yards in extent, representing in relief the surface of the earth."

Entering the gates, the visitor will find himself in a good-sized open space, differing but little, at the first glance, from an ordinary walled flower garden. A more attentive inspection of the ground beneath his feet will show him that he has embarked on a voyage of discovery which, in extent and completeness, if not in its actual perils, eclipses utterly the exploits of Captain Cook and of every one his successors. He will find himself walking at leisure, with fifty-leagues boots on his feet, through the several countries of the world, treading at each step upon a different province, or at any rate upon a different parish or commune.

A very short stride will carry him across the English Channel, the Straits of Gibraltar, or the Dardanelles. The Rhine, or even the Mississippi, may be taken in his stride; and if he is at all a good jumper, he will be able to clear Lake Huron or the Caspian at a bound. The ascent of Mont Blanc or the passage of the Himalayas will not delay him many seconds, or make him even out of breath; and, in time, a few minutes' brisk walking will bring him fairly "from China to Peru." It is a thousand pities that this magic garden—worthy of a place in the "Arabian Nights"—was not discovered in time to serve as a recreation-ground for Stanford and Merton—those puffers of hopeful papils amongst our forefathers. But it is not at all too late for the pedagogues and governesses of Paris and elsewhere to resort their charges to this paradise of practical education. They will be seen, no doubt, conducting throngs of wondering disciples through the geographical garden, lecturing them with a new zest upon the population, history, and constitutional government, but more particularly upon the area and products of the various countries, and discussing according to the veritable precepts and practice of the peripatetic philosophers. Maps and a duster will become only a supplementary means of imparting instruction, and may even be removed entirely from the list of studies which form the *magis* grade of students.

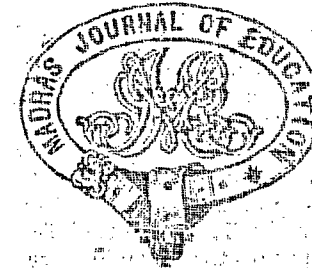
It is needless to insist upon the advantages of so intensely realistic a style of instruction. The scupidest dunce will hardly forget the islands of the Aegean Sea after having been compelled to pick his way among them as stepping-stones between Egypt and Asia, nor persist in ignorance as to the whereabouts of Salsanis after being ordered to balance himself on one foot for ten minutes or so upon the narrow territory of the minic island. As for girls' schools and girls' schoolmistresses, the garden will be an institution to be blessed by the latter as loudly as it is cursed by the former. Already the out-door exercise of the unskilful lady scholars is cut down to the most meagre limits compatible with tolerable health; the now miserable hour of recreation which was deemed advisable will possibly be spent in the (Geography) museum of in the Park or in the Bois. A redoubt of cruelty on the part of the mistress would be to sentence a stupid or comatose pupil to a march through the African Sahara, or promenade amongst the bleak deserts of Central Asia; while, on the other hand, good girls might be rewarded with a luxurious seat amidst the groves of Cyprus or in the valleys of Cashmere.—*The Globe*.

"**LORD LIKELY.**" A DRAMA.—It does not fall to the lot of every man to be a dramatist, though all may be actors upon the world's great stage. Even Cardinal Richelieu failed as a playwright, and had Corneille written nothing but "Remorse," by whom would his name be now remembered? Perhaps Mr. P. V. RAMASWAMY RAJU, B. A., Headmaster, Pachappal's Branch School, Conjeram, may live to be a RICHELIEU. He may even eclipse CORNEILLE. But he will do nothing with the drama except to make himself ridiculous. He fancies that he has been writing blank verse, and to a certain extent he has succeeded. He has not written verse indeed, but he has achieved blankness to the nth power. He has also an idea that he has been reviving

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the diction of the Elizabethan period, because he makes his characters say, "nearly he does" "Nob-ly ever" "knows," they always "ween." Then there is an Algerian Colonel, Sir DREAMFUL DAWN, who prefaces every remark by "Pecurrit," and imitates the swagger of SHAKESPEARE'S Ballies. Sir DREAMFUL makes love to niece and aunt at the same time, but the latter, discovering his disloyalty, "hits a severe blow at his mouth; his ivories fall down." In Algiers he was served by two Moorish maids who were to follow him to England after the death of their parents. Knowing this, Gog and Wog, "two men of the City," disguise themselves in Moorish costume, and suddenly appear before him while he is soliloquising over his disfigurement at the hands of Lady HOWERY, "a dread bally in bonnet and gown! a very master of cutting." "He embraces them and feels their bodies with great affection: they simulate great pleasure and reverence." They bear him off exhausted, and carry him to some strange den, belonging to an incomprehensible personage, named STIVEN TWADDLE, who occupies a subterranean vault in the City and teaches blasphemy and thieving. The two city men are working in the interests of Lord HARRY LIKELY, a young nobleman of unknown parentage, the protégé of Sir STIVEN LUGG, and on the look-out for an heiress. The lady proves to be his own cousin, and he himself turns out to be a Marquis, the son of Lady HOWERY, who was accidentally left in a cabin when the East Indiaman, the Leviathan, was wrecked off the British coast.

If it be asked why we have devoted so much space to the exposure of such a farcical and stillborn nonsense, we reply that it is in the interest of the unfortunate pupils entrusted to this man's tuition. He is no fit teacher of youth who could write that scene in STIVEN TWADDLE'S vault. It may be urged that he sins not of malice but through ignorance, and we should not refuse to accept that explanation. Only in that case, we would venture to advise Mr. P. V. KAVASAWRE BARN to get rid of that ignorance by reading and reflection, and to occupy his leisure hours in qualifying himself for his educational duties. It is incalculable the mischief that may be wrought among the rising generation by a conceited, hare-brained, empty-headed prig like this dramatic Bachelor of Arts. Now that he has advertised his own folly and incapacity, it is to be hoped that some notice will be taken of this silly escapade by the heads of his department. We are anxious to know what course of studies is pursued at Pachappudi's Brauch School at Conjeeveram. How can the brahministic teach a language and literature so imperfectly known to himself? The original fault, of course, lies with the absurd system of High Class Education patronised by the State. The author of "Lord LIKELY" is a typical example of the Anglicised Natives who have graduated with University Honours. He is neither better nor worse than the bulk of M. A.'s and B. A.'s who are turned out under high pressure to make themselves a nuisance to their fellow-countrymen, and a laughing-stock to those who have connived at their "examining." "Lord LIKELY" sincerely indicates the current of thought which pervades the minds of the men whom we send out as teachers, and to whom we confide the education of the lower and middle classes of this country. When thistles produce figs, and thorns bear grapes, then—but not till then—may we expect to see a rational and practical training afforded to Indian youths, by the men upon whom Indian "Senates" are content to shower their unmeaning and unmerited honours.—*Madras Times*.

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THE MONTH.

The Journal Matriculation Text-Book for 1877, with full notes, will be published immediately. For particulars we refer our readers to the advertisement on the cover of this number of our Journal. In editing the Text-book, which is the sixteenth book of a series that has been widely used throughout this Presidency, the principles followed in previous years have been steadily kept in view. The book is not intended as a cram book, but rather to promote intelligent study, and we hope that what the *Madras Mail* said of a former book of the series may be as applicable to this. The *Mail* wrote "the notes cannot fail to lead the student to a thorough understanding of the text and of the principles of the construction of the English tongue. A student is in fact made to learn a great deal more than how to pass his examination by the study of such a text-book, and we are glad that the editor has determined to continue his labours for another year."

We are aware that objection has been taken to annotated Text-Books published in English for Hindu students, but we confess ourselves unable to see the force of the objection. If English boys, taught by English masters, need notes on English classical authors, (and that they do need them is proved by the almost universal use in English schools of the Clarendon Press and Rivington's Series of annotated extracts from Shakespeare, Milton, Pope, Bunyan, Burke and other authors) much more therefore are the same aids needed by Hindu youths, taught often by masters who have little acquaintance with English literature and few books of reference.

A successful schoolmaster like Dr. Abbott, the Head Master of the city of London School, clearly shows his conviction of the value of notes, when he publishes, as he has just done, an annotated edition of such a well-known school-book as *Bacon's Essays*. As long as the Syndicate makes selections for study in schools, notes will be published; if not by competent, then by incompetent annotators. If for the year 1877, the Journal Text-Book in English had failed to appear, there would have been no lack of annotations by native commentators. We do not, moreover, see the superiority of the plan of making boys learn notes that they have written down in class, as dictated (often on the spur of the moment) by their teacher, to the plan hitherto followed of consulting printed notes that have been carefully considered. Without such printed notes, more and more explanations must be given by teachers, and these will be taken down by the boys, and will gradually assume (when the teacher is a man of much information) the form of a regular commentary. But under this system errors must be multiplied. Even if the teacher's notes be correct, the pupils often write them down incorrectly. The practical result would be that in many cases boys would be furnished with poor and inaccurate explanations instead of a carefully considered, complete and tolerably accurate body of notes; for even the greatest enemies of our Text-books must admit that the notes are the result of careful and thoughtful consideration of the passages they illustrate.

We think we see what is the notion uppermost in the minds of those who object to printed notes. They want to put a native boy down to a passage from an English classic, with his Grammar and Dictionary; just as a public school boy is supposed to spell out the meaning of a piece of Latin without the help of a crib. But the cases are not parallel. A highly inflected language like the Latin has little resemblance to the English which is almost entirely without inflection. The difficulties encountered are of a very different nature. And those boys who have to read without the help of an English teacher, and without trustworthy notes, will fail, because they have no one to expound to them idioms and allusions to English life and manners. Grammar and Dictionary are of no use here. Besides, it is questionable whether the system of forcing pupils to puzzle out everything for themselves is not a vicious one. It is

a slow process, and if it suits one strong intellect, it fails with at least three others.

One word in conclusion. We have the interest of real education at heart, and we would point out to those who differ from us, that if after careful consideration, it should still be thought that the ends of education would be best served by the abolition of Text-books, the Syndicate of the University have the power to put a stop to annotations; not however by publishing the text themselves, and making it penal not to buy their book, but by following the example of the Calcutta and Bombay Universities in making no selection of particular pieces for the Matriculation Examination in English, and by examining the Candidates in "General English" only.

We regret to announce the death of Mr. William R., Professor of Mathematics in the Free Church College. The deceased gentleman was one of the examiners in Arithmetic for the coming Entrance Examination of the University. We understand that immediately after the examination, he intended taking furlough to Europe. He was much respected by the pupils and teachers of the Institution with which he was connected, and a subscription is set on foot to erect a Monument to his memory. Mr. Ross was a man of considerable culture. In him we have lost a valued contributor to our columns.

PETER CATOR PRIZES LOWER GRADE.—Ten Money Prizes of Rupees 60, 50, 45, 40, 35, 30, 25, 20, 15 and 10 respectively, will be awarded to the ten highest Candidates, and certificates of merit to all who obtain half the total number of marks.—Extra Prizes for Non-Christian Candidates. The Examination will be held on the 28th and 29th of September, 1877. The subjects are:—

Old Testament.....Genesis Chapter i.—xxv.

New Testament.....Gospel of St. Matthew.

Memoria.....Psalms civ and cv.

.....Luke xvii. 26—37.

.....Hebrews xi. 1—20.

.....1 John iii. 12—15.

Candidates must not be below fourteen nor above nine.

test at the time of examination. Matriculated Students, Students in Theological Colleges, and persons who have already obtained Cator Prizes, are not admissible as Candidates. The names of Candidates, with the Entrance Fee of four annas, must be sent to the Secretary, Church Mission House, Madras, on or before 31st of July. Names will be received after that date only upon payment of a double fee.

REVIEWS OF BOOKS.—We wish, in the interests of Candidates for the Entrance Examination of the Madras University, to caution them against some of those booklets of which in these days "there is no end."

The book first before us is issued from the Gredhavn Press, Madras, and, on its face, it bears the stamp of having been compiled by a "Blind leader of the blind." The title page reads, "Notes and Queries to the Physical Science, for the use of students preparing for the Matriculation Examination," and the book is alleged to contain "notes, scientific answers to simple questions, model examples, exercises, &c., to simplify the study of Physics Primer." The rest of the book is quite in keeping with the title page: It is as full of grammatical blunders, mis-statements, and unscientific answers, as an egg is full of meat. As specimens of the notes, we give the following:—"It (physics) considers those effects only which are not attempted by any change." We thought at first sight that this must be a misprint, but on turning to the list of errata, we found no correction. "That which forces the particles of different kinds to unite is called chemical attraction." "A line of direction is that straight line drawn perpendicular from the centre of gravity to the earth." "The derivation of only three words, we think, is given, but as the examples are unique, two of them may be quoted. "Atom," is said to be "from the Greek α = not, and $\tau\epsilon\iota\upsilon\sigma$, I cut." "Capillarity means hair-like." The English throughout is highly characteristic, and shows that the compiler, author, or whatever he may style himself, knows as little of the English language as he knows of Physics. Of course "an" or "a" and "the" are terrible pitfalls, as will be seen from the few examples we have selected from the abounding store. We are told that "Physics is that science which treats of nature and properties of bodies, &c.," we are asked, "Why should we acquire the knowledge of Physics?" and we learn that "a ball of iron weighing a thousand pounds at the level of the sea, if weighed in spring balances on the top of a mountain four miles high, will be found to have lost two pounds, &c." We have innumerable expressions similar to "Balloon boats," "Typhon is a bent tube," and "what is hydraulic press?" Our next extract is perhaps as choice as any example to be met with in the work. The question is asked, "Why is a ball easily rolled along a level surface?" and the answer follows: "Because the base is but a point, consequently almost the small force is sufficient to remove the line of direction out of the base." One more quotation we make by way of showing the slipshod style of answer the compiler is satisfied with. Any thing more wanting in precision and accuracy we cannot conceive. It is supposed to be the description of a hydraulic press. "Hydraulic press or Hydrostatic

"press is merely a large plug or piston, forced up against a substance to be pressed by the action of a smaller piston in another barrel. It is used to condense substances as cotton or bay for sea voyages to uproot trees to tear things asunder," &c. The only thing of value in the book is a collection of questions for solution, in number twenty-seven, but those candidates who are led to buy it at "6 As. per copy, or by post 7 As." pay the piper rather heavily, considering that the questions are such as have most probably been put to them by their own teacher in the course of the year's instruction. We think we have said enough if not to warn students against trusting themselves to such blind leaders, at least to put teachers on their guard; and we hope students themselves will be wise enough to take the advice of their teachers before investing their money in such trash.

We have also before us two or three more of these booklets compiled by natives who wish to teach their countrymen what they themselves do not know. One of these books is entitled "Notes on European History," and another is entitled "Notes on Physiology," we presume both of them are by the same author, as they are equally atrocious in style, and incorrect on matters of fact, and as each is said to be by "A Madras Under-graduate" and is issued from the Addison Press. As the Tamil proverb says, "a grain of rice is a specimen of a whole potful," we therefore, content ourselves with a single quotation from each:—

"The third Punic War did not begin till 50 years have elapsed after the second. This was brought about by Masinissa, a turbulent neighbour to Carthage being king of Numidia, and a very useful ally to Rome."

"Pivot joint is one which furnishes an axis or pivot for another to turn upon or which turns itself resting on another."

In another catch-penny publication misnamed *The Student's Friend*, printed by Foster and Co., we are told that the "Pons asi, norum" (sic) is "Asses' bridge," a name given by the Chantabes (sic) to the fifth proposition of the 1st book of Euclid. We find in this publication about a page and a half of matter stolen without acknowledgment from the notes in our Journal Text Book. The only alteration, made in the passage so appropriated is that where we wrote "We here give as much of Grimm's law as is likely to prove useful to the Hindu Student" the plagiarist writes "It is here given as much of Grimm's law as is likely to prove useful to the Hindu Student." This sales cry doubtless the writer considers an improvement, and he thereby shows as how competent he is for editing an English book, which, with unpardonable self-conceit, he trusts "will obtain the approbation of every one who may choose to peruse it."

Another book is a work on Grammar in which again the author constantly fails in the use of the little words *a* and *the*. These books are all a striking comment on the folly of those students who are always looking for what are called "in English Universities" "straight tips," instead of systematically studying the subject before them. There is a field open to native writers in which they might gain honest fame, if instead of spending their time and strength on works like these which can only do harm, they would devote themselves to their own language, and to the creation of a current Vernacular Literature.

EDUCATION AND VACCINATION IN THE MADURA CIRCLE.—There were only four Inspecting Schoolmasters and twenty-three permanent Vaccinators employed in the Madura Circle, which has an area of 4,808 square miles and a population of 1,215,543. Considering how backward both elementary education and Vaccination are in the Circle, the Local Fund Board thought that, as funds are available, they could not do better to extend the advantages of both than by employing extra hands to advocate and spread both among the people. The Government have sanctioned the increase.

GIRLS' SCHOOL AT COSSAPETT IN Vellore.—The inhabitants of Vellore presented a petition to the Director of Public Instruction, requesting that the Girls' School at Cossapett, which is now aided on the results system, may be constituted a Government School. The School was started about seven years ago by the Church of Scotland Mission, and was taken over by the present managers in 1872, when the Mission Society gave up their Girls' Schools in the Town of Vellore. The difficulty is, however, to secure a succession of competent managers. At present the School is flourishing, because it is under the supervision of Mr. J. Subramania Iyer, M.A., but the abolition of the Small Cause Court, or some other cause, may deprive the School of this advantage, and the native community wish the institution to be placed on a more stable basis. On the recommendation of the Director, the Government have granted the request of the petitioners.

THE HOBART GIRLS' SCHOOL.—By The Order of Government, dated 14th August 1875, the Governor in Council was pleased to sanction a special grant of Rs. 10 a month to "Hobart" Mahomedan Girls' School for one year, to enable the Committee to provide additional accommodation for the school, and to increase the number of teachers. This grant having ceased on the 13th August last, Major B. Hobart, the Treasurer of the School, applied for a renewal of it. When the grant was first applied for the number of Mahomedan girls attending the school was eighty-five, and the staff employed for their instruction and discipline cost Rupees 76, with an addition of Rupees 70 for hire of carts to convey the Goshia children, house rent, and books, &c. There are now 158 children on the books, and the average daily attendance is 130. The staff employed costs Rupees 122, with an addition of Rupees 130 for hire of carts, house rent, &c. On the recommendation of the Director of Public Instruction, the Government have sanctioned an increased grant for the school.

THE EDUCATIONAL DEPARTMENT IN BENGAL.—A much more flourishing affair than that of the North-West, by the bye, is hard up for professors, we understand; of course, it will only take highly qualified men, but offers lately sent home have not been favourably received at the universities. The truth seems to be that the promises of the Indian Government are no longer trusted as they used to be. The discontent which pervades almost every branch of the public service here makes itself felt in England. The rupee in which salaries are paid has utterly lost its character. Englishmen know it

has fallen in value heavily; it may fall again, they don't know how much. Pensions in every branch of the Uncovenanted Service are risen in amount and long deferred. The Secretary of State and the most favoured body of European employes are known to be wrangling about alleged breaches, if not of contract, at all events, of honourable understanding, and the result is, that good men are shy of taking time for their pension. Of course, boys swarm to competitive examinations. No middle class father of boys knows what on earth to do with them in these days, and flings them at every breach in the fortifications of employment, however little it may look practicable, no matter how little worth taking the citadel may be. The fact, therefore, that examination seats are faced, no matter how severe, by Assistant Magistrates, Captains, or Engineers, proves nothing against the evidence we have, that the service of the Government of India is no longer looked upon at home as a good thing. And the destruction of the old belief that it was, is a long price for the Government to pay: in return for petty thrift in salaries and pensions.—*Pioneer.*

School Inspection. By D. R. Pearson, M. A., Assistant Commissioner of Endowed Schools: Macmillan and Co. 1875.

Though this book is immediately addressed to a small class only—those engaged in the inspection of schools—it contains much that is valuable and instructive for teachers in general. For instance, that portion of the work which deals with the inspection (not the examination) of schools, is, in effect, a practical treatise on the management of a school; on discipline, on common mistakes and faulty systems, and on the method of teaching. Perhaps the writer is rather too scrupulous and minute in some of his suggestions; at all events, only a very conscientious and precise inspector would literally carry out such a direction as this:—

"The utmost attention should be paid to the mode of holding books, slates, and pencils; to the manner of rising up and sitting down, and to all the postures and movements of the children." The following observations on the comparative value of inspection and examination seem to us judicious and true:—

"No one can be certain of the results of teaching, on children, until those results have been tested by examination. The capacity of children for receiving and retaining knowledge is very various. The trials by which knowledge comes home to different children, and to the same children at various times, are so different, that no one can venture to say that any given child has apprehended, until he has proved by examination that it does apprehend. Education, unfortunately, is an art which is subject to so many delusions, that teachers whose work is not tested by examination as well as by inspection, will be sure to deceive both themselves and the inspector. But the combination of careful and intelligent inspection with judicious and thorough examination, obviates the defects which belong to each system separately."

We are disposed to think that the converse of the first sentence quoted would be equally true, and that where an examination is satisfactory the teaching must be good; but in a general sense Mr. Pearson may be right in saying, "Examination is not an infallible test."

Mr. Fearon has written some careful observations on the teaching of English grammar. He goes rather too far, we think, in saying that "no person who has not studied Old English, to say nothing of any other cognate German dialects, can teach English grammar with any safety." Such a person cannot, of course, teach the *rationale* of English grammar completely, but he can teach the structure of sentences thoroughly. The writer gives, as an illustration of his remark, the exceptional word "methinks." It is true that an elementary teacher probably cannot analyse the word in question, or compare with it the meanings of the Greek *δοκέω*, or other similar forms; and if he could his information would be thrown away on his class; but surely it is sufficient for his purpose to arrive at the fact that "methinks" is equivalent to "it seems to me." We consider it also an exaggeration to say that "the study of grammar is not of much value until it can be treated comparatively." But we fully agree with Mr. Fearon that "What is wanted is to get as quickly as possible a notion of the structure of the sentence, and of the logical relation of its parts." We hope it is not intended that the teacher should insist on the children in our national schools mastering such technical minutiae as "incomplete predication," "the indirect objective relation of nouns and pronouns, &c.," when the short time at their disposal might be so much more profitably employed in enabling them to understand the ordinary construction of a sentence. However, that part of the volume which relates to this subject, and the succeeding remarks on the teaching of Arithmetic, are worthy of a careful perusal.

As to the teaching of Geography, everybody will agree that "Lessons in Political Geography ought to be connected with History and illustrated as much as possible by anecdotes." The truth of the next sentence will come home to all teachers, and indeed to all who have been at school, as applicable to geography lessons in general. "The great danger of this branch of geography is its tendency to degenerate into more lifeless, thoughtless cram, or a mere repertory and catechism of unmeaning names." The author's observations on this subject deserve quoting:—

"Anything that will help the teacher and his staff to avoid mere statistics in their geography lessons, to disentangle the important from the unimportant details, and to throw a colour of human interest over the whole work, should be caught at and utilized. It is the teacher's duty to search eagerly for such materials as he can get, and to use them with ingenuity. Both inspector and teacher should shake the most of their materials, remembering always that it is the bad workman who blames his tools."

There is some truth in the opinion expressed towards the close of the book on the advantage of conducting an examination orally. But not only is it requisite that here the examiner should "be in fact himself a good practical teacher," which is not always the case, but that all the scholars should be equally able to do themselves justice in a *vis-à-vis* examination, which is never the fact. It is not without good reason that oral examination holds now but a small place at our higher schools and at the Universities. But Mr. Fearon's comments on this point are the acute observations of a careful and efficient teacher. Indeed (apart from the special subject of the work, which is well and exhaustively treated) the book abounds in

instructive dissertations and remarks, derived from the writer's mature experience; and it is the clearness and practical excellence of these which render the work a useful and suggestive study for many other persons besides inspectors of schools.—*Educational Times*.

CORRESPONDENCE.

[The Editor is not responsible for Correspondence.]

TO THE EDITOR OF THE MADRAS JOURNAL OF EDUCATION.

SIR,—I have a friend here who pines himself upon what he calls a "practical knowledge of English Grammar and Idiom," and with whom I have had frequent disputes on points of Grammar. I have, however, invariably failed to convince him, simply because he has so much faith in his own knowledge that he will not be convinced. I have no doubt however that he will consider you a better authority than myself, and I therefore request you will kindly answer the following queries in the next issue of your Journal.

1. Whether it is correct to say "To-morrow will be Sunday," or "To-morrow is Sunday" or are both so?
2. Whether it is more usual to say *bran-new* or *brand-new*?
3. Whether it is correct to say "Two and two are four," or "Two and two is four"?
4. What part of speech is *Welcome* in the sentence "Welcome all visitors to——", (written over a gateway)?

I enclose my card and remain,

Sir,

Yours faithfully,
A SCHOOLMASTER.

- [1. It appears more correct to say "To-morrow is Sunday" for as the old proverb says "To-morrow never comes."

"It is a period nowhere to be found
In all the hoary registers of time,
Unless perchance in the fool's calendar."

2. *Brand-new* is etymologically correct; the literal meaning being new as if just branded with a trade mark, but we suspect it is more usual to say *bran-new*, as the majority of people seldom take pains to enunciate their words distinctly. *Bran-new* is used by Charles Lamb in his correspondence with Wordsworth.

3. *Two and two is four* is correct; as Bain observes, such expression as "Two and two are four," "three times four are twelve" are scarcely defensible. What we mean in the former case is that the numerical combination of two and two is four.

4. *Welcome* is here an adjective used interjectionally. The sentence in full would be "you are welcome, all visitors &c."—Ed. M.F.K.

Sir,—I have for some time sent you Questions and Solutions in Algebra and Trigonometry which you were kind enough to publish in your Journal. They are all original, or at least I have not seen those questions or Solutions in any book. If any of them be found in any other author, I beg the charitable public to think that I re-discovered them for myself. "He that is pleased with himself easily imagines that he shall please others," and as I thought that some of them were very interesting (see Vol. xvii. p. 560), I ventured to give them to the public. My plan hitherto has been to send questions first, and when they have appeared, to send the solutions. The last Journal in which my solutions appeared is that of December 1875. I sent questions twice or thrice after that but they have not appeared. Therefore I beg you to insert the following in your valuable Journal and oblige.

Your obedient Servant,
A. V. THOMAS.

COLOMBO, September 9th 1876.

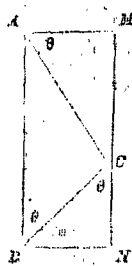
Solutions in Trigonometry.

I. To prove " $\sin^2\theta + \cos^2\theta = 1$ " without assuming the truth of any proposition subsequent to Euc. I. 31.

Let ABC be a right angled triangle, right angled at C. Through C draw NCM parallel to AB. Euc. I. 31. From the points A and B draw AM and BN perpendicular to MN; Then ABNM is a rectangle and $AM = BN$ and $AB = MN = NC + CM$. Let the angle $ABC = \theta$.

Then $BCN = ABC$ (Euc. I. 27) $= \theta$ and also $CAM = BCN$ (Euc. I. 32) $= \theta$.

Then from the fundamental definitions of Trigonometry, in the triangle ABC, $\frac{AC}{AB} = \sin \theta$ (1); $\frac{BC}{AB} = \cos \theta$. (2); In the triangle BCN, $\frac{NC}{BC} = \cos \theta$ (3)



and in the triangle ACM, $\frac{CM}{AC} = \sin \theta$ (4)

Now from (1) we have $AC = AB \sin \theta$, and from (4) $AC = \frac{CM}{\sin \theta}$

$\therefore AB \sin \theta = \frac{CM}{\sin \theta} \therefore CM = AB \sin^2 \theta$. Again from (2) we have

$BC = AB \cos \theta$ and from (3) $BC = \frac{NC}{\cos \theta} \therefore AB \cos \theta = \frac{NC}{\cos \theta}$

$\therefore AB \cos^2 \theta = NC$, but we have also $CM = AB \sin^2 \theta$

$\therefore AB \cos^2 \theta + AB \sin^2 \theta = CM + NC$ but $CM + NC = AB$.

$\therefore AB (\cos^2 \theta + \sin^2 \theta) = AB$. i. e. $\cos^2 \theta + \sin^2 \theta = 1$.

Or thus without assuming the truth of any Proposition subsequent to Euc. I. 32.

Let ABC be a right angled triangle, right angled at C.

Through C draw CD perpendicular to AB.

Let the angle ABC be $= \theta$.

Then the angle $ACD = 90^\circ - \angle DCB = \angle DBC = \theta$.

From the triangle ABC, we have $\sin \theta = \frac{AC}{AB}$ (1) $\cos \theta = \frac{BC}{AB}$ (2)

" DBC, " $\cos \theta = \frac{BD}{BC}$ (3)

" ADC, " $\sin \theta = \frac{AD}{AC}$ (4)

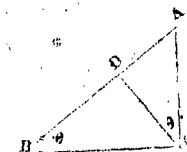
From (1) $AB \sin \theta = AC$; and $AC = \frac{AD}{\sin \theta}$ from (4)

$\therefore AB \sin \theta = \frac{AD}{\sin \theta} \therefore AB \sin^2 \theta = AD$ (a)

Again from (2) $AB \cos \theta = BC$; and $BC = \frac{BD}{\cos \theta}$ from (3)

$\therefore AB \cos \theta = \frac{BD}{\cos \theta} \therefore AB \cos^2 \theta = BD$

But $AB \sin^2 \theta = AD$ from (a)



Adding these, $AB (\sin^2 \theta + \cos^2 \theta) = AD + BD = AC$.

$\therefore \sin^2 \theta + \cos^2 \theta = 1$.

II. Given $\sqrt{x^2 - 2ax \cos \beta + a^2} + \sqrt{x^2 - 2ax \cos (60^\circ - \beta) + a^2} = x$ to find x . We have

$$\sqrt{x^2 - 2ax \cos (60^\circ - \beta) + a^2} = x - \sqrt{x^2 - 2ax \cos \beta + a^2};$$

$$\text{squaring, } x^2 - 2ax \cos (60^\circ - \beta) + a^2 = x^2 + x^2 - 2ax \cos \beta + a^2 - 2x \sqrt{x^2 - 2ax \cos \beta + a^2};$$

$$\therefore x + 2a \cos (60^\circ - \beta) - \cos \beta = 2 \sqrt{x^2 - 2ax \cos \beta + a^2};$$

$$\therefore x - 2a \cos (60^\circ + \beta) = 2 \sqrt{x^2 - 2ax \cos \beta + a^2}. \text{ For } \cos (60^\circ - \beta) - \cos \beta = -\cos (60^\circ + \beta)$$

$$\therefore x^2 - 4ax \cos (60^\circ + \beta) + 4a^2 \cos^2 (60^\circ + \beta) = 4x^2 - 8ax \cos \beta + 4a^2$$

$$\therefore 3x^2 + 4ax \{ \cos (60^\circ + \beta) - 2 \cos \beta \} + 4a^2 \sin^2 (60^\circ + \beta) = 0$$

$$\text{but } \cos (60^\circ + \beta) - 2 \cos \beta = -\sqrt{3} \sin (60^\circ + \beta)$$

$$\therefore 3x^2 - 4ax \sqrt{3} \sin (60^\circ + \beta) + 4a^2 \sin^2 (60^\circ + \beta) = 0$$

$$\therefore \left(\frac{x}{a} \right)^2 - 2 \sin (60^\circ + \beta) \left(\frac{x}{a} \right) + \sin^2 (60^\circ + \beta) = 0$$

$$\therefore \frac{x}{a} = \frac{\sin (60^\circ + \beta)}{\sin 60^\circ} \text{ Ans.}$$

III. If $\tan \theta_n = \frac{t}{nr}$ To prove that

$$\tan (\theta_1 + \theta_2 + \dots + \theta_n) = \frac{t}{r}$$

We have $\tan \theta_1 = \frac{t}{nr}$; $\tan \theta_2 = \frac{t}{nr}$; $\therefore \tan (\theta_1 +$

$$\frac{\frac{t}{nr} + \frac{t}{nr}}{1 - \frac{t^2}{n^2 r^2}} = \frac{2t}{nr} \frac{1 + \frac{t^2}{n^2 r^2}}{1 - \frac{t^2}{n^2 r^2}} = \frac{2t(1 + \frac{t^2}{n^2 r^2})}{nr(1 - \frac{t^2}{n^2 r^2})}$$

$$\text{and } \tan \theta_3 = \frac{t}{nr} \therefore \tan (\theta_1 + \theta_2 + \theta_3) = \frac{\frac{2t}{nr} + \frac{t}{nr}}{1 - \frac{4t^2}{n^2 r^2}} = \frac{3t}{nr}$$

$$= \frac{12t^3 + 36t^3 r^2}{4t^3 nr + n^3 r^3} = \frac{3t(4t^2 + n^2 r^2)}{nr(4t^2 + n^2 r^2)} = \frac{3t}{nr}$$

$$\therefore \tan (\theta_1 + \theta_2 + \theta_3) = \frac{3t}{nr}$$

Now suppose the theorem were known to be true for $\tan (\theta_1 + \theta_2 + \dots + \theta_n)$.

So that $(\theta_1 + \theta_2 + \dots + \theta_n) = \frac{at}{nr}$. Then $\tan (\theta_1 + \theta_2 + \dots + \theta_n + \theta_{n+1})$

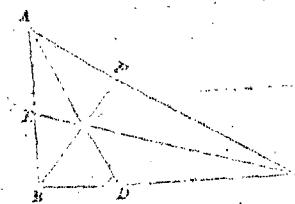
$$\frac{\frac{at}{nr} + \frac{t}{n(a+1)}}{1 - \frac{at^2}{nr(a+1)^2}} = \frac{t(a+1)(a^2 + n^2 r^2)}{nr(a^2 + n^2 r^2)} = \frac{t(a+1)}{nr}$$

If the theorem be true for $\tan (\theta_1 + \theta_2 + \dots + \theta_n)$ it is true also for $\tan (\theta_1 + \theta_2 + \dots + \theta_n + \theta_{n+1})$. But we have seen that it is true for $\tan (\theta_1 + \theta_2)$ and $\tan (\theta_1 + \theta_2 + \theta_3)$ it is true also for $\tan (\theta_1 + \dots + \theta_n)$ and so on. So that

$$\tan (\theta_1 + \theta_2 + \dots + \theta_n) = \frac{at}{nr}$$

IV. ABC is a triangle. AD, BE and CF are drawn bisecting the angles A, B and C, and meeting the opposite sides a, b, c in D, E and F. To prove that

$$\frac{BD^2 - DC^2}{BD - DC} + \frac{FC^2 - AF^2}{FC - AF} + \frac{AE^2 - BE^2}{AE - BE} = \frac{BD^2 - DC^2 + FC^2 - AF^2 + AE^2 - BE^2}{BD - DC + FC - AF + AE - BE}$$



We have $BD : DC :: c : b$
 Euc. vi. 3, and $BD + DC = a$

$$\therefore BD = \frac{ac}{b+c} \text{ and } DC = \frac{ab}{b+c}$$

$$\therefore BD^2 - DC^2 = \frac{a^3(c-b)}{c+b}; \quad BD - DC = \frac{a(c-b)}{c+b}$$

$$\text{and } \frac{BD^2 - DC^2}{BD - DC} = a.$$

Similarly

$$FC^2 - AF^2 = \frac{b^3(a-c)}{a+c}; \quad FC - AF = \frac{b(a-c)}{a+c}$$

$$\text{and } \frac{FC^2 - AF^2}{FC - AF} = b.$$

$$AE^2 - BE^2 = \frac{c^2(b-a)}{b+a}; \quad AE - BE = \frac{c(b-a)}{b+a}$$

$$\text{and } \frac{AE^2 - BE^2}{AE - BE} = c.$$

Now the left hand side is equal to $a + b + c$; we shall show that the right hand side also is equal to $a + b + c$.

The right-hand expression

$$\frac{a^2(c-b)}{c+b} + \frac{b^2(a-c)}{a+c} + \frac{c^2(b-a)}{b+a} \\ = \frac{a(a-b)}{c+b} + \frac{b(b-a)}{a+c} + \frac{c(c-b)}{b+a}$$

$$\text{Now we have } \frac{a(a-b)(c+b)}{c+b} + \frac{b(b-a)(a+c)}{a+c} \\ + \frac{c(c-b)(b+a)}{b+a} = 0 \text{ identically.}$$

Adding this with the Numerator we have the expression

$$\frac{a^2(c-b)}{c+b} + \frac{a(a-b)(c+b)}{c+b} + \frac{b^2(a-c)}{a+c} + \frac{b(b-a)(a+c)}{a+c} \\ \left[+ \frac{c^2(b-a)}{b+a} + \frac{c(c-b)(b+a)}{b+a} \right]$$

$$\frac{a^2(c-b)}{c+b} + \frac{b^2(a-c)}{a+c} + \frac{c^2(b-a)}{b+a}$$

$$\frac{(a+b+c) \left\{ \frac{a^2(c-b)}{c+b} + \frac{b^2(a-c)}{a+c} + \frac{c^2(b-a)}{b+a} \right\}}{\frac{a^2(c-b)}{c+b} + \frac{b^2(a-c)}{a+c} + \frac{c^2(b-a)}{b+a}} = a + b + c.$$

Questions in Trigonometry.

I. Find x from the equations

$$(1) \quad \sqrt{x^2 - 2ax \cos \beta} + a^2$$

$$+ \sqrt{x^2 - 2ax (\cos \beta + \sin \theta)} + 2a^2 = a$$

$$(2) \quad \sqrt{x^2 - 2ax \sin \theta} + a^2$$

$$+ \sqrt{x^2 + 2ax \sin (\theta - 60^\circ)} + a^2 = x$$

$$(3) \quad \sqrt{a^2 + 2bx \sin (60^\circ + \theta)} + b^2$$

$$= \sqrt{x^2 + 2bx \sin \theta} + b^2 = a$$

$$(4) \quad \sqrt{a^2 - 2ax \cos \theta} + x^2 + \sqrt{b^2 - 2bx \cos \theta} + x^2$$

$$= \sqrt{a^2 - 2ab \cos 2\theta} + b^2$$

II. By taking a point in the produced side of an equilateral triangle and joining it with the opposite angle, shew if

$$\sqrt{a^2 - 2ab \cos (60^\circ + \theta)} + b^2$$

$$= \sqrt{a^2 - 2ab \cos \theta} + b^2 = a$$

$$\text{that } a = \frac{b \sin (60^\circ - \theta)}{\sin 60^\circ}$$

III. Having given

$$\sin \theta \sin 2\theta \sin 3\theta = \sin (60^\circ - \theta) \sin (60^\circ - 2\theta) (\sin 60^\circ - 3\theta)$$

Find θ .

IV. In any triangle

$$a = \sqrt{\frac{c}{2}} \sqrt{c + \sqrt{c^2 - 4b^2 \sin^2 A}}$$

V. In a right-angled triangle

$$\left\{ \frac{2ab}{a+b+c} \right\}^2 = \left\{ \frac{b^2 \sin 2A}{b+b \cos A + a \sin B} \right\}^2 \\ + \left\{ \frac{a^2 \sin 2B}{a+a \cos B + b \sin A} \right\}^2$$

VI. Given $\frac{\cot \theta}{\sin \theta} = \frac{\sin 2A}{\sin 3A}$, find $\cos \theta$.

VII. Show that

$$2 (\cos^{10} \theta + \sin^{10} \theta) - 5 (\cos^8 \theta + \sin^8 \theta) \\ + 4 (\cos^6 \theta + \sin^6 \theta) = \cos^4 \theta + \sin^4 \theta$$

VIII. From the equation $\sin^2 3\theta + \cos^2 3\theta = 1$, deduce the following question.

"Show that $2(\sin^6 \theta + \cos^6 \theta) - 3(\sin^4 \theta + \cos^4 \theta) + 1 = 0$."

IX. Given, $n \sin \theta = \sin \phi$; $e \cos \theta = \cos \phi$

and $n^2 \tan^2 \theta = 1 - 2e \cos(\theta + \phi) + e^2$; show that

$$\sin \frac{\theta}{2} = \pm \frac{1}{2n}.$$

X. Find the area of the triangle whose sides are 65, 72 and 97 feet.

A. V. THOMAS.

NOTES ON THE ART OF EDUCATION.

1.—METHODS OF PUNISHMENT.

We have heard a great deal lately about the Science of Education, and not much about the Art. Now it seems to me that the latter is at present the more important of the two. For unquestionably the science is not an *a priori* one, not one founded on a few axioms and postulates, and readily deducible therefrom, but consists of general inferences from observed results; and these results are to be furnished by those who are practically engaged in the art. Again, any rules of the art are capable of being immediately tested by the experience of thousands of teachers, whereas some of the statements of the science seem to be in the clouds, and not to admit of an unqualified assent or unqualified denial.

Personally I should so like to see papers on branches of the art of Education written in your pages that I venture to send you these experiences of my own on one of these branches, and call the paper No. 1, in the hope that some one else will contribute Nos. 2 and 3 &c.

One more word by way of preface.

I believe there is a personal element in the art that cannot be altogether eliminated. My friend A uses a method which I cannot use, and conversely. Methods, even in trifles, are the expression of a teacher himself, and must be his own; not necessarily his own invention; but congenial, adapted, assimilated. You cannot lay down a set of rules such that, if a teacher conformed to them he would be a good teacher, because you cannot touch his individuality, which is the most important thing about him. Hence this paper is only suggestive, and will only be of use to those who in various points are like me. A young master may read this, and one or two paragraphs may strike him as useful; and the rest is inapplicable to him. That is all I hope for. And even the suggestions of those paragraphs he will reproduce not in the same, but in a different form.

1. *Defects in Work*.—Boys come in with their lessons lazily learnt, or shirked. What is to be done? If possible let the penalty be

immediate; let the work be finished then and there, before the boy leaves the room. The punishment ought to be that the work is done at an inconvenient time, if he has failed to do it at a convenient time. The greatest deterrent is *certainly* of the work being required. It is in boy-nature gladly to run risk of a heavy punishment, but not in boy-nature to meet the inevitably recurring exaction of the work whenever it is neglected. The principle of least action comes in. It is less trouble to do it at the right time. Small payments but quick returns, and above all no bad debts, should be the teacher's motto.

In this matter few things are more difficult than to distinguish between idleness and incapacity, or rather between the avoidable idleness in preparing that particular lesson, and the general feebleness and inattention which years of imperfect attention and work have riveted on the boy. For this no rules can be given; it depends on quick sympathy; on the interpretation of a face, of a tone; on the knowledge of character of some at any rate of the class. To some extent, too, it depends on experience derived from what former classes have found difficult. "Please, Sir, I can't understand it;" "I tried a whole hour, and didn't get anything done," and so on. I accept these unhesitatingly, as exempting from blame, but of course not from doing the work. "Very well; when can you come to my study and go over it with me?" Shall we say three this afternoon?" and we choose finally some time that suits him.

What is absolutely essential in the matter is that the boy should feel that his learning the lesson is in your eyes paramount to everything else.

2. *Inattention*.—There are some boys whose attention is always wandering, and it is not easy to know what to do with them, even for an experienced and good master. I assume that the form is in first-rate order as a whole, and that these are exceptions. I find the best plan to say a private word to such boys at the beginning of a lesson: even a look to say that you don't forget them, and that you will have an eye on them, is enough, specially if followed by a word or two, now and then, at the end of a lesson—of praise if possible, of blame if necessary. Such boys need help against a fault; and not once only, but day by day for term after term.

When inattention amounts to misbehaviour, throwing paper about, kicking his neighbour's shins, &c., then he must be victimized. "Up on your hind legs, Jones," and if you keep him there for some time this will probably be enough.

3. *Being Late*.—I am not sure on this matter whether it is, or is not, better to make an iron rule to accept no excuses whatever, and to set lines whenever a boy is late. I have tried, both plans, and incline to having no such rule. I forgive them when it is plainly accident, though accidents do happen more frequently to some than to others; I forgive when it is exceptional, even though the boy pleads no excuse except that he did not know it was so late. And I think it is easy to prevent unpunctuality becoming habitual even with this mild regime. Very much depends on the master's punctuality. If he is often five minutes late, no wonder that boys run the chance of his being late on some particular occasion. But if he is absolutely punctual they soon adopt his habits. No plan is more ruinous than to be a little in the hope that they will all be there before you, which seems to be the plan some masters try, and adopt for years together.

There are exceptionally unpunctual boys; and this is a fault one is bound to cure. I cured the worst case that I ever knew, one S—, by requiring cash payments. In other words, he had to bring 100 lines, ready written, into every lesson with him. If he came in late, I took the lines; and then he had to prepare another 100 for the next lesson. The absurdity of coming up and paying me the 100 lines in presence of the whole class for coming in two minutes late at last struck him, and as long as he stayed here he was late no more. Not that it finally cured him. I heard one day, after he had left, from one of his friends; he told me that S— was at a little village on the railway between Rome and Florence, and likely to remain there. "There was only one train a day that stopped there, and he was always late for it."

4. *Unfairness and Falsehood.*—As a rule this is best dealt with privately, and not before the class. I assume of course that the fault is not so common that it is necessary to make punishment deterrent, and that you need only consider what is best for the boy himself. But when others are wronged by the act, as by copying in an examination, or using unfair means to obtain marks, it must be treated as an offence against honour, and publicly punished; not by lines, or by any conventional punishment; but by disgrace in some temporary form, loss of marks, sitting apart from the rest in examination, having his name left out in the printed list of the form, &c., loss of promotion. Also if B gets A to help him unfairly A must be treated just in the same manner as B. Not long ago B came imploring that he might bear the whole punishment, saying that he had made A help him; that he would willingly be flogged if A might not lose his promotion; but it would not do. Boys must learn that their sins are not visited on their own heads, only, and that they cannot circumscribe the effects of a deed.

5. *Lawlessness.*—There are some high-spirited lads who will break rules and chance it. One of the finest boys I ever had came to me with the worst of bad characters from a preparatory school, where he had been a great offender, and badly managed. Devotion to natural history, and the simple love of daring, led him into many scrapes, and brought many lines on his head; but I am happy to think that he never felt himself a black sheep. The rascal had a gun at school for two years, which he kept somewhere out of the house, I suspect at a certain mill; but I could never get a sight of it, or undeniable proofs of its existence. He certainly brought me rare birds, very well shot, but he always showed me his catapult as his weapon. There was rather a twinkle in his eye one day as he showed me a rare kind of duck he had brought down flying—with a catapult. He is now a thoroughly well-trained and scientific young traveller, and if he lives we shall hear of him again.

6. *Indiscipline.*—What is to be done by a master who cannot keep order? In every school there are some such weak vessels: the boys play tricks; cut his shoestrings, bring in cats or butterflies; throw paper darts about; rush out with a noise, &c. I do not know the fault is plainly his, and he must begin with himself. But general punishments are unquestionably wrong. I have known a man under these circumstances set 34,000 lines before breakfast one morning; 1,000 lines apiece to every boy in his form. Such a punishment only makes matters worse, it is needless to say, whether it is done or

not. General blame and scolding is equally undesirable. A master becomes irritated at the drowsiness, the inattention, the bad manners of a form; and I have known such a one say sharply that they were all ignorant and did not wish to learn. A whisper was audible, 'You would not say that unless you hated us.' No, the master must fortify himself with stores of good humour, loving-kindness, and sympathy; and bite his tongue out rather than say a bitter thing or set a lasty punishment. He must make the class feel that his duty of teaching them may be made more difficult by themselves, but cannot be dispensed with; and if they are troublesome it will take him and them longer to get through their duty; the difficulty is to be neither vindictive nor cross.

There is one method, a very bad one, to punish by loss of marks, and so to bribe boys to be quiet. This they always see through.

One or two general remarks may be added.

I believe it is always unwise, or very nearly always, to reprove before the whole class during lesson hours. If circumstances make it necessary to speak before all, wait till the lesson is over; the teaching time is not to be sacrificed.

Satirical remarks seem to me nearly always to do harm; the only exception that occurs to me is when some young gentleman gives himself airs and is corrected. He is perhaps the better for a touch of the lash, but it is the most dangerous weapon to use. To use it on stupidity is a crime as well as a folly.

To let lines and punishments accumulate on a boy is to be carefully avoided. An unfortunate and careless boy may get into hopeless arrears, and have every thing doubled for not being done at the right time. And when the boy is in the hands of several masters at the same time, and by getting into difficulties with one is thrown into fresh difficulties with another, his work may be destroyed for a week without any one master being conscious that he is to blame. The only security I know of against this is the plan that I proceed to explain—not a new one—which works admirably.

All impositions must be written on one kind of paper procurable only from the boy's form master or tutor at a special hour, say after recess, and the sheets must be signed with the master's initials, date, and the number of lines given out. (1) This secures to us that every boy has to report himself, whenever he gets lines, to his special caretaker. This alone is an excellent deterrent. A boy dotes to come and ask for 50 lines for being late day after day; or to confess that he has got 200 lines for being impertinent to Mr.—. (2) It is a complete guarantee against the undue crowding of impositions, as the tutor need not give out more paper than he knows the boy has leisure to cover. (3) It secures that the impositions shall be done at the right times, and (4) it is an excellent check on masters. Every master knows that he is reporting himself as having set lines. No master dare set 34,000 lines now before breakfast. The practical effect of the introduction of such a rule is to cut down impositions to a quarter, at most, of what they were. I do not think this plan can be too strongly recommended. It has educated some masters, as well as spared many boys.

There is another mistake that masters, as well as juries, will sometimes commit. A boy is charged with a very grave offence, say copying in an examination; but the evidence is not quite convincing.

In such a case I have known a master inflict a punishment proportionate not to the crime but to the degree of evidence that the crime was committed; take away his marks from the paper for example, but not make him lose his promotion. It is as if a man is charged with murder, and when the case for identity breaks down the judge sentences him to six months' imprisonment with hard labour. This when broadly stated is a plain blunder, but it is one that is easy to commit, and highly injurious.

After all, as I reflect on what is just written, the real difficulty of the question is hardly touched. If one is a martinet, and listens to no reason, the boys suffer in time and temper, and a wrong relation is set up. On the other hand, if one is not inexorable, the door is open to excuse-making, to partiality, to unpunctuality, and bad work and discipline of every kind. And yet there is a mean, that many a man hits. The best masters I know set very few punishments, and yet have every thing in the highest order, and have their own minds, and that of their classes, set on the work without even a momentary distraction. This is the real achievement: to have order so instinctive and universal that a breach of it should be extremely unlikely and suppressible with an eyebrow and a finger. And it is plain that this art may be acquired by some men who fail at first from want of judgment and temper and insight, by the simple process of always keeping it in mind, and being careful and deliberate without sacrificing their standard of requirements.

There are one or two methods of punishment that I should much like to see reports of, viz. Drill, Punishment Schools, and Caning. Each has its merits and its demerits.—*Bombay Educational Record.*

ENGLISH RULE IN INDIA.

I wish to say a few words, and, if it will not weary you, not a few words, on a subject as to which there exists a great variety, if not contrariety, of opinion; I mean the character and the duration of the relations between India and England. I venture to think that a right understanding of these should lie at the root of all the operations and efforts of the East India Association, and be the guiding star of those who seek to promote the welfare of the country from which I come and that in which I now am. I think, too, that a careful consideration of the subject would eliminate much of the discrepancy of opinion that now exists regarding it. On the one hand, Englishmen—I am speaking of the masses in England, not, of course, of Englishmen in this country—are too apt to undervalue the immense benefits which accrue to them from their connection with India. They do not consider, for example, that our best Colonial Governors, thousands of our finest soldiers, and certainly our best generals—the Duke of Wellington, for instance—have been trained in India, and that India forms, in fact, the best school for the service of the State in both military and civil matters. They take no note of that most weighty fact, that India has maintained, and is maintaining, a great army for England, which makes her the paramount power in Asia, and which, while enabling her to cope with any force that could be brought against her there, also supplies her with the means of detaching a formidable contingent to any quarter of the globe. As to this, let me say that a committee of the American Congress appointed

years ago to inquire into foreign affairs, reported that the colonial empire of Great Britain, pervading as it does all parts of the world, and furnishing with labour and material resources on every side, contributes to the mother country a supply equivalent to a million of men at arms. But now greatly would that estimate be increased if the pulse of India and of England beat with one throb; if the people of the two countries were thoroughly united in heart, thought, and action, and if this great army were regarded not as a carrion, but as the exponent of the united strength of India and England, which might be indefinitely increased from the warlike population of both; and may we not take this view when we remember the innumerable instances of loyalty and devotion to the English Government which have been manifested by the Princes and people of India during so many years? In general, Englishmen regard, too, the fact that for more than a century a stream of wealth has been flowing from India into England, which has contributed to make her what she is—the richest country in the world. India stands third in the long list of our commercial correspondents, but the stream of which I speak is not made up of the profits of trade alone, though these have been considerable. It has many other affluents, some of which do not run upon the surface, and their course, therefore, cannot easily be traced. One of these might be styled private remittances, being the savings of individuals, which in the old days were, we know, of vast amount. How much wealth has been sent to England in that way can never be calculated, but of this we may be sure, that thousands of English families have had their coffers enriched from Hindustan. On the other hand, the people of India overlook the balance side of the account. If England draws wealth from India, she causes a corresponding stream to replace what is drawn out. She has found many sources of wealth in India which did not previously exist. I may mention, for example, the indigo farms and the tea and coffee plantations, founded not only by Englishmen, but, what is still more important for India, with English capital. Above all, I must instance the opium trade. Now it has been said that India pays to England a tribute of 12,000,000*l.*, sent to meet what may be called the English account. It would not be difficult to reduce this amount, but without going into the question of how much of this so-called tribute is interest for money lent, and payment for stores of which India gets the benefit, let us assume the statement to be correct. But it cannot be denied that two-thirds of this account are balanced by the opium trade founded by England, by which a stream of 8,000,000*l.* is annually drawn from China, and besides that, 1,000,000 of opium cultivators are maintained in great comfort in India. Thus, that account is balanced. Again, waving all discussion as to the comparative merit of public works constructed in India by Englishmen, it must, at all events, be admitted that they have immensely facilitated communication, have given India the means of transporting her surplus produce to the sea, and have done more than anything else towards amalgamating this great Empire. Above all, England has conferred on India a benefit which outweighs all others, the value of which cannot be measured by silver or gold or gems—the inestimable blessing of peace, a peace which includes not only internal tranquillity, but absolute freedom from foreign aggression. Lastly, I must say that here, in Bombay

at least, there can be no question as to the side to which the balance of benefit inclines, when we look on this glorious city, which has arisen under English rule out of a desolate swamp. But, once more, the people of India are too much accustomed to use the word "Peringhi," in reference to Englishmen, in the sense in which we use "foreigner," and to think that for the inhabitants of any country to govern themselves must be, under all circumstances, an infinitely better thing than to be governed by foreigners. By this they ignore two facts—the first being that many, perhaps most Natives, have derived great benefits from foreign rule; and of this the English themselves are a signal example. England obtained the first germs of civilization and of Christianity from her Roman rulers, and besought them with tears to remain. She obtained the regeneration of her people from Saxons and Danes and Northmen. She owed her uprising among the nations, and the rudiments of constitutional government to Normans and Plantagenets, and she owes now her religious tolerance and the undisputed succession to the throne to the House of Brunswick, whose first king of England was so completely a foreigner, that his speeches to Parliament, after being composed by his Minister, were read to the Houses by the Chancellor. The second fact is that, as proved by the affinities of language, the English and the Indians spring from the same Aryan race, and though "a dreary sea now flows between," both nations were originally one. Now my endeavour will be to steer a middle course, and as I have no prejudices to warp my judgment, and have had opportunities of studying the relations between India and England, I hope that I may arrive at the truth, and that the truth will be acceptable from my lips. Suffer me now, in attempting to lay down what ought to be thought of the relations between England and India, to call your minds away for a brief moment from the present time to a period more than two centuries ago, and to a scene far removed in every particular from the scene before us. Let your imaginations follow me to a small room in an English seaport, all but defenceless then, but now bristling with such armaments as no other place in the world can show. The time is the 21st of May, 1662. The room is filled with persons of rank, who seem strangely out of place there; but the two most prominent personages are a dark man and a darker woman, who are about to be married, and whose marriage, though neither of them has an Indian tint, signifies the union of Western empire with the East. The man is Charles II., King of England, and the woman is Catherine of Braganza, Infanta or Princess of Portugal, and that which makes their marriage of importance to us in this discussion is that with it began the connection of this island with England. The bride had what was thought then, and might be thought even now, a rich dowry—500,000*l.* in gold, a district in Africa, and, what has since proved to be many times more valuable than both, this noble harbour, this fair island of Bombay, and the prospective glories of this great city, which not long ago almost equalled in population the commercial capital of one of the greatest empires in the world, the United States, and is at this moment the second city of the British Empire, the fifth city of the civilized world, and considerably more populous than the capital of Russia; New York having 821,113 inhabitants. Bombay in 1664, 816,562, and by the last census 644,405, while St.

Petersburg has only 546,000. Now, pausing for a moment at this point, let me ask, has the union of England and Bombay, accomplished in the manner I have described, and enduring from that day until now, been the best thing possible for them both, or could some better fate be imagined for them? Had the Portuguese Princess not transferred this gem from her coronet to the English Crown, how would it sparkle now? In answering this question I desire to speak with all respect of a State which has long been the ally of England, and whose daring navigators first made India accessible to European fleets. But truth compels me to point to that commodious haven which still belongs to Portugal, and which once far outshone Bombay, but whose commerce has long since died out, and whose decaying palaces under its present rulers we can never hope to see rise from their ruins. No one, I imagine, will dispute the fact that Bombay owes its vast superiority over Goa mainly to its having been transferred to England; but I will put another question, and ask what would, in all probability, have been the fate of Bombay had it remained now under Portuguese, but under Indian rulers? We may, perhaps, judge of what it would have been by recalling what it was under Native rule. Its condition must have been indeed wretched, for, thirty-seven years after its transfer to England, one writer says of it: "A sheep or two from Surat is an acceptable present to the best man upon the island. And the unwholesomeness of the water bears a just proportion to the scarcity and meanness of the diet," and both of them, together with a bad air, make a sudden end of many a "poor sailor and soldier. Two monsoons are the age of a man." So little were the advantages of the harbour appreciated, or the future greatness of the island anticipated, that Grant Duff (I mean Grant Duff, the historian—not Grant Duff, the statesman)—tells us that in 1669 it was seriously proposed to exchange it for Jindra! It came into our hands when Sivajee was building up the Maratha Empire; but he was utterly indifferent to the port, and all he did was to build a port on the island of Heneri to stop its trade. But even if he had done all in his power for the island, it would have availed but little, for it must be remembered that just a century later the power of the Maharrattas was broken into fragments at the fatal battle of Panipat, and the incessant intestine wars among the Maharratta leaders forbid the thought that Bombay under their rule could ever have risen to the pitch of prosperity it has attained under a more peaceful government. But take another ground for conjecture. The glory of this island is its shipping, its commerce, its merchant princes. What, may we reasonably suppose, would have been the outcome as regards these under an Indian government? Why, the wildest aspiration of one of the greatest sovereigns that ever governed India was to have a fleet of fifty vessels. Count now the ships that year by year visit this port, count the number that at any one time are assembled in the harbour, and say whether the impossible aspiration of the Emperor Shih Shah has not long since become a reality under British rule. Well then, speaking without bias, and simply aiming at the truth, I must declare that, rough hew the fortune of this island for the last two centuries as you would, you could not have shaped them better than destiny has done. Speaking with all sincerity, I say that Bombay has been safer, wealthier, and more powerful under English rule than it would have been under a Portuguese or an Indian government, and had the English never appeared upon

the same. (Loud cheers.) But what may be said of Bombay in this respect may be said with even greater truth of all India. For the amalgamation of the whole great region from Cape Comorin, by the Suez Mountains into one empire, the extinction of internal war and the freedom and development of internal trade, are of themselves very great and almost priceless blessings, which are not called as they ought to be, only because the times are altogether forgotten, though by no means so very distant, when there was not an Indian river at which the Hindoo did not water his steed, and not an Indian road or by path where the Thug did not lurk for his victim. Observe, too, that the unification of India was the more requisite in face of the continual agglomeration now going on of neighbouring countries into vast empires, which stretch from sea to sea and swallow up the small states near them as a burning forest devours the isolated trees that grow along its border. Thus, at the same time that India has become one, and has massed its strength into a mighty whole which might well defy a world in arms, so the enormous Empire of Russia has *pari passu* been consolidated, which originally consisted of republics such as Novgorod and Moscow, dukedoms as Livonia, Finland, Esthonia, Carolia and Conland, kingdoms like Poland and Georgia, and a long list of principalities and khanates, once separate and independent, but now united into a vast Power that claims to have absolute control over one-sixth of the world's habitable surface. In the same way the Empire of Prussia has grown up from a very small state in 1700 to an Empire, and the most formidable military Power the world has ever seen, able at the shortest notice to put more than a million of veteran soldiers in the field. Across the Atlantic, the United States divide with England almost the entire continent of North America. The Americans are a free people; they glory, not without reason, in their freedom, but they are most tenacious, and wisely so, of keeping their enormous territory unbroken by secession. So far from allowing that, they, of course, look forward to the time, which must come, when their star-spangled banner shall float over a still more extended space. And let it not be imagined that it is mere vanity or unreasonable earth-hunger which induces the most civilized nations of the globe to be jealous of their frontiers, and to hate no inch of ground, but to take as their motto "*Vestigia nulla retrorsum*." In politics, "to be weak is miserable," and there are advantages in an uninterrupted traffic over a vast region, ruled by a single Government, and in a uniform carriage, a common language and identity of laws and customs, that cannot well be estimated. There is much also in the prestige of empire. To be a citizen of no mean city was a privilege which one of the best and wisest of men rated very highly. If, then, there is any truth in these remarks, it is a glorious thing to belong to the greatest empire of all, the most potent among the powerful, more vast than Russia, almost three times as populous as the whole continent of America, richer than any country is or has been—the Empire of Great Britain, including under that name all the British colonies and dependencies. Much has been said of the enormous area of Russia. Russia has been styled the Colossus which overshadows the world, but it is a fact that the dominions of the Queen of England are almost one-tenth larger than the territories ruled by the Czar; for they have an area of 8,518,572 square miles to the 7,867,694 square miles of Russia, while the number of British subjects is three times

greater than Russian, and with resources incomparably superior. Besides that, there is the empire of the sea; and I make no vain boast when I say that so long as India is united to England, no hostile squadron shall ever approach these shores, far less shall any invader from the sea-board, at all events, pollute this soil with his footsteps, or mar the rising prosperity of the country. (Applause.) I say, then, to those, if there be any such, who think that the time may come when the two great countries which Providence has brought together, India and England, will be dissociated—may, might to be unlinked—that they are forecasting that which would be a grievous injury to both, that which in the nature of things there is nothing to render necessary, and which in the interests of mankind, is earnestly to be deprecated and striven against.—*Mr. Estlin.*

WIND AND RAIN.

Mr. Poyson, the Government Astronomer, is no doubt right in denouncing to the term monsoon being applied to the rain which follows upon the change in the direction of the Indian trade-winds in the months of May and October, instead of to the prevailing wind itself. The more correct expression would be, as he remarks, the "Change of Monsoon," an atmospheric phenomenon exhibited in a struggle for mastery between the two periodic winds, the coming one and that which it seeks to displace. This conflict is usually marked by a considerable fall of rain, uncertain, however, both as to duration and quantity. Judging by the last twelve years, northerly winds begin to blow about the 15th October, but seldom assert their ascendancy before the 1st November. The first rain may be expected in about a week or ten days after the southerly winds become shifty, and the second rain three weeks or a month later. These expectations, however, are not always fulfilled. As Mr. Poyson puts it, "It is an even chance that the North-East Monsoon wind shall commence on any day between the 6th and 14th October; that the rain shall follow on any day between the 11th and 23rd of the same month; of that the total amount of rain, popularly mis-called the Monsoon, shall range between 20.9 and 35.2 inches."

From his own tabular statements, it appears that the northerly wind may begin any day between the 2nd and the 17th October both inclusive, and should be settled between the 10th October and the 20th November. Strangely enough, the two extremes were encountered in the same year, 1844, when the change commenced on the 2nd October, and was completed on the 20th of the ensuing month. Since the introduction of steam navigation, the actual period of change has become a matter of comparative indifference to mariners, though it is only since the opening of the Suez Canal that the old sailing ships have been practically abolished. Ten years ago, ship-owners in England aimed the departure of their vessels so that they should receive the full force of the south-west monsoon in running up the Bay of Bengal, regardless of the health or comfort of the passengers who were landed in Calcutta in the steaming months of June, July and August. All that is now happily changed though, as Mr. Poyson assures us, the south-west end

north-east winds still battle for their six months' ascendancy from May to October, and from October to May.

What now most concerns us is the rainfall at these different periods. The "latter rains" are divided into the first and the second rains. The first may fall between the 9th October and the 15th November, and may end between the 20th October and the 28th of the following month. The earlier the rainfall, the earlier its cessation. In 1867, it began on the 9th and ended on the 26th October, the total quantity being only 3·4 inches. Again, in 1871 only 5·2 inches fell between October the 17th and 24th, both inclusive; and last year no more than 6·5 inches were registered between the 5th and the 24th of that month. The rule, however, is not certain, for in 1871 between the 16th and the 27th October, the downpour amounted to 21·3 inches, the largest amount known in 12 years, and in 1870 the fall of rain between the 17th and 28th October was not less than 28·8 inches. Again, in 1866, when the first rain began so late as the 15th November, 11·4 inches were registered by the 25th, when it ended. This experience shows that it is too early to despond, because as yet scarce one inch and a half has marked the present change of monsoon. The average quantity for the first rain, it may be added, is set down upon the experience of 12 years at 11·6 inches, being the mean between 3·4 and 21·3.

The second rain may be looked for about three weeks or a month after the first burst, and should amount to 16 inches, the average between the two extremes of 3·2 and 3·5 inches. The smallest quantity on record fell between November 28th and December 1st in 1868, and in the following year the rain-gauge marked only 3·4 inches between the 9th and 16th December. The earliest date for the commencement of the second rain appears to be the 1st November, and the latest the 8th of the ensuing month; this fall terminates between the 25th November and December the 22nd. The aggregate quantity of the "latter rains" has averaged 27·6 inches, varying from 19·1 inches in 1867 to 32·4 inches in 1872. It is a singular fact, as noted by Mr. Poggon, that neither the downfall of rain nor the severity of storms appears to be, in any degree, affected by the direction in which the wind changes from S.W. to N.E., whether it go round from the South-West to the North-by-West and North-West, or through South and East to the winter quarter. The total annual rainfall for the town of Madras, calculated on the observations of 65 years, is 150·4 inches, spread over 89 days, and distributed as follows through the twelve months:—January, 0·99 in 2 days; February, 0·79 in one day; March, 0·45 in one day; April, 0·71 in one day; May, 2·07 in 2 days; June, 1·99 in 7 days; July, 3·21 in 12 days; August, 1·53 in the same period of time; September, 1·63 in 10 days; October, 10·69 in 13 days; November, 12·17 in 13 days; and December, 6·10 in 7 days.—*Madras Times*.

CHINESE SCHOOLS AND EDUCATION.

By THE REV. E. R. BARRETT, D.A.

In the *Peking Gazette* for January 5th, 1876, as translated in the *North China Daily News*, an edict appears from the Emperress to the following effect: "The Emperor having ascended the throne

whilst still of tender years, it is most needful that his studies be undertaken in due time, and be pursued with continual progress to the end, that the results of education in the course of right may be secured, and the foundations whence good government takes its rise be laid straight." After this pompous introduction the edict commands the Board of Astronomers to select "a day of fortunate augury" for His Majesty to commence his studies, and appoints the officials who are to act as preceptors, who are then enjoined as follows: "Let them, on each morning and evening, address him with suitable admonitions, and devote themselves with thorough attention to the inculcation of learning, in order to prepare the way to fruitful results." The translator of this edict adds that no mention is made of an important appointment in such cases, namely, of the child who is selected to share His Majesty's studies, and who acts the part of a *souffro-douleur*, or "whipping-boy." It is considered an act of profanity to reprove or strike the "Son of Heaven," and hence, whenever his youthful majesty is naughty or inattentive, the "whipping-boy" is beaten or disgraced.

It may perhaps be interesting to some to know a little of the system of education that prevails in China. The respect paid to learning by the Chinese is well known; it descends to the most trifling materials employed by a scholar, so that his ink, ink-slab, pencil, and paper are popularly designated "the precious things." It is emphatically a reverence for letters, for the slightest scrap of paper that has been written on, even though it bear but a few hastily-scribbled characters, is treated with such respect, that not only in every house, but on all the public thoroughfares, there are receptacles—bearing the inscription, "Reverence and pity the character"—in which to deposit all such paper, and from which, at intervals, it is removed and burnt at the shrine of learning. Learning takes the first rank in China; its aristocracy is an aristocracy of scholars, and even military mandarins are socially inferior to the civil officers of the Empire. Let us examine how these results, many of them so excellent, are secured. It must be premised, first of all, that education in China is entirely un denominational and secular. It may not be without advantage to remember this fact in England at the present time, in view of recent controversies, for the influence of idolatry over the Chinese is undeniable, yet this influence is exerted altogether apart from the schools. The pupils are admonished with many a moral maxim, and the greatest respect is inculcated for the sages of past ages, but there is no connection between education and idolatry. Never does the pupil bear the slightest reference to the popular idols of the country, nor is he in any way, directly or indirectly, indoctrinated into the religious systems of Buddhism or Taoism. It is the influence of the home alone, and especially of the mother, that leads to the propagation of idolatry.

There are different ways of conducting education, according to the means of the father. In the case of children of rich parents private tutors are employed, who, in ordinary cases, receive a salary of £6 to £10 per year, living with the family. This sum is about equivalent to a private tutor in England receiving from £60 to £150 a year, for in such comparisons it is necessary to remember that the rate of expense incurred by a native in China, is roughly about one-tenth that of a European in his own country. Where more highly

educated men are engaged as tutors to the elder sons of a wealthy man, the rate of pay varies between the limits of £30 and £70 a year. But such men are mostly high graduates not in official employ.

Schools abound everywhere; there is not a village or a hamlet in the country without its one or more schools. Some of these are opened by needy scholars on their own account, who are thankful if they can earn three or four dollars a month, and often have to supplement their slender means by practising medicine, or, in the case of the very poor, by telling fortunes. Frequently, neighbours will agree to engage the services of a teacher between them, and the school is held in the house of the proposer if he has an empty room. In such cases the number of the pupils never exceeds eight or ten; while in the lower class schools, open to any who choose to attend, there are sometimes as many as thirty scholars. The schoolmaster never employs an assistant. The fees paid in these schools vary with the age of the children or the grade of the school; for the youngest scholars perhaps a shilling a month would be a fair average of the cost of tuition for each child, while for elder ones as much as four shillings to eight shillings will sometimes be paid. In all cases the school fees are paid three times a year, and are accompanied with a small present of food. There are no boarding, charity, or infants' schools in China. Girls are occasionally educated along with their brothers by a private tutor, and an educated woman is treated with marked respect; but the very way in which a lady who can read is regarded is proof how few there are who are able to do so. There are no schools for girls, nor is it considered disgraceful for the daughters even of rich and educated men to grow up utterly ignorant. The age at which a boy begins his education is about six years old, until which age he is allowed unlimited time for play. As the time approaches for the commencement of school life, the thought becomes an all-absorbing one in his mind. For days past he has been hearing fearful stories of the inhuman propensities of his future teacher, of his cruelty and strictness, until the poor little lad begins to regard his school life much as poor Smike thought of Dotheboys Hall. On the morning fixed for his introduction to the school his mother brings him some poached eggs to eat, instead of his usual basin of rice, with the object of loosening the tongue and imparting wisdom, after which he is led by his father, not without much shrinking and many a cry, to the school. Here a servant has preceded them bearing candles and incense, together with a small gift of money to the teacher; and on their arrival the "new boy" is led up to a tablet or scroll hanging on the wall on which is inscribed the name of some great sage, patron of schools and all school boys, and supposed to represent his spirit. Here, first the teacher, then the father, and lastly the pupil, prostrate themselves in reverence, after which they advance with much solemnity to the middle of the schoolroom, where a crimson cloth is spread on the floor, with a small bench standing in the centre. A little ceremony is again gone through here, the father insisting on the teacher sitting, while he as obstinately refuses, the friendly strife being compromised at last by their both standing, one on each side, while the overawed boy bows down to the ground, this time in reverence to his teacher. Four times does he knock his head on the floor, while the schoolmaster responds by a low bow; at the completion of which the father and the teacher salute each other and offer mutual

apologies, the boy is shown to his seat, and the regular routine of school life begins. The scholars sit at little desks or tables, each with his ink-slab, pencils, and books before him, while the master sits at the end of the room. Very different is the appearance of a schoolroom in China from anything we are accustomed to in other countries. Fireless, even in the coldest winter; windowless, unless the light be admitted through a frame of oyster-shells; without any ceiling but the tiles of the roof, and often with no floor but that of the mother earth—a more miserably cold, cheerless, and dirty place than a Chinese schoolroom can hardly be imagined. And the noise! This defies description. If the school be a large one, you can hear it right down the street—a perfect hubbub of a score of children shouting out their different lessons all at the same time, and in a monotonous sing-song voice without a pause or a variation. Here, from nine or ten o'clock in the morning till six o'clock at night, the lads grind away at their books; nor is their work finished then, for, unless they be very young, they no sooner reach home and have had their tea than they are set to work again at the old sing-song chant until ten or eleven o'clock at night. There is no play-time, nor any break during the day for rest or recreation, except the short space each pupil takes to run home and eat his rice, in the middle of the day. But, worst of all, a Chinese schoolboy has no regular holidays;—with the exception of a fortnight or so at New Year's time and an occasional break of a day owing to a public festival, school-life is one continuous system of cramming, year in and year out. From this it is evident there is no need for play grounds, nor do you often see boys engaged in play; if you meet them in the street, it is generally either on their way to or from school. This seems a great tax on any lad, but the brain is exerted so little—the education being confined at first almost entirely to learning things by rote, without regard to the sense of what is learnt—that it does not seem to affect the health of the boys. Probably, too, a light vegetable diet and the exposed and draughty nature of all Chinese houses make it less necessary to take much exercise. But it is dreary work in the best case, and it is hard to see how any love of study can be fostered by such a method of education.

A Chinese school is not divided into classes, but each pupil is taught separately by the master; nor are there any school examinations at any time during the year, and consequently there are no prizes or rewards of any kind. Thus one great element of stimulus—mutual emulation—is entirely wanting. The punishments administered for inattention or forgetfulness vary with the disposition of the master; the most usual form of correction for slight offences being to rap the forehead with the knuckles, and if this be ineffectual the pupil is compelled to stand to his work. For graver offences, caning is resorted to, generally given on the palm of the hand, while the worst punishment of all, reserved for the very refractory, is to compel such to kneel on the floor and repeat their lessons in that attitude. No Chinese teacher is so foolish as to punish himself by dismissing any boy from his school; he finds it hard enough to get a living in any case. On assembling in the morning, the pupils first bow before the tablet of Confucius in honor to his memory or spirit, and then salute their teacher in the same way, after which work begins. There are no primers in use for the education of the Chinese,

nor has any attempt been made to shorten the laborious task of learning the characters. A beginner is supplied with a number of little square pieces of paper, on each of which a character is written, and his first work is to learn the unknown sound attached to each. After the sounds of a thousand or more characters have been learned in this way, he advances to one of the so-called elementary books, the most popular of which bears the title of "The Three-character Classic." This little book contains about a thousand characters arranged in groups of three, each pair of three rhyming with the next pair. The whole of this is committed to memory by degrees, and as each section is learnt the pupil is called up to the master's desk and made to repeat it *ad libitum*. This they call to *back* the book, because the pupil has to stand with his back turned towards the master while repeating his lesson. By the time he is about eight years old, supposing the boy to have entered the school when he was six, he is prepared to begin a "Four Books," which are slowly committed to memory as before. All this time the pupil is already ignorant of the meaning of what he has been reading; so far, his education has been simply learning by rote pages and pages of sounds, which by constant revision become at length so ingrained into his memory that he is able to repeat whole books with the rapidity and accuracy of a sailor telling the points of the compass. And so the process goes on for years, instruction in writing being interspersed with the reading. This is taught by means of large characters printed in red ink which the beginner has simply to trace over with a fine paint brush. This is a very important part of education, and in this they certainly excel us, for bad writing and bad scholarship are synonymous. The greatest attention is paid to the way the characters are drawn, until each stroke is finished with the utmost delicacy of touch. By the time a boy is twelve or fifteen years old, he can usually repeat the greater part of the principal classical books, though still ignorant of their contents; and at this age numbers naturally leave school and enter business, where they are taught to calculate (arithmetic is no part of the education of a Chinese scholar), and the routine of their future livelihood. Such remain, to the end of their lives, ignorant of the meaning of the books they have been for years so diligently committing to memory. Endless illustrations of this occur almost every day, when one meets with numbers who are able to read all the characters in ordinary use, so far as giving their right sound is concerned, but are as ignorant of the meaning as though it were a foreign language. This is due to the fact that the spoken dialects of China differ so considerably in style from the composition employed in books, and the sounds in the two cases are also dissimilar. Two native scholars are able to carry on a conversation for a considerable length of time in the presence of an uneducated man speaking the same dialect as they, without his having the slightest knowledge of the purport of their talk. So, too, a Chinese book read aloud even to a Chinese scholar is quite unintelligible, unless translated into the vernacular.

In the case of those scholars who are intending to enter the public examinations, the course of study is different, and much more extended. After having learnt by heart several of the books, he begins to learn their meaning, and also the meaning of the commentaries on them which he has also previously memorised. Side

by side with this, he is set to the task of composing essays. These essays are an all-important part of a scholar's education, for by his skill in making them he takes rank in his examinations, and finds his position in the estimation of his friends. But a more unprofitable method of wasting time could hardly be devised, nor can one imagine anything more lamentably void of interest or use than the thoughts expressed even in the best of them. The text in all cases is a theme selected from one of the classics, upon which a series of remarks are strung together so trite and rapid, that even in the case of the highest examinations the essays would almost disgrace a schoolboy at home. Their merit is estimated by the Chinese according to the absence of original ideas and of freshness of language. They ought to contain nothing for which you cannot give the proof from books written two or three millenniums ago, nor a phrase of which you cannot find the original, or its near relative, in the same source. Novelty or individuality are the high roads to disappointment and disgrace. I believe it is a fact that a scholar who once ventured upon a different interpretation of some of the classics than that contained in the standard commentaries, was beheaded for his pains, and is to-day regarded with approbation by all right-minded students.

By the time a pupil is about eighteen years old he is able to go up to his first examination, although no limit as regards age is affixed to any of the official examinations. The hours spent in preparation for this first trial have been increasing year by year, until probably he has become accustomed to working from day break to midnight without any cessation except for meals, and absolutely without any exercise or recreation whatever. That such is the case may be judged from the fact that, among the models held before the ambitious gaze of the youthful aspirant, are the examples of devoted scholars, one of whom gathered the snow together in winter that he might read deep into the night with the aid of the light reflected from its surface, while another, equally poor, enclosed innumerable quantities of the fire-fly in a silken net in order to study with the light afforded by their phosphorescent flickering. The first examination is held in the office of the district magistrate, after the candidate has passed which and allowed two months to elapse, he passes on to another examination held in a provincial town, of which there are some eight to twelve in each province. If successful here, and it is unusual to pluck any at these preliminary examinations, the candidate enters for his first degree in an examination held twice in every three years, and conducted by an Imperial Commissioner from Peking. Here, if successful, he attains a rank that is estimated by foreigners as equivalent to our B.A.; in Chinese he is said to be a *shu-ling*, or in other words, "A cultivated talent." Upon the truth of this opinion may differ; he receives, however, a special button for his cap—somewhat similar to a graduate in England being privileged to wear a special hood to his gown,—he is exempted from corporal punishment, and if he resides in a village, obtains a little notoriety for himself. By becoming a B.A., the successful student is said to have "entered the Guild of Learning," and now takes rank, are the men who from the *literati* of the country, whose antipathy towards foreigners and power of disturbing the peace are so violent, and often so cruelly manifested. In Chinese they are called

as a class "Book Readers," but it is to be feared they do a great deal else besides reading books, and, like the clerks of many other countries and of all ages, are often prime movers in fomenting disturbances among the more peaceably disposed populace.

The cost of obtaining this first degree, I am told, is at least £20, and this is apart from all previous expenses incurred by tuition, cost of books, &c. No enrolment follows success at this stage, but once in every three years a more important examination is held at the capital of each province. This is open only to those who are already B.A., and not even to all of these, for local examinations of the graduates of the first degree are held repeatedly, and only the successful candidates in these local examinations are allowed to compete for the higher degree. These triennial examinations in the provincial capital are sources of immense excitement to the friends of the candidates, and the results are made known by the swiftest courier, in every hamlet throughout the province, within a very few hours or days of the official announcement. Success here confers the degree of M.A., and the graduate is called a "Kü-jin," or "A promoted man." As yet, however, his promotion brings him no reward for his diligence, beyond the honour conferred by success, although the expenses necessary to obtain this higher degree are estimated at a cost of £40, an enormous sum to men who consider £2 a month a satisfactory income. The money for all these examinations is raised by the voluntary contributions of friends—who feel promoted themselves by the success of a relative—or by incurring heavy debts which often remain unpaid to the end of life.

It is difficult to estimate what is the average proportion of successful candidates; and the average, moreover, varies for different provinces. Only a limited number is allowed to pass, and the number for each province is a constant quantity. In this province of Kiangsu, which is the most densely populated of any of the provinces in China, there are generally 2,000 or 3,000 candidates for the B.A., and, I am told, not more than one-tenth succeed. For the intermediate examination of graduates 80 out of every 300 are usually selected to go to Nankin, the capital of this province, to compete for the higher degree. Nankin is the place of examination for the adjoining province, as well as for this one, and the number of students assembling there at the triennial examination is estimated at from 10,000 to 18,000, of which only one in a hundred can hope to be successful. In the province of Canton, Dr. Williams states that there are about 12,000 who hold the first degree, and he mentions the number who enter for their M.A. as usually about 6,000. The size of an examination hall in China can be imagined when it is remembered that a separate cell is provided for the accommodation of each student.

If not deterred by expenses, and if anxious for official employment, those who have obtained their Master's degree proceed the year after to Peking, where candidates from all the 13 provinces are examined, about one in twenty of whom succeed in obtaining their doctorate, and are called "entered scholars." There are about 200 such successful ones every three years. These remain in Peking, and are again examined in the Imperial Palace, and of the successful ones the first takes precedence as first scholar of the Empire for that year, while the rest obtain the degree or office of *Hanlin*,

which has been designated the Imperial Academy, and the members of which receive salaries. Other examinations follow, by which still higher promotion takes place, and the official rank of the members of the various Governmental Boards is determined. Thus the way is open by a series of steps for the lowest of the people to rise to the highest official appointment, and to obtain the greatest emoluments in the Empire. None but actors or their children, the lowest grade of coolies, public executioners and torturers, and the children of openly immoral people, are prevented from competing in any of the examinations; and it frequently happens that a man of very low birth finds himself suddenly elevated to wealth and honour by the fortunate success of a clever son. But ability is not the only test in these examinations. Favour is unknown, except in sentiment, in China, and it is to be feared bribery is carried on here as in every direction. Chance, too, has much to do with success. Where so large a proportion necessarily fail in every examination, and where the candidates are counted by the thousand, it cannot but be that much depends upon what goes by the name of good luck. Many try for years without succeeding; and in the examination halls of China, as in that of the London University, it is no unusual sight to see grey-haired and aged men making their last efforts to win success before they die.

The honour paid to a successful candidate is astonishing. I happened, while at Soochow, to be living opposite the residence of the father of the student who was first in that year's tripen. The house was an unpretentious one, and the father by no means a wealthy man; but directly the announcement was made of his son's success, all the Mandarins of the city, including, I believe, the Viceroy of the province, came in their chairs of state and paid their respects to the aged sire. Workmen were appointed by the city magistrate to restore and decorate his house, and the expenses (where met from the public funds. In China (always the reverse of other lands) honour is transmitted upwards to one's ancestors, not downward to one's posterity; and so on an appointed day an imposing procession was formed, in which the mother of the lucky scholar occupied the principal place, and thence the city was traversed with music and banners, and other insignia of state. Nor did the honour stop here; for days and weeks presents flowed in from all parts, and feasts were given in succession, all testifying to the respect felt by the Chinese for literary ability.

The question arises: What can be shown as the result of this prolonged study, and of so many examinations? From what has been said it is hardly needful to state that a Chinese scholar, however clever he may be, possesses scarcely any information on the most ordinary topics. Of geography, history, figures, he knows next to nothing; of the history and uses of the commonest objects around him, or of the structure and functions of his body, he is absolutely ignorant. Not many days ago, I was asked by a graduate, if sugar was not dug out of the earth like a mineral; and I do not suppose there is a scholar in the country (unless he has been specially taught the use of the abacus) who could work the simplest sum in multiplication or division. The synchronism between high tides and the new or the full moon has been noticed, but no one has ventured to suggest any dependence of the one upon the other.

The extent of a scholar's information upon other subjects leads him to suppose that the earth is held in its place by an intangible substance, called *chi*; and the idea that China is the central kingdom of the world, all other countries being ranged round as though tributary and dependent, is too firmly embedded in the popular mind to be easily eradicated. Though the information imparted by the present mode of education is so slender, it seems that the training does, nevertheless, develop a high standard of intelligence. The only need is to direct it to useful objects. The memory, as can be readily supposed, is strengthened out of all proportion to the other faculties of the mind. Nothing is more astonishing than the retentive power of a Chinese scholar. Open any of the leading classics and read half a dozen words, and he will take up the sentence and go on repeating the following paragraphs word for word. No matter what passage be read, he will be almost sure to tell you where it is taken from, and what is its context, almost instantaneously. Reading the Chinese classics with a teacher, it is quite common for him to sit with no book before him; but if a word be missed, or a character be mistaken, he will correct me without a moment's hesitation. Once, when speaking to him of his memory, he laughed and said, "That is nothing, I can say it backwards," and lo! he began at the end of the chapter and proceeded to repeat it backwards. So, too, in the case of our native preachers; many of them are walking concordances. Mention an incident in the Gospels, and they can in most cases tell the book and the chapter, in a way that is marvellous to a foreigner accustomed to the use of a "Cruden" or other similar aid. Owing to this system of education the mind is not symmetrically trained, and the inventive and æsthetic sides seem to be especially repressed. It has generally been supposed that the great stimulus to literary pursuits is a desire of obtaining office and wealth; but this may well be called in question when the small proportion of scholars who reap such benefit from their learning is remembered. Except in the case of those who are in office, a scholar is generally poor, and indeed he is unfitted by his training from earning a livelihood, save the precarious one of teaching or doctoring, while the dignity of his position is such as to forbid his ever turning to business. Thus fact accounts in a measure for the immense number of schools that exist throughout the Empire, and which renders so unnecessary any such system as that recently adopted in England.

Such, in briefest outline, is the mode of education that prevails in this most paradoxical of all nations. It has the recommendation of age, for in many of its main features it has existed for nearly twelve centuries; but, like a great many ancient things, it is losing its flavour. That the benefits of education are more widely diffused throughout China than Europe, is almost certainly not the case; but no such statistics have been collected as to render an opinion trustworthy. Such as it is, its work is done, and its end is doomed. The demands of the Government for men with a scientific education, and the heavy pressure that is being exerted all along the line of Chinese habits and beliefs, are slowly but inevitably breaking up the solidified institutions and customs of the past. Whether the nation contains elements capable of reconstruction and renewal, is a question impossible as yet to answer; but one thing is certain, that

China as it has been—the China we know and see to-day—will soon be no longer in existence, and its present form will then be regarded only as a wondrous monument of the past.—(*Argonaut.*)

THE SANSKRIT AND THE GREEK EPICS.

(Concluded from page 472.)

Homer's characters are like Shakespeare's. They are *true* heroes, if you will, but they are always *men*; never perfect, never free from human weaknesses, inconsistencies, and caprices of temper. If their deeds are sometimes præterhuman, they do not commit improbabilities which are absolutely absurd. Moreover, he does not seem to delineate his characters; he allows them to delineate themselves. They stand out like photographs, in all the reality of nature. We are not so much told what they do or say.* They appear rather to speak and act for themselves. In the Hindu Epics the poet gives us too long and too tedious descriptions in his own person; and, as a rule, his characters are either too good or too bad. How far more natural is Achilles, with all his faults, than Rama, with his almost painful correctness of conduct! Even the cruel vengeance that Achilles perpetrates on the dead Hector strikes us as more likely to be true, than Rama's magnanimous treatment of the fallen Ravana. True, even the heroes sometimes commit what a European would call crimes; and the Pandavas were certainly guilty of one inhuman act of treachery. In their anxiety to provide for their own escape from a horrible death, they enticed an outcaste woman and her five sons into their inflammable lac-house, and then burnt her alive. But the guilt of this transaction is neutralized to a Hindu by the woman being an outcaste; and besides, it is the savage Bhima who sets fire to the house. Rama and Lakshmana again were betrayed into a deed of cruelty in mutilating Sarpa-lakshmi. For this, however, the fiery Lakshmana was responsible. If the better heroes sin, they do not sin like men. We see in them no portraits of ourselves. The pictures are too much one colour. There are few gradations of light and shadow, and little artistic blending of opposite lines. On the one side we have all gods or demigods; on the other, all demons or fiends.

We miss real human beings with mixed characters. There is no mirror held up to inconsistent humanity. Duryodhana and his ninety-nine brothers are too uniformly vicious to be types of real men. Lakshmana has perhaps the most natural character among the heroes of the Ramayana, and Bhima among those of the Mahabharata. In many respects the character of the latter is not unlike that of Achilles; but in drawing his most human heroes the Indian poet still displays a perpetual tendency to run into extravagance.

It must be admitted, however, that in exhibiting pictures of domestic

* Aristotle says that 'among the many just claims of Homer to our praise, this is one—that he is the only poet who seems to have understood what part in his poem it was proper for him to take himself. The poet, in his own person, should speak as little as possible. . . . Homer, after a few preparatory lines, immediately introduces a man, a woman, or some other character, for all have their character.' (Poetics III. 3.)

life and manners the Sanskrit Epics are even more true and real than the Greek and Roman. In the delineation of women the Hindu poet throws aside all exaggerated colouring, and draws from nature. Kaikeyi, Kausalya, Mandodari (the favourite wife of Ravana),* and even the hump-backed Manthara (Ramayana II. viii), are all drawn to the very life. Sita, Draupadi, and Damayanti engage our affections, and our interest far more than Helen, or even than Penelope. Indeed, Hindu wives are generally perfect patterns of conjugal fidelity; nor can it be doubted that in these delightful portraits of the Pativrata or 'devoted wife,' we have true representations of the purity and simplicity of Hindu domestic manners in early times.†

We may also gather from the epic poems many interesting hints as to the social position occupied by Hindu women before the Muhammadan conquest. No one can read the Ramayana and Mahabharata without coming to the conclusion that the habit of confining women, and of treating them as inferiors, is, to a certain extent, natural to all Eastern nations, and prevailed in the earliest times. Yet various passages in both Epics clearly establish the fact, that women in India were subjected to less social restraint in former days than they are at present, and even enjoyed considerable liberty. Thus, the ancient lawgiver, Manu, speaks of women as having no will of their own, and no right for independence; but he probably described a state of society which it was the aim of the priesthood to establish rather than that which really existed in his own time. At a later period the pride of Brahmanism, and still more recently the influence of Muhammadanism, deprived women of even such freedom as they once enjoyed; so that at the present day no Hindu woman has, in theory, any independence. It is not merely that she is not her own mistress: She is not her own property, and never, under any circumstances, can be. She belongs to her father first, who gives her away to her husband, to whom she belongs for ever. She is not considered capable of so high a form of religion as men, and she does not mix freely in society. But in ancient times, when the epic songs were current in India, women were not confined to intercourse with their own families; they did very much as they pleased, travelled about, and showed themselves unreservedly in public, and, if of the Kshatriya caste, were occasionally allowed to choose their own husbands from a number of assembled suitors. It is clear, moreover, that, in many instances, there was considerable dignity and elevation about the female character and that much mutual affection prevailed in families. Nothing can be more beautiful and touching than the pictures of domestic and social happiness in the Ramayana and Mahabharata. Children are dutiful to their

* What can be more natural than Mandodari's lamentations over the dead body of Ravana, and her allusions to his fatal passion for Sita in Ramayana VI. 95 (Gore's ed.)?

† No doubt the devotion of a Hindu wife implied greater inferiority than is compatible with modern European ideas of independence. The extent to which this devotion was carried, even in little matters, is curiously exemplified by the story of Gandhari, who out of sympathy for her blind husband never appeared in public without a veil over her face. Hence, during the grand sham-fight between the Kuru and Pandu princes, Vidura, stood by Dhritrashtra, and Kunti by Gandhari, to describe the scene to them.

parents and submissive to their superiors; younger brothers are respectful to elder brothers; parents are fondly attached to their children, watchful over their interests and ready to sacrifice themselves for their welfare; wives are loyal, devoted and obedient to their husbands, yet show much independence of character, and do not hesitate to express their own opinions; husbands are tenderly affectionate towards their wives, and treat them with respect and courtesy; daughters and women generally are virtuous and modest, yet spirited and, when occasion requires, firm and courageous; love and harmony reign throughout the family circle. Indeed, in depicting scenes of domestic affection, and expressing those universal feelings and emotions which belong to human nature in all time and in all places, Sanskrit epic poetry is unrivalled even by Greek Epics. It is not often that Homer takes us out of the battle-field; and if we except the lamentations over the bodies of Patroclus and Hector, the visit of Priam to the tent of Achilles, and the paring of Hector and Andromache, there are no such pathetic passages in the Iliad as the death of the hermit boy, the pleadings of Sita for permission to accompany her husband into exile, and the whole ordeal scene at the end of the Ramayana. In the Indian Epics such passages abound, and, besides giving a very high idea of the purity and happiness of domestic life in ancient India, indicate capacity in Hindu women for the discharge of the most sacred and important social duties.

We must guard against the supposition that the women of India at the present day have altogether fallen from their ancient character. Notwithstanding the corrupting example of Islamism, and the degrading tendency of modern Hinduism, some remarkable instances may still be found of moral and even intellectual excellence. These, however, are exceptions, and we may rest assured, that until Asiatic women, whether Hindu or Muslim, are elevated and educated, our efforts to raise Asiatic nations to the level of European will be fruitless. Let us hope that when the Ramayana and Mahabharata shall no longer be held sacred as repositories of faith and store-houses of trustworthy tradition, the enlightened Hindu may still learn from these poems to honor the weaker sex, and that Indian women, restored to their ancient liberty and raised to a still higher position by becoming partakers of the 'fulness of the blessing' of Christianity, may do for our Eastern empire what they have done for Europe—soften, invigorate, and dignify the character of its people.

EXAMINATION PAPERS.

ENGLISH TEXT BOOKS.

Matriculation Class.

I. Give in simple language the sense of the following extracts:—

- (a) How at last,
In Christian kindness for the merits past,
They spared his forfeit life, but bade him fly,
Or from his crime and contumacy die.
- (b) His friend now dead, some toe had dared to paint
His faith as tainted: he his spouse would taint.
- (c) A strong and handsome stripling he became,
And the gay spirit answered to the frame.

- (J) Not much the worse for wear.
 (c) Pauls that in daisy pictures rest unknown,
 Are in an instant through the varnish shown.
 (f) Then he stayed the great hogsheads.
 (g) To betray us into deeds of the greatest consequence.
 (h) Tills to have effect must be digged in the dark.

II. What are the chief merits of Sir Walter Scott as a poet?

III. (a) Write etymological notes on:—

- (1) Liege, (2) Disasters, (3) Pommel, (4) Pennons, (5) Forfeit,
 (6) Scruple, (7) Sylvan, (8) Pilgrim, (9) Gentle,
 (10) Grove.

(a) Explain fully the allusions in:—

- (1)The very Turk
 Could not have read a more pernicious work.
 (2)She cried
it is a time of war.
 (3) An English heresy on Christian ground.
 (4) A Summer Queen.
 (5) The flood whose lantern lights the mead.
 (6) 'Twas in the Indian seas his limb he lost.

IV. Crabbe, the Hogarth of British Poets, truthfully delineates human nature and its surroundings as he finds them.

Cite appropriate instances from the "Parting Hour" to exemplify the above remark.

V. Point out the metaphors in the following, and expand them into similes:—

- (a) And gave some ease to his tormenting yoke.
 (b) But the sea-caves rang, and the wild winds sang,
 The dirge of lovely Rosabelle.
 (c) Each haron, for a sable shroud
 Shrouded in his iron panoply.
 (d) Ere thrice the moon into her port had steered.

VI. Explain the following:—

- (1) My soul upon the forfeit. (2) To give my even the alarm. (3) The Minstrel. (4) Raining noose. (5) Leads the ball. (6) Moving accident. (7) Cheers and chide. Why? (8) Art thou an archer here? Who speaks? To whom?

VII. (a) Give the connection in which each of the following quotations occurs:—

- (1) Thy faith abjure, or thy profession hide,
 (2) A rival's hope must cause a lover's fear.
 (3) The wretch
 Living shall forfeit fair renown
 And doubly dying shall go down
 To the vile dust
 (4) It looks not like an earthly chase.
 (5) Complete the comparison in:—
 (1) Running such a rig.
 (2) And he was stationed in an easter place.
 (3) So fond, so tender, and so much afraid.
 (4) No other subjects on their spirit press.
 (5) A lighter, happier lad was never seen.

VIII. Re-write the following, making the changes indicated in each:—

- (a) Antonio was the kindest man that lived, and had the most unwearied spirit in doing courtesies.
 Use the positive instead of the superlative.
 (b) And now Portia and Nerissa entered the house, and dressed themselves in their own apparel, and their husbands soon followed them with Antonio.
 Begin with "No sooner."
 (c) Bassanio said that Antonio should not sign to such a bond for him, but the latter insisted that he would sign it, rather than disappoint his friends.
 Use the verb to prefer.

IX. Write a short account of the Battle of Banashurn as described by Sir W. Scott.

- X. (a) Quote two instances from the "Parting Hour" of a rhyming triplet.
 (b) What is an Alexandrine line? Quote an instance from the poetry you have read.
 (c) What is meant by the "Pathetic Fallacy"? Give an example from Wordsworth.
 (d) Quote passages from your Poetical text similar in sentiment to the following:—
 (1) "Love quirels oft in pleasing concord send"—Milton.
 (2) "And as on hare whom hounds and horns pursue,
 Hunts to the place from whence at first she flew,
 I still had hopes, my long vexations past,
 Here to return— and die at home at last!"—Goldsmith.

XI. Re-arrange the following in the metrical order:—

- (1) The Calender, being amazed to see his neighbour in such trim, laid down his pipe, and ran to the gate, and thus accosted him.
 (2) He next related how he guidelessly and grieving, found a way to Campeachy Bay; how he wrought there in the woods, and heard there his native tongue among some laboring seamen.

ENGLISH.

I. Paraphrase:

- (a) Some say that here a murder has been done
 And blood cries out for blood.
 (b) Give us events that from the memory drive
 Life's common cares,—and these alone—survive,
 Mix with each thought, in every action share,
 Darken each dream and blend with every prayer.
 (c) Eruption of Vesuvius.
 There burst from the deep-yawning caves of the mountains
 A torrent of fire like the stream of a fountain,
 Like the wide-flaming flood of the terrible rain,
 Which the Lord in his wrath poured on Sodom's plain—
 Yes!—rent was the womb of the mountain's murder,
 Crash pealed upon crash like the deep-rolling thunder,
 And the river's deep stream and the waves of the ocean
 Were lashed into foam by the dreadful commotion.

இந்த அலகில் அளக்கக்கொண்டிருப்போம் சேக்காரியென்ற நன் மந்திரத்தை
குக் கொடுத்தார். அது மந்திரமாகக் கட்டிக்கொண்டிருந்ததால் அது
மூன்றே விநாடிகளில் இரத்தினங்கள் இறங்கிவிட்டன.

LONDON MISSION INSTITUTION.

MATRICULATION CLASS.

PHYSICS.

Examiner:—W. Ross, Esq., M.A.

I. Distinguish between cohesion, chemical affinity, and gravity; and give instances of each.

II. The pressure on a horizontal area of 1 sq. ft. at a depth of 1 foot in water is 62.5 lbs; find the pressure on a horizontal surface of 8 sq. ft. immersed to a depth of 20 ft. in water. *Answer.* 10,000 lbs.

III. The pressure on a sq. ft. at a depth 1 foot in water being 1000 oz., find in ounces the force with which the circular disc of zinc, which closes the aperture of a glass cylinder, is pressed up; the disc being immersed to a depth of 9 inches, and the areas of the disc and the aperture of the cylinders being each 17.28 sq. inches; find also (supposing the disc does not fit water tight) how high the water must rise in the cylinder before the disc will drop off, the weight of the disc being 8.75 oz. *Answer.* 86.25 lbs 8.625 inches.

IV. One substance is four times as heavy as water and another 3 times as light; find what volume of the latter must be attached to 4 c. ft. of the former so that it may just float. *Answer.* 13 c. ft.

V. If air is $14\frac{1}{2}$ times as heavy as Hydrogen, and 13 ft. of air weigh 1 lb; find what weight can be supported by a silk ball filled with Hydrogen whose capacity is a thousand cubic feet, the weight

of the silk being neglected. *Answer.* $\frac{1000}{13 \times 14\frac{1}{2}}$ lbs.

VI. Describe the Bramah press, and find the pressure which can be exercised by a press, whose cylinders have areas of 1 inch and 1 foot respectively, the small cylinder being pressed down with a force of 6 lb. *Answer.* 864 lbs.

VII. Two barometer tubes are immersed in two liquids A and B whose densities are respectively $\frac{1}{2}$ and $\frac{2}{3}$ of that of mercury; which of the two liquids will stand highest in the tube, and by how much, the mercury standing at 30 inches. *Answer.* The former; 4 inches.

VIII. Draw figures of the air pump and the water pump in your text-book showing the position of both valves (a) in the air pump when the piston is going up, and (b) in the water pump when the piston is going down.

IX. Two equal cylindrical glasses, whose depth and cubic capacity respectively are 1 ft., are placed on a horizontal table and filled to depths of 3 and 9 inches respectively with water. A siphon tube is filled with water and its legs immersed in the two glasses, find what weight of water will flow from the one glass into the other; the weight of a cubic foot of water being 62.5 lb. *Answer.* 15½ lbs.

X. One miller has 1000 tons of water at a height of 50 ft. and

another 800 tons at a height of 30 ft.; if the first can grind 600 bags of corn, how much can the second grind? *Answer.* 288 bags.

XI. A person fires a gun and listens for the echo from a rock 22,000 ft. distant. How many seconds must elapse before he hears the echo; the velocity of sound being 1100 ft. per second. *Answer.* 40"

XII. A person standing on the shore listens for the report of a sub-marine explosion and hears two reports the first through the water and the second through the air, at an interval of 9 seconds; find the distance of the explosion the velocity of sound in water being 4 times as great as in air; and its velocity in air being 1100 ft. per second. *Answer.* 13,200 ft.

CHURCH OF SCOTLAND MISSION INSTITUTION.

PHYSICS.

I. (a) Distinguish between adhesion, cohesion,—chemical attraction, chemical action, and mechanical action.

(b) What properties has a solid in common with a liquid, and what properties are peculiar to each?

II. Why is it that a ship well-laden is safer at sea in a gale than a ship almost empty?

III. A closed vessel filled with water has four apertures A B C, and D with pistons in each. The area of A is twice that of B, thrice that of C and four times that of D. Pressure of 3, 1 and 5 lbs are applied respectively to A, B and C. Find the pressure on each of the pistons.

IV. Why does water if poured into one end of a bent tube rise in the other? What difference would the closing the other end of the tube make?

V. (a) A jeweller sells as pure gold a mixture of gold and copper. How would you discover the fraud?

(b) A piece of metal whose volume is 120 cubic feet is composed of gold and lead, whose specific gravities are, respectively 19 and 12. Find the volumes of gold and lead in the compound, given that the whole weight of metal is 2,000,000 oz., and the weight of a cubic foot of water 1,000 oz.

VI. A cylinder and a cone whose base and height are the same, are filled with water and placed on a horizontal table. Show that the pressure of the liquid on the base of both is the same; and explain why, seeing that this is the case, the pressure of the two on the table is different.

VII. A cylinder of uniform density and one foot in length floats with its axis vertical in two liquids. If 8 in. and 9 in. respectively of the cylinder are immersed in the two liquids, find the relative specific gravity of the two liquids and the cylinder.

VIII. If through the centre of gravity G of a triangular plate ABC a line H G K be drawn parallel to B C and meeting A H, A C in H and K, show that if the plate is suspended from H or K B C will be vertical.

IX. Explain briefly how a barometer is constructed. If the air

in the tube is not exhausted, what effect will it have on the height of the column?

FREE CHURCH CENTRAL INSTITUTION.

CLASS VI.

GEOGRAPHY :—INDIA, ASIA, EUROPE.

1. Define the terms *watershed*, *volcano*, *branch* (of a river), *basin* (of a river), *snow-line* and *lagoon*.
2. Name :—
(a) The hills to the north and south of the valley of the *Narbulda* and those by which France is divided from Spain, Italy, Switzerland and Prussia respectively.
(b) The chief towns of *Assam*, *Benar*, *Oudh*, *Hungary*, *Aragon*, and *Sevilla*.
(c) The allahs of the Madras Presidency in which *Telugu* is the principal language.
(d) The portions of land separated by the *Pentland Firth*, the *Great Belt*, the *Masai Straits* and *Smithend*.
(e) The principal seaport of *Belgium*, *Norway*, *Western Arabia*, *Austria*, *Persia*, and *Transcaspia* respectively.
3. Draw an outline of the coast of Europe and Asia from *Cape Spitzbergen* to *Cape Romania*,—(omitting Africa).—Mark the names of six intermediate capes,—the mouths of the *Po*, the *Volga*, the *Don*, the *Miss*, the *Indus*, the *Mekong*, the *Iravaddy*,—and the position of *Venice*, *Paris*, *Sebastopol*, *Singapore*, *Yokohama*, *Moscow*, *Aden*, *Bagdad*, *Shanghai*, *Peking*, *Bombay* and *Calcutta* and nothing else.
4. Suppose it were wished to make a voyage through Europe from the Black Sea into the North Sea, in a boat small enough to be carried when necessary from one river to another, what route should you advise the traveller to take? What countries would he pass through by that route? Mention six interesting cities that he could easily visit, and the place, or places where it would be necessary for him to have his boat carried across dry land.
5. Where are the tribes of people called *Mongols*, *Karens*, *Sonhals*, and *Fenaks* found respectively, and in what stage of civilization is each?
6. The latitude of Madras is 13° N.—of Constantinople and Matenal 41° N.—and of the North Cape and the mouth of the Lena about 71° N.—give what you think an approximate latitude for *Calcutta*, *Lahore*, *Aden*, *Yeddo*, *Gibraltar*, *Cape Wrath*, *London*, and *St. Petersburg*.

7. In what countries should you expect to find geographical terms ending in *abai*, *fell*, *sh*, *chang*, *poor* or *para*, *chow*, *bury*?

8. What would probably be the chief article dealt in by a merchant trading with each of the following towns :—*Tuticorin*, *Tellicherry*, *Billore*, *Norapattin*, *Patna*, *Moulmein*, *Shanghai*, *Odessa*, *Bordeaux*, and *Lyon*?

9. State, with reason for your opinion :

(a) What country in Europe is naturally most favourable for internal navigation?

(b) Whether it would be easy and profitable, or otherwise, to make a railway direct from Madras to Calcutta along the coast.

10. Give in a tabular form the following facts about the rivers *Kishna*, *Hong*, *Ho*, *Yentse*, *Po*, *Whang*, *Grandfather* :—(a) the mountains in which each rises, (b) a tributary, (c) if it have one of importance, (d) a lake in its basin, (if there be one), (e) a town on its banks, (f) the part of the sea into which it falls.

11. Each of the islands *Borneo* and *Iceland* extends through almost exactly eleven degrees of longitude from its extreme western point. The former however, measured along the same line from East to West, is 800 miles in length, the latter only about 300. How is this?

12. Describe the situation of the following towns, mentioning one fact about each that is of historical or geographical importance :—*Colombo*, *Pari*, *Rangoon*, *Bristol*, *Londonderry*, *Metz*, *Pahrme*, *Salamanca*.

THE SCIENCE AND ART OF EDUCATION.

(Continued from page 473.)

But it may be said, do you demand all this preparation for the equipment of a mere elementary teacher? My reply is, I require it because he is an elementary teacher. Whatever may be done in the case of those children who are somewhat advanced in their career, and who have, to some extent at least, learnt how to learn, it is most of all important that in the beginning of instruction, and with a view to gain the most fruitful results from that instruction, the earliest teacher should be an adept in the Science and Art of Education. We should do as the Jesuits did in their famous schools, who, when they found a teacher showing real skill and knowledge in teaching the higher classes, promoted him to the charge of the lowest. There was a wise insight into human nature in this. Whether the child shall love or hate knowledge,—whether his fundamental notions of things shall be clear or cloudy,—whether he shall advance in his course as an intelligent being, or as a mere machine,—whether he shall, at last, leave school stuffed with erudite, undigested gobbers of knowledge, or possessed of knowledge assimilated by his own digestion, and therefore a source of mental health and strength,—whether he shall be lean, atrophied, weak, destitute of the power of self-government and self-direction, or strong, robust, and independent in thought and action,—depends almost altogether on the manner in which his earliest instruction is conducted, and this again on the teacher's acquaintance with the Science and Art of Education.

But besides knowing the subject of instruction, and knowing the Art of Education founded on the Science, the accomplished teacher should also know the methods of teaching devised or adopted by the most eminent practitioners of his art. A teacher, even when equipped in the manner I have suggested, cannot safely dispense with the experience of others. In applying principles to practice there is always a better or a worse manner of doing so, and one may learn much from knowing how others have overcome the difficulties at which we stumble. Many a teacher, when doubtful of the principles which constitute his usual rule of action, will gain confidence and strength by seeing their operation in the practice of others, or may be reminded of them when he has for the moment lost sight of them. Is it nothing to a teacher that Plato, Aristotle, Plutarch, Quintilian, in ancient times; Aescham, Rousseau, Comenius, Sturm, Pestalozzi,裴利希, Jacotot, Froebel, Richter, Herbart, Berkele, Diesterweg, Arnold, Spencer

and a host of others in modern times, have written and worked to show him what education is both in theory and practice? Does he evince anything but his own ignorance by pretending to despise or ignore their labours? What would be said of a medical practitioner who knows nothing of the works or even the names of Celsus, Galen, Harvey, John Hunter, Sydenham, Bell, &c., and who sets up his empirical practice against the vast weight of their authority and experience? I need not insist on this argument. It is too obvious. Much time, therefore, has been devoted, during the year, to the history of Education in various countries and ages, and to the special work of some of the great educational reformers. In particular, the methods of Ascham, Ratich, Comenius, Pestalozzi, Jacotot, and Froebel have been minutely described and criticised.

And now it is only right to endeavour, in conclusion, to answer the question which may be fairly asked, — After all, what have you really accomplished by this elaborate exposition of principles and methods? You have had no training schools for the practice of your students; it has all ended in talk." In reply to this enquiry or objection, I have a few words to say. The students whom I have been instructing are for the most part teachers already, who are practising their art every day. My object has been so forcibly to stamp upon their minds a few great principles, so strongly to impress them with convictions of the truth of these principles, that it should be impossible, in the nature of things, for them as my disciples, to get in contradiction or violation of them. Whenever, in their practice, they are tempted to resort to drill and cram, I know, without being there to see, that the principles which have become a part of their being, because founded on the truths of nature recognized by themselves, rise up before them and forbid the intended delinquency. In this way, without the apparatus of a training school, the work of a training school is done.

But, in order to show that I am not talking at random, I will quote a few passages from exercises written by the students themselves, relative to their own experience.

"Before attending these lectures, my aim was that my pupils should gain a certain amount of knowledge. I now see how far more important is the exercise of those powers by which knowledge is gained. I am therefore trying to make them think for themselves. This, and the principle of repetition, which has been so much insisted upon, prevents us from getting over a much greater amount of knowledge, but I feel that the work done is much more satisfactory than it used to be. I now try to adapt my plan to the pupil, not the pupil to my plan. I used to prepare a lesson (say in history) with great care; all the information which I thus laboriously gained, I imparted to my pupils in a few minutes. I now see that, though I was benefited by the process, my pupils could have gained but little good from it. The act of having a doctrine and in view gives no confidence in my practice. The effect of these lectures, as a whole, has been to give me a new interest in my work."

"I knew before that the ordinary 'learn by rote' method was not real education; but being unacquainted with the Science upon which the true Art of instruction is founded, all my ideas on the subject were vague and changeable, and I often missed the very definite results of the 'hurry-gurdy' system without altogether securing any better ones.

"I have learned that the only education worthy of the name is based upon principles derived from the study of child-nature, and from the observation of nature's method of developing and training the inherent powers of children from the very moment of their birth. I have had my eyes opened to observe these processes, and now see much more in the actions of little children than I formerly did. More than this, I have learned to apply the principles of nature to the processes of formal education, and by them to test their value and rightness, so that I need no longer be in doubt and

darkness, but have sure grounds to proceed upon under any variation of circumstances.

"Lastly, I have learned to reverence and admire the great and good, who in different ages and various countries have devoted their minds to the principles of the practice of education, whose thoughts, whose successes, whose very failures, are full of instruction for educators of the present day, especially for those who, having been guided to the sure basis upon which true education rests, are in a position to judge of the value of their different theories and plans, and to choose the good and refuse the evil."

(To be continued.)

APPOINTMENTS, &c.

Leave.—Mr. James Moss, Head Master of the Provincial School of Mangalore, is granted fifteen months' leave to Europe on medical certificate, under Section 3, with subsidiary leave not exceeding thirty days, under Section 10, Supplement F to the Civil Leave Code.

Leave.—With reference to the leave for six months on medical certificate, granted in the *Gazette* of the 24th ultimo to Mr. J. Bradshaw, Acting Inspector of Schools, Second Division, this Office is granted preparatory leave not exceeding fifteen days.

Appointment.—Mr. C. W. Burroughs to act as Head Master of the Provincial School of Mangalore during the absence of Mr. Moss on leave or until further orders.

T. Gopal Rao, Acting Inspector of Schools, 4th Division, is granted one month's leave on medical certificate, under Section 3, Supplement F, to the Civil Leave Code, with effect from the 27th ultimo.

The unexpired portion of the furlough granted in the *Gazette* of the 3rd August 1875 to Mr. H. Forsey, Inspector of Schools, 2nd Division, is cancelled.

Mr. Henry Forsey assumed charge of the office of the Inspector of Schools, Second Division, from Mr. J. Bradshaw on the forenoon of the 14th instant.

MISCELLANEOUS.

DIAMONDS IN INDIA.—Diamond mines are found in different parts of Southern India. According to Colonel Yule,* the diamond mines, once so famous under the name of Golconda, lie in the alluvium of the Krishna river at some distance above the delta, while other mines are to be found in the vicinity of Cuddapah and Karimnagar, which are believed to form part of the Kingdom of Madras, the country where, according to Marco Polo, the Venetian traveller, diamond abounded. Hefue, who early in the present century made a careful enquiry into the diamond bearing tracts of India, says that the Chennu Taluk,† in which Cuddapah is the largest town, contains two places called Gondapettah and Oradampilly, where diamonds occur. In the next taluk on the west side, there gems used to be dug out at Landur and Pichetigapadu. Several mines were said to exist near Gooty, and about 120 miles from that place a famous diamond mine lay in the Krishna river.

The diamond mines near Cuddapah are about seven miles north-east from the town, on both banks of the Pennar river, which in this place washes the foot of a range of hills. The country in which they

* Yule's Marco Polo, Vol. II. pp. 295-8.

† Cuddapah Manual; 24 pp. 5.

occur is bounded on the east by the range of hills just mentioned, which runs nearly north and south for about fifteen miles, with a sharp little interrupted ridge. Opposite to Cuddapah they meet another similar ridge, stretching for about eight miles from north-east to south-west. This second range meets a third range running nearly due west, for about twenty miles, and forming the southern boundary of the district. To the westward the country continues plain and open to a great extent; to the northward are hills and ranges connected with the eastern mountains. The mines at Cuddapah, which are within half-a-mile of the eastern range of hills, and about as far east from the river and Gondapetta, have, it is said, been worked for several hundred years, with various success. Surrounded by cultivated fields, they appear like so many heaps of stones and pits half-filled with rubbish. About the beginning of the present century a large diamond was found which was said to weigh 1½ pagoda, or 70 grains, to be full of flaws, and on that account not to be worth more than 1,000 pagodas.

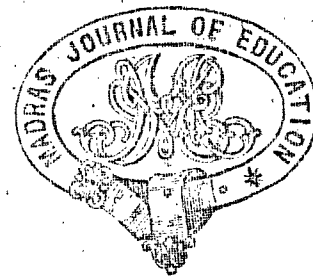
The Oralampilli mines lie on the west side of the river, about six miles from Cuddapah, and three miles from the mines just described, and are situated on a gentle ascent, about half-a-mile from the Pennar, in a well cultivated country. They are of more recent discovery than the other mines, and it is about a hundred years ago that they were first worked. They have rather the appearance of intrenchments than of mines. The soil of the fields surrounding them is sandy, with a small admixture of loam. It forms the surface of the ground where the mines lie, and is not more than a foot in thickness.

Below it is a red clay, not unlike good garden earth, about three feet thick; and immediately below this is the diamond bed. This bed resembled, in its nature and constituents, the one already described, excepting that the proportion of large rounded stones was not so great.

The diamond bed, both here and in the last described mine, seemed to follow the direction of the river, and was, at different parts, of unequal breadth. The diamonds found in it were in the form of small flat or round pebbles, and, as far as it could be ascertained, they never occurred crystallized. They were, however, said to be of a superior lustre and hardness, and much better than the gems found further westward.

Diamond mines also occur at Banaganpilly, in the Deccan; and, as the bed in which the diamonds occurred at that place was solid, it may be necessary to describe the nature of the beds in which this precious and rare production of nature is generally deposited.

Banaganpilly is situated at the northern extremity of the plain which commences at the southern range of hills, near Cuddapah and about sixty miles from that town. It participates in the same climate, the same soil, and the same vegetable productions. The country rises gently from the river Pennar, till within a few miles of Banaganpilly; and were it is most elevated, at the distance of forty or fifty miles from Cuddapah, some crops are cultivated—which are not to be seen at the latter place—as flax, safflower and wheat.



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(We beg to remind our readers that advance
Subscriptions for 1877 are now due.)

THE MONTH.

THE Matriculation and First Arts Examinations are over, and the publication of the results may be expected about the time of the re-opening of the Schools during the third week of January. English and Physics will, it is feared, again prove the most fatal subjects to the majority of candidates. The Examiners in the latter subjects, again forget the fact that the study is new to most of the candidates, and even to many of their teachers. Few of the questions bear directly on the text-book, but are riders on principles more or less distinctly implied in the text. They would be excellent questions for candidates for the B. A. degree, but are too advanced for more than three-fourths of the candidates for Matriculation. As we said last year, it is impossible for Mr. Porter to set a bad paper, but we regret that there could not have been a certain number of questions, sufficient to ensure a pass, that could have been answered by an ordinary student from the text-book itself. In Geometry a candidate is allowed to pass who writes out the propositions from Euclid, although he cannot secure full marks without solving the deductions. The paper in Physics should, we conceive, be set on a similar plan. It is otherwise misleading to name any text-book at all. Already many of our pupils have begun to act upon the principle that it does not "pay" to spend much time over

the study of Physics, and they accordingly neglect the subject, trusting to make up the necessary marks by Geography and History. Thus the severity of the examination defeats its own object, and instead of inducing candidates to greater diligence in the study of Physics, it unfortunately causes them to set it aside altogether. In many a school too, where the master has laboured to instruct his boys to the best of his ability, he finds his labour utterly lost; and schools that have almost ignored the subject, probably take a higher position than his own in the class list.

We commend to the examiners the following remarks from the last Educational Report of the Oudh Government:—

"It may be argued that the severity of a paper cannot affect the relative position of the Colleges, inasmuch as they have all the same questions, but this is a fallacy. When a paper goes beyond a certain point in severity, it becomes like a Draconian Code; it defeats itself. Nothing but exceptional ability has a chance; average talent and honest hard work are reduced to the same level as incompetency and idleness."

We must remember the old proverb "Rome was not built in a day," and advance by degrees. From simple papers in Physics, the Examiners might, year by year, proceed to more difficult ones, as has been the case with the Algebra papers of the University. Let any one compare the Algebra papers set ten years ago with those set lately and the contrast will be striking. We have equal reason to hope for progress in the study of Physics, if the Examiners in Natural Philosophy will be content to imitate Nature; *Natura nil facit per saltum*.

The sixteenth of the series of annual Supplements to the Journal has just issued from the Press; for fifteen years the Journal Matriculation Text-book has been favourably received in the Schools of this Presidency, and the notes, grammatical and explanatory, have been used and appreciated by both Masters and Pupils. This year a desire has been expressed that the text should be published in one volume and the notes in another, it having been found that boys frequently instead of attentively listening to the explanations of the Teacher, spend the time in turning over to the notes at the end of the volume to try to detect differences between the notes and the oral explanations of their Teachers. A

has been issued by the Director of Public Instruction that notes should not be used in class, and one reason that we have heard assigned for this order is what we have just stated. The text has therefore this year been published *without notes*, that it may be used in accordance with the Director's order. The notes are published in a separate volume.

As we observed last month, we are however aware that another objection has been made to the use of annotated editions of English class books, viz., that like English "cribs" to Latin and Greek classics, they discourage industry and application on the part of the boys themselves. But we conceive that few masters would object to their boys reading a Latin commentary on a Latin classic, and this is exactly similar to what we provide in the notes to the Journal Text-Book, viz., an English commentary on an English classic. And even the old prejudice against cribs seems gradually becoming weaker. Mr. Grant Duff earnestly advocates their use, and a Schoolmaster, a practical man, has very recently written as follows on this matter:—

"I am one of the few masters, perhaps, who have anticipated Mr. Duff's suggestion to make use of cribs. As soon as a boy knows his grammar fairly well, and has gone through an easy prose-construing book, I allow him the use of a literal translation. It is simply a waste of time to make boys puzzle their brains for hours over a stiff passage of Juvenal or Sophocles, when the thing can be explained to them in a few minutes. It is nonsense to talk about their mental training to be derived from this process. The vast majority of boys have learned by long experience that it is quite useless for them to try and 'make sense', and content themselves with looking out the words (another much over-rated mental gymnastic). I can only say that since I have allowed my upper classes cribs, the work has improved in quality and quantity to an amazing extent, and there are few boys in them who cannot construe at sight moderately difficult Latin and Greek."

For another and independent view of the Text-book question, we refer our readers to a letter on page 531 of this number of the Journal, that we have extracted from the Madras Mail.

SCHOOL SPORTS AT RAJAHMUNDRY.—These sports were held on the Parade Ground, Rajahmundry, on the afternoons of the 13th and 14th inst. Mr. Kelsall, the Sub-collector, kindly lent his tent for the occa-

sion, and the European gentlemen in the station, together with the assistant masters of the School, raised a very liberal subscription to furnish the necessary prizes. The events and the names of the winners are given below with the heights and distances accomplished, in the hope that other schools will also publish their results, and enter into friendly rivalry in athletic games as well as University Examinations. It was unfortunately impossible this year to mark the time of the races with a sufficient degree of accuracy, except in the case of the walking race, where the measured mile was well and honestly walked in 10 min. 5 sec. by V. Socrinarayana. It will be seen that the performances of the several competitors, especially N. Jagannadharow and G. Parancusem were very creditable considering this was the first public occasion on which they have appeared. It is confidently expected that next year will see still better results.

EVENTS, ETC.	FIRST WINNER.	SECOND WINNER.	HEIGHTS AND DISTANCES.
200 yards (Seniors.)	N. Jagannadharow.	G. Parancusem.	
100 yards (Juniors.)	G. Venkatesam.	N. Venkatesam.	
Hurdle race (Seniors.)	N. Jagannadharow.	G. Parancusem.	
Hurdle race (Juniors.)	K. Venkatesam.	N. Venkatesam.	
Walking race one mile.	V. Socrinarayana.	B. Ramachandrarao.	Time 10 m. 5 s.
Running High jump (Seniors.)	N. Jagannadharow.	S. Rajarao.	4 ft. 7 in.
Pole jump	A. Kutimbarao.	M. Venkatesam.	5 ft. 9 in.
Long jump	N. Jagannadharow.	S. Madhu Narasimham.	14 ft. 6 in.
Long jump (Juniors.)	N. Venkatesam.	K. Venkatesam.	11 ft. 7 in.
Throwing the cricket ball.	G. Parancusem.	M. Ramiah.	68 yds.
Putting the weight.	N. Jagannadharow.	M. Ramiah.	26 ft. 10 in.
Sack race.	T. Paradesi.	Mohamed Suleiman.	
The Tug of war.	G. Parancusem's side.		
Consolation race.	D. Pracasarao.	A. Ramamurti.	
Fair kick at the foot ball.	N. Venkatesam.	M. Venkatesam.	71 ft.
Extra.		A. Ramamurti.	
Mr. Brandt's for winners (300 yards.)	G. Parancusem.	D. Pracasarao.	
Mr. Metcalfe's for Brahman boys (300 yds.)	A. Ramamurti.	N. Kedandaramiah.	

INTRODUCTION TO THE NANNUL.—We have received a copy of the Rev. Dr. Bower's Translation of the Introduction to the Nannul for the use of Candidates for the B. A. Examination of 1877. This Translation was first made by Dr. Bower nearly forty years ago; it is now revised and corrected, and in addition to the Tamil Text, appendices of notes and grammatical terms are added. The result is a book valuable not only to Tamil Scholars, but to all lovers of literature, and more especially to schoolmasters. It is, as Dr. Bower observes, a curiosity in literature, showing the Hindu notion of what constitutes correctness of style and soundness in teaching. We learn that Dr. Bower has in manuscript a translation of the whole of the Nannul, and it is to be hoped that the learned Doctor may be induced to publish it. It is a disgrace to English scholarship that no translation in English of the entire Nannul has yet appeared, and that no one has done for the famous work of Pavananti what has been done by Dr. Ballantyne and others for the Sanskrit grammars founded on the system of Panini. "The Nannul," says Mr. Stokes, "is a work which stands conspicuous among the grammatical treatises of all nations for logical arrangement and comprehensive brevity," and the Rev. Thomas Brotherton, a Hebrew and Syriac scholar of considerable learning, and well versed in Tamil literature, declared the Nannul in his opinion to be "the most philosophical and logically arranged grammar of any language in the Universe."

We quote from Dr. Bower's translation an interesting passage on the character and qualifications of a Teacher, and to all Teachers in the Tamil country we commend his very interesting little book:—

"The character and qualifications of a teacher are: he must be of high or good caste; benevolent or affable; a believer and worshipper of God; respectable; having practical knowledge of the different branches of learning; possessing teaching powers; bearing comparison with (a) the earth, (b) a mountain, (c) a balance, and (d) a flower; having a knowledge of the world (common sense), and of a good disposition.

A teacher is compared to the earth, because of the imperceptible magnitude, unflinching firmness, interminable patience, and multifarious productions of the earth.

A teacher is compared to a mountain, because of the unsearchableness or undefinableness of its solid contents; of its immeasurable riches; of its immovable stability; of its lofty prominence; and because of its naturally affording refreshing streams even in the driest seasons.

A teacher is compared to a balance, because the exact perpendicular position of the index or indicator sets beyond doubt the impartial adjustment of the scale; so a teacher, by imparting knowledge, removes doubts and rectifies the mind.

A teacher is compared to a flower, because, by its mild beauty and sweet fragrance, it is the emblem of joy, the indispensable requisite of every festivity and adornment.

Persons disqualified to be teachers are: those who are devoid of

natural talent for imparting knowledge; who are of a mean disposition; jealous or envious; avaricious; deceitful; intimidating the minds of scholars by magnifying difficulties; and those who, on account of their intractableness, bear comparison to (a) marbles in a pot, (b) to a rough palmyra tree, (c) to a cotton holder, and (d) to a crooked cocoanut tree.

An unmethodical teacher is compared to marbles in a pot, because marbles in a pot do not lie in order and regularity, but promiscuously and in confusion.

An inaccessible teacher is compared to a rough palmyra tree, on account of the difficulty of having access to its fruit, unless it drops it spontaneously.

A half-instructed teacher is compared to a cotton holder or tinder box, which receives through its small aperture little by little with great difficulty, and then dispenses little by little with greater difficulty.

A neglectful teacher is compared to a recumbent cocoanut tree, which leans over and drops its fruit into a stranger's ground, and deprives the owner of the fruit.

The method or way of teaching; in the first place suitable time and place must be selected; then, the teacher, occupying an elevated seat, must invoke his Deity; having the substance of his lectures thoroughly digested in his mind; and having a knowledge of the capacity of his scholar, he must impart instruction not in a hasty manner, nor in an angry tone, but willingly, cheerfully, and ingenuously."

The Proceedings of a Meeting of the Senate of the Madras University, held on Saturday, the 9th December 1876, at 5 p. m., Old College.

PRESENT.

The Hon'ble Mr. Justice Innes, *Vice-Chancellor*,
(in the Chair.)

Col. R. M. Macdonald.
E. Thompson, Esq., M.A.
Dy. Surgeon Genl. W.-J. van
Someran, M.D.
The Rev. W. Leeming, M.A.
The Rev. W. Miller, M.A.
B. Loveny, Esq.

H. Fortey, Esq., M.A.
V. Krishnamachariar, Esq.
G. Oppert Esq., M.D.
The Rev. J. M. Strachan, M.D.
The Rev. W. Stevenson, M.A.
P. Chentzai Rao, Esq.
W. H. Harris, Esq., M.D.

The points for consideration were all bearing on the financial state of the University, which now depends on Government aid. On the Vice-Chancellor taking the Chair, Col. R. M. Macdonald rose and said with reference to the proposition he was about to move that, according to the last report of the Syndicate, the receipts from Examination fees were Rs. 33,710 Rs., and the stipends to Examiners amounted to Rs. 35,600, leaving a deficiency of Rs. 12,600 and odd. Towards meeting this the sale proceeds of the University Calendars and Ruskin's text-book on Ethics, &c., yielded very little; but there remained a large deficit still to be covered. There are only three modes by which the University can meet this deficiency (1) by raising the Fees; (2), by reducing the remuneration to Examiners; and (3), by shortening the Examinations. None of these

nodes was in itself sufficient to meet the object. The fees are exactly the same as those in Calcutta and Bombay; the remuneration is not much more than it ought to be; and the Examination papers as they stand are not unusually long. The plan which the Syndicate propose is a compound of all these three elements. The fee for the Matriculation is now 10 Rs. and does not pay the entire cost. Then, as to English, although there is an Examination in General English, there are complaints that, as regards neatness of writing and accuracy of spelling, the successful candidates are deficient. The question of hand-writing was referred to by Mr. Powell on previous occasions, and I once before brought to the notice of the Senate the necessity for Examination in writing and spelling. What is now purposed to do, is to turn to the University the fee for Examination in writing and spelling received by the Commissioner for the U. C. S. Examination, and to conduct the Examination publicly. In this way, Rs. 3,750 will be obtained as additional revenue. Whether the candidate passes or fails in this test he will still be passed, and there will be no notice of this matter in the University Calendar, nor will this test form a constituent part of the Matriculation Examination paper. The object is merely to examine the matriculated candidate in writing and spelling, so that he may not be required to go up to the General Test Examination to qualify him for Government service. With these remarks, Col. Macdonald proposed—

That in Bye-law 35, the words "12 Rs." be substituted for "10 Rs." *Dr. Strachan.*—The candidates often have to write against time, and it would be hard to judge their abilities by the quality of the writing. Supposing a candidate does not choose to be examined in writing and spelling, what would be the fee then?

Col. Macdonald.—It is intended that the candidates for the Matriculation should all pay the fee of Rs. 12.

Mr. Fortey.—I have not the slightest objection to raising the rate of fee. But if the additional Examination is not to be incorporated in the results of the University, it seems to be a mistake that the University should take up some work which is now done by the General Test Examination for the Uncovenanted Civil Service. It is quite clear that the test in hand-writing is necessary for a candidate entering a public office; but in the case of a man who simply goes to be matriculated in the University, the Senate need not go out of its way and insist on such a test.

Already there is a provision in the Bye-laws that marks should be deducted for mis-spelling; but the effect of the proposed examination separately in spelling would be practically to let the English Examiners attach no importance to spelling in the answer papers. If the English Examiners be instructed not to pass any candidate who spells badly and to give stringent attention to this point in valuing the answer papers, I think the University would secure all it wants. With reference to the reduction in the number and quality of the Examination papers to make room for the Special Test, it seems to me to be a measure of doubtful expediency. Diminishing the efficiency of the examination seems to me to be a compromise not favorable to the University except as a means of financial gain. I would rather raise the rate of fee at once to Rs. 12 than sacrifice the Matriculation Examination. Then, again, the University undertaking to

examine in writing and spelling (special) might lead to curious anomalies. It is just possible that a candidate may pass in the Matriculation Examination and fail in the Special Examination, and still is he to be considered as a passed matriculate, because of the fee he paid?

Mr. Thompson.—Every candidate must pay the fee of Rs. 12, though he may not go in for hand-writing and spelling.

Mr. Stephenson.—I am not at all in favor of the proposed Examination and apprehend endless complications. Suppose a candidate has passed in the other subjects of the General Test Examination; must he, in order to pass in hand-writing and spelling, go in for the Matriculation Examination? Do the Uncommissioned Civil Service examiners hold a separate Examination for candidates who go up to be examined in these two subjects only?

Col. Macdonald.—I have already explained the circumstances which rendered the increase of fees necessary, and I would move my proposition altered thus:—

That the Syndicate be authorized to conduct an examination, in writing and spelling, of candidates who appear for Matriculation, and to give them in the event of passing that Examination, a certificate of having passed such examination.

Dr. Oppert seconded *Colonel Macdonald's* proposition.

Mr. Thompson.—With reference to the previous discussion, I would ask the question that, supposing a candidate failed in hand-writing and spelling, but passed as a matriculate, can he appear again for the two subjects only or go through the entire Matriculation Examination again?

Mr. Miller.—It seems to me that we should in a few years allow the candidates to come up for these two subjects separately.

The Rev. Mr. Leeming.—You are ashamed to acknowledge what you are going to do, nor would you recognise it a constituent part of the Matriculation Examination; you want only to get Rs. 2 extra from each candidate.

Mr. Stephenson.—I again oppose the motion. We should be very careful in introducing foreign elements into the University. For a paltry sum this University is now called upon to undertake an examination which no other University in the world has ever undertaken. The proper work of a University is to test the fitness of the candidates for entering the University career, and not their fitness for office work nor for the sake of gaining Rs. 3,750 in the year. Either the University must institute a separate Examination in writing and spelling, or give up the idea altogether. We should not encourage the notion of the Government that the University should be necessarily self-supporting. We cannot encourage the idea that without receiving any help from Government the University will pay its own way and become self-supporting. No University has without other aid become as yet self-supporting. We are not to introduce elements of difficulty and inferior work to save a few thousand Rupees. We may hope to see endowments gather round this University, but we are not to make it self-supporting without the help of endowments or any other aid. I think therefore that the proposition should not be adopted to cover the so-called deficit.

Mr. Thompson.—The Bombay University has a deficit every year, but no one knows how much it is.

Mr. Leeming.—The proposal then is to levy a fine of Rs. 2 from those who seek to be examined in the ordinary subjects of the University Examination.

Mr. Miller.—We all sympathize with the views of Messrs. Forsey and Stephenson. None of us are in love with the proposed scheme; but I think that Mr. Stephenson is somewhat in error in saying that no other University in the world is self-supporting. Where teaching expenses are mixed up with the University work, they should be separated in order to judge correctly whether the examination pays itself. We are merely an examining body, and like the London University, ours should become independent of the Government, and take its firm position in the country and not continue to be a mere department of Government. As long as the University is dependent upon Government for its expenses, its position cannot be considered satisfactory. I do not admire the scheme, but still I support it, considering that a very competent Committee, composed of Col. Macdonald, Major Rogers and Mr. Thompson, recommended it as the only best thing that could be done to set free the University from the control of Government.

Col. Macdonald.—I do not wish it to be understood that I approve of the scheme though I am compelled to move it. Some time ago it was ruled that the University should not connect itself with an Examination in any subject which does not directly belong to the proper curriculum of the University.

Mr. Leeming.—We shall be very glad to see the University made self-supporting. But we must wait till we can really make it so.

Dr. Oppert.—In Germany any one who passed the University examination is taken as fit for Government service.

Mr. Stephenson.—That is very proper. It is proper that the Government should respect the University and maintain its integrity, and not that the University should act according to the wishes of Government.

The Vice-Chancellor then put to the vote Col. Macdonald's proposition. There were 5 votes in favor of and 6 against it. It was therefore lost.

It was then proposed by Dr. Oppert that the words "12 Rs." be substituted for "10 Rs." in Bye-law 35 as the fee for the Matriculation Examination in future.

Mr. Forsey seconded the proposition, stating as his reason for doing so, that by adopting this course we shall avoid the proposed amendment of the Bye-law so as to reduce the length and number of the Examination papers. I am quite in favor of increasing the fee, but not to curtail the Examination papers. It seems that the enhancement of the fee is very urgent from the Government orders referred to by the mover of the proposition.

On the Vice-Chancellor putting the proposal to the Meeting, three voted in its favor and five against it. The motion therefore fell to the ground.

The next subject for consideration was certain alterations in the number and order of papers to be set in the examinations for Matriculation.

Col. Macdonald.—The Matriculation Examination now occupies five days, while in Calcutta and Bombay it lasts only three. It is proposed now to condense the Arithmetic and Algebra papers into one of four hours, and to make the Geometry paper one of two hours. In Calcutta, it is the practice to combine the General and Physical Geography into one paper, and the same may as well be done here. The saving likely to be effected by these alterations would be Rs. 2,750. In Bombay the fee is only 10 Rs. for the Matriculation as here; and yet they effect a very large saving there by not examining the papers of the candidates who are found to fail in the first instance in English. But the reduction of the Examination to such an extent is not desirable here. With these remarks, I move that Bye-law 40 be modified so as to read as stated. (See page 540.)

Mr. Thompson seconded this resolution.

We have heard it stated that the majority of candidates in Bombay cost the University only one Rupee. But then it must be remembered they examine all the candidates in the city of Bombay, whereas we examine at the various centres in the Presidency.

Dr. Strachan.—Is not 4 hours too long for a single paper?

Mr. Forsey.—With regard to the proposed amendment of Bye-law 40, I am certain I did not hear anything in favor of the amendment except that it is a great deal better than something in Bombay which is a great deal worse, and that there is a saving of Rs. 2,750. It seems to be assumed that reduction in the length of the examination is necessary, because economy in the direction of expenditure is desirable. If the University Examinations are to be tempered with for the sake of economy, I am sure that the Government will not, on a proper representation of the case, insist on a proposal which does not carry conviction with it.

Mr. Stephenson.—If we are to reduce the hours of examination, I think we should look on the matter from the student's point of view. I say that it is straining the students' physical strength too much, especially on the last two days' work.

Col. Macdonald amended this proposition somewhat with reference to Mr. Stephenson's remarks, and the objection raised by others to the distribution of subjects and days of examination, and then moved the following resolution:

That the table in Bye-law 40 respecting the Matriculation Examination be amended as shown in the printed paper.

The proposition was put to the Meeting and carried, there being 7 votes for and only 2 votes against it.

Then Colonel Macdonald proposed the abolition of the Viva Voce Examination in History and Mental Philosophy at the examination for the Degree of B. A.

Col. Macdonald.—There is always a considerable difficulty in finding an independent body of examiners qualified to conduct the Viva Voce Examination. A string of set questions similar to those already answered in paper seems unnecessary, though it might not seem expedient to abolish the Viva Voce Examination in English; and there will be a saving of Rs. 2,250.

That Bye-law 66 be altered so as to read that the Examination

for the Degree of B. A. shall be conducted by means of printed papers, and that Bye-law 71 be omitted.

Mr. Miller seconded the resolution, especially as a saving will be effected besides a real improvement in the Examination.

After some conversation, the proposition was put to the Meeting and carried.

Again Colonel Macdonald rose and said that the abolition of the Viva Voce Examination renders it necessary to make a few alterations in the examination for the B. A. Degree, especially in the case of the Examinations for 1877 and 1878. If the viva-voce marks be left out altogether there will be a difficulty in complying with Bye-law 75. It is proposed therefore to retrench the additional marks and distribute them between Mental Philosophy and History. By getting rid of two subjects and fixing the remuneration for the examiners at $2\frac{1}{2}$ Rs. for each paper, we shall have 12 papers $\times 2\frac{1}{2}$ which will exactly cover the remuneration. We must therefore sacrifice two subjects, and they are the two papers in History and Mental Philosophy.

Mr. Thompson seconded the motion and said that this is only a temporary matter for the examination of 2 years and not a permanent arrangement. In the scheme of examination History and Mental Philosophy are placed on a par, and if the viva-voce marks be simply added bodily to the marks assigned to those papers, that would give too much preponderance to Mental Philosophy.

Mr. Forsey.—I see again that for the sake of a small saving and making the receipts and expenditure equal, two subjects are to be sacrificed. I doubt whether the reasons assigned for the change are sufficient.

Mr. Stephenson.—This change will simply make the examination more difficult. Considering the extent of work to be done and the higher marks to be assigned, the single paper in each of these subjects will be made too long and difficult, and the chances of passing will be correspondingly reduced.

One or two other Fellows also briefly opposed the change.

Dr. Strachan.—A paper of 3 hours can be made sufficiently strong to test a man's knowledge.

Mr. Miller.—I am not strongly in favor of the change, but I think that seven days' examination is one of monstrous length. Six days' examination seems the most that can be given, and this saving of a day is an advantage. If so, the change involves something more than simply a point of financial gain.

The proposition was then unanimously carried.

Then the Tabular Statements in Bye-laws 70 and 75 were also amended as shown at pages 542 and 545 as proposed by Col. Macdonald and Mr. Thompson.

And the Meeting broke up at half past 7 o'clock.

UNIVERSITY OF MADRAS.

The following modified forms of Bye-laws 40, 66, 70, and 75, and the omission of Bye-law 71, have been sanctioned by His Grace the Governor in Council.

Bye-law 40, p. 30.

40. The Matriculation Examination shall be conducted in the order of time and subjects set forth in the following table, and the number of marks assignable to each subject shall be as herein specified:—

Days.	Hours.	Subjects.	Marks.
First day ... {	10—1 2—5	{ English... ..	100
Second day ... {	10—1 2—5	{ Optional Language ...	80
Third day ... {	10—12 2—3.30	Arithmetic... .. 50 Algebra 30	120
Fourth day ... {	10—12 1—4	Geometry 40 Indian History 40	
Fifth day ... {	10—12 1—4	Physics 30 Geography, Physical and General... .. 50	120

Bye-law 66, p. 30.

66. The examination for the Degree of B. A. shall be conducted by means of printed papers.

Bye-law 70, p. 44.*

70. The examination for the Degree of B. A. shall be conducted in the order of time and subjects set forth in the following table, and

* For B. A. Examination of 1877, 1878.

the number of marks assignable to each subject shall be as therein specified:—

Days.	Hours.	Subjects.	Marks.
Monday ... {	10—1 2—5	English Poetry 60 English Prose 60	200
Tuesday ... {	10—1 2—5	General English Paper ... 40 English Composition ... 40	
		Optional Language.	
		Classical.	
	10—1 2—5	Text-books and Grammar. ... Translation	140
Wednesday ... {	10—12 12—2 3—5	Vernacular. Text-books and Grammar... Translation Composition	
Thursday ... {	10—1 2—5	Mathematics "	120
Friday ... {	10—1 2—5	Optional Subject... ..	120
Saturday ... {	10—1 2—5	Mental Philosophy	90
Monday ... {	10—1 2—5	History	110

Bye-law 71, p. 41.

(To be omitted.)

Bye-law 75, p. 46.*

* For B. A. Examination of 1877, 1878.

Form of Statement to be submitted by the Tabulator.

Register Number.	Name of Candidate.	Optional Language.	Optional Subject.	NUMBER OF MARKS OBTAINED.					Total number of marks obtained.	Whether passed or not passed.	If passed in what class ranked.
				English.	Optional Language.	Mathematics.	Optional Subjects.	Mental Philosophy.			
				200	120	130	130	90	110	750	

Bye-law 70, p. 262.*

Days.	Hours.	Subjects.	Marks.
Monday.	10-1	English Poetry ...	60
	2-5	English Prose ...	60
Tuesday.	10-1	General English Paper ...	40
	2-5	English Composition ...	40
Wednesday.	Optional Language.		
	Classical.		
	12-1	Text-books and Grammar ...	140
	2-5	Translation ...	
	Vernacular.		
	10-12	Text-books and Grammar ...	120
Thursday.	12-2	Translation ...	
	3-5	Composition ...	
Friday.	10-1	Pure Mathematics, Logic, or Botany.	200
	2-5	Statics and Dynamics, Logic, or Chemical Physics...	
Saturday.	10-1	Hydrostatics and Pneumatics, Theory of Morals, or Inorganic Chemistry	200
	2-5	Astronomy and Optics, History of Morals, or Inorganic Chemistry (practical).	
Sunday.	10-1	Mental Philosophy ...	10
	2-5	History ...	100

* Fifty marks shall be assigned to each Paper except that on Statics and Dynamics, for which 60 marks, and that on Hydrostatics and Pneumatics, for which 40 marks shall be allowed.

Bye-law 75, p. 263.*

Form of Statement to be submitted by the Tabulator.

Register Number.	Name of Candidate.	Optional Language.	Optional Subject.	NUMBER OF MARKS OBTAINED.					Total Number of Marks obtained.	Whether passed or not passed.	If passed in what class ranked.
				English.	Optional Language.	Optional Subject.	Mental Philosophy.	History.			
				200	120	200	100	100	720		

* For B. A. Examination of 1879.

(By order.)

D. DUNCAN, M.A.,

Registrar's Office,
16th December 1876.

Registrar.

At the Matriculation Examination of the Bombay University this year, only 203 candidates were finally admitted, out of a total of 1,100; in other words, only 18½ per cent. were successful. This is the lowest rate of success in any year since 1870, when only 16 per cent. passed. Last year the percentage was 35. The unusually large number of failures is generally ascribed to the fact that examiners in English made compulsory certain questions, intended to test the candidate's power of using the language in Composition. Hitherto, it has been possible for well-grammared candidates, with good memories, to make up the requisite total of marks, even though they might be unable to write a few sentences of fairly accurate English. The new rule has proved too much for them, and they have been "plucked" by hundreds.

It is worthy of remark that, according to the Report of Public Instruction for the Madras Presidency for 1874-75, the Catholic Institutions of the Presidency have been the most economical in their cost to Government, for while the maximum cost to Government per scholar in the Government Collegiate Schools was Rs. 41-9-2 at Rajahmundry, and Rs. 32-14-5 at Bellary, and the maximum cost to Government per pupil amongst the Aided Schools was

Rs. 22-0-11 at the Noble Institution, Masulipatam, it was only Rs. 7-13-9 at St. Joseph's College, Negapatam. While the highest cost of salary grants on account of collegiate schools was Rs. 8,418 to the S. P. G. School at Tanjore, the lowest was Rs. 3,355 at St. Joseph's College, Negapatam. The maximum cost to Government per scholar in a Government Higher School was Rs. 29-15-6 at Tellicherry, and the minimum Rs. 10-1-10 at Salem. So among Private Institutions of the same class, the average cost per pupil was Rs. 62-8-1 at Sullivan's Gardens, and the lowest Rs. 4-14-6 at St. Joseph's Institution, Cuddalore.

CATOR PRIZES, 1876.

Lower Grade.

THE following have obtained Prizes in the Examination held in October last:—

	Rs.
1. Manuel Joseph, S. P. G. Seminary, Sawyerpuram...	60
2. Ellen G. Bazely, Private Study, Madras.....	50
3. { John Santhappen, S. P. G. Seminary, Sawyerpuram. 42½	
{ Daniel Joseph, do. do.....	42½
4. P. K. Varkki, C. M. S. College, Cottayam.....	35
5. C. K. Eapen, do. do.....	30
6. S. Gawthorne, Bishop Corrie's Gram. School, Madras.	25
7. S. Vetlakun, S. P. G. Seminary, Sawyerpuram.....	20
8. Hannah Moss, Civil Female Orphan Asylum, Madras.	15
9. P. Sathianathan, L. M. S. Seminary, Nagercoil.....	10
10. { P. M. Koshi, C. M. S. College, Cottayam.....	10

One additional prize of Rs. 15 and two additional prizes of Rs. 10 each for the highest non-Christian candidates have been gained by

- No. 18. M. Ruthnavain, F. C. M. Institution, Madras.
 No. 65. P. Anthinaramanah, do. do.
 No. 69. P. Rajoo, S. P. G. High School, Vepery, Madras.

The following have obtained CERTIFICATES:—

CLASS I.

12. Lizzie Bailly, Doreton Girls' School, Madras.
13. { John Ootelingum, L. M. S. Institution, Madras.
- { D. Derapikun, S. P. G. Seminary, Sawyerpuram.
14. Manuel Yosadian, do. do.
15. Paul Apollon, L. M. S. Seminary, Nagercoil.
16. M. J. Curnila, C. M. S. College, Cottayam.
17. { M. Ruthnavain, F. C. M. Institution, Madras.
- { W. C. Roberto, Civil Male Orphan Asylum, Madras.
18. Alice S. Doig, Davidson Street Girls' School, do.
19. Eva Lee, Lawrence Asylum, Ootacamund.
20. Frances L. Neischer, Doreton Girls' School, Madras.
21. { Eliza A. Todd, Private Study, Madras.
- { E. Yesudian, L. M. S. Seminary, Nagercoil.
22. W. J. Freer, F. C. M. Institution, Madras.
23. S. Sathianadhan, S. P. G. High School, Madras.

27. D. Jacob, L. M. S. Seminary, Nagercoil.
28. M. W. White, F. C. M. School, Nellore.
29. H. A. Raymond, F. C. M. Institution, Madras.
30. Elizabeth Perkins, Lawrence Asylum, Ootacamund.
31. J. C. Wheeler, F. C. M. Institution, Madras.
32. Margaret Rieley, Doreton Girls' School, Madras.
33. V. Aralanantham, L. M. S. Seminary, Nagercoil.
34. H. Wilkinson, Bishop Corrie's Grammar School, Madras.
35. T. J. Misquita, do. do. do. do.
36. E. J. Hobday, do. do. do. do.
37. P. W. John, C. M. S. College, Cottayam.
38. G. Daniel, L. M. S. Seminary, Nagercoil.
39. Florence Trotter, Doreton Girls' School, Madras.
40. { J. Daniel, S. P. G. High School, Madras.
- { E. W. Fewkes, Bishop Corrie's Grammar School, Madras.
41. D. Periyannayagam, S. P. G. Seminary, Sawyerpuram.
42. W. Green, Bishop Corrie's Grammar School, Madras.
43. { D. Palmer, L. M. S. Seminary, Nagercoil.
- { A. M. Samuel, do. do.
44. Ellen A. Lewis, Private Study, Madras.
45. Georgiana S. Carter, Davidson Street Girls' School, Madras.
46. A. Rajagopaul, F. C. M. Institution, Madras.
47. J. Sathianadhan, S. P. G. High School, Madras.
48. A. J. Hesterlow, Bishop Corrie's Grammar School, Madras.
49. G. Colbilly, S. P. G. Seminary, Sawyerpuram.
50. A. D. Daniel, F. C. M. Institution, Madras.
51. J. Williams, L. M. S. Institution, Madras.
52. Alice D. Forbes, Private Study, Madras.

CLASS II.

53. R. E. Sherard, Bishop Corrie's Grammar School, Madras.
54. J. E. Barefoot, do. do. do.
55. Annie Joshua, F. C. M. Female Boarding School, Madras.
56. C. W. Thomas, Davidson Street Boys' School, do.
57. Alice M. Hayes, W. M. S. School, Bangalore.
58. { Y. Arumainayagam, L. M. S. Seminary, Nagercoil.
- { A. Pakkiam, C. M. S. English Institution, Palamcottah.
59. G. Mathuramayagam, S. P. G. Seminary, Sawyerpuram.
60. D. J. Sagaim, L. M. S. Seminary, Nagercoil.
61. M. Louisa Mencaud, Private Study, Madras.
62. { P. Anthinaramanah, F. C. M. Institution, Madras.
- { O. Joseph, L. M. S. Seminary, Nagercoil.
63. { Salome Appayoo, F. C. M. Female Boarding School, Madras.
- { Charlotte O'Keefe, Doreton Girls' School, Madras.
64. { P. Rajoo, S. P. G. High School, Madras.
- { Grace Taylor, Civil Female Orphan Asylum, Madras.
65. { J. Rodriguez, Civil Male Orphan Asylum, do.
- { O. Ramanatha Iyer, F. C. M. Institution, Madras.
66. { A. J. Roberto, Civil Male Orphan Asylum, do.
- { B. J. A. Spondrum, F. C. M. Institution, do.
67. S. Michael, C. M. S. English Institution, Palamcottah.
68. { J. H. Graves, Bishop Corrie's Grammar School, Madras.
- { Sophia Taylor, Civil Female Orphan Asylum, do.
69. E. Sama Row, F. C. M. Institution, Madras.

79. { Caroline A. Hill, Davidson Street Girls' School, Madras.
 { J. Samuel, S. P. G. High School, Madras. [Madras.
 81. Elizabeth Venkatakristina, F. C. M. Female Boarding School,
 82. C. H. A. Stuart, Dorseton P. College, Madras.
 83. Lydia Gordon, Davidson Street Girls' School, Madras.
 84. J. T. Evans, Dorseton P. College, Madras.
 85. R. P. H. Hankins, Bishop Corrie's Grammar School, Madras
 86. Sophia Venkatarungum, F. C. M. Female Boarding School, do.
 87. { Minnie Montgomery, Lawrence Asylum, Ootacamund.
 { V. O. Taylor, Dorseton P. College, Madras.
 89. C. Balasubramania Iyer, F. C. M. Institution, Madras.
 90. J. A. David, S. P. G. High School, Madras.
 91. T. Narayanasawmy, L. M. S. Institution, Madras.
 92. { Alice Stagg, Dorseton Girls' School, Madras.
 { J. H. Williamson, F. C. M. School, Chingleput.
 94. J. G. Hobday, Bishop Corrie's Grammar School, Madras.
 95. S. Kissan Lal, F. C. M. Institution, Madras.
 96. C. N. Datarajulu Chetty, do. do.
 97. { H. E. Cripps, Bishop Corrie's Grammar School, Madras.
 { P. Parthasarathy Naidu, F. C. M. Institution, Madras.
 99. Mabel T. Gilles, Christ Church Girls' School, Madras.
 100. H. Palmer, St. Andrew's School, Bangalore.
 101. A. Thapthumal Iyengar, F. C. M. Institution, Madras.
 102. { A. Sengasundrum, do. do. do.
 { D. Daniel, L. M. S. Seminary, Nagercoil.
 103. { W. Savatrayan, C. M. S. English Institution, Palamcottah.
 105. J. A. Sloan, Dorseton P. College, Madras.
 106. P. J. Daniel, L. M. S. Seminary, Nagercoil.
 107. P. Chinnasawmy Moodelly, F. C. M. Institution, Madras.
 108. { T. Singaram Moodelly, do. do. do.
 { S. Subbiah, S. P. G. School, Ramnad.
 110. M. Parthasarathy Naidoo, F. C. M. School, Chingleput.
 111. W. O. Gibson, Civil Male Orphan Asylum, Madras.
 112. { E. H. Heiden, Dorseton P. College, Madras.
 { J. A. Johannes, Davidson Street Boys' School, Madras.
 { Grace R. Carroll, do. Girls' do. do.
 114. { C. Clark, Bishop Corrie's Grammar School, Madras.
 Sarah Duffey, Dorseton Girls' School, Madras.
 116. Emily A. Owen, Davidson Street Girls' School, do.
 117. Edith G. Forbes, Private Study, Madras.
 118. { Adelaide M. Simmons, Christ Church Girls' School, Madras.
 { N. Narayana Iyer, S. P. G. School, Ramnad.
 121. H. W. Johannes, Davidson Street Boys' School, Madras.
 122. { Charlotte Henry, Lawrence Asylum, Ootacamund.
 { A. Rathnavealoo Moodelly, F. C. M. Institution, Madras.
 124. P. Parthasarathy Naidoo, Ch. of Scotland Mission School, Madras.
 125. A. F. Spink, Davidson Street Boys' School, Madras.
 126. { Annie C. Jacobez, Christ Church Girls' School, Madras.
 { A. P. O'Sullivan, Bishop Corrie's Grammar School, Madras.
 128. T. Sigamoney, Ch. of Scotland Mission School, Madras.
 129. Esther Paul, L. M. S. Female Boarding School, Madras.
 130. Minnie J. McKee, Private Study, Madras.
 131. { Ada T. Rogé, do. do.
 { G. Saccinathan, F. C. M. Institution, Madras.

132. Alice R. Schmidt, W. M. S. School, Bangalore.
 134. { R. S. A. Rajagopaul, F. C. M. Institution, Madras.
 { B. T. Raghavachari, C. M. S. A. V. School, Bezwarah.
 136. J. Didymus, L. M. S. Seminary, Nagercoil.
 137. J. H. Rodgers, Dorseton P. College, Madras.
 138. N. Perumal, S. P. G. School, Ramnad.
 139. T. W. Stoddard, St. Andrew's School, Madras.
 140. C. Eshirajootop Chetty, F. O. M. Institution, Madras.
 141. Eliza Thomas, Lawrence Asylum, Ootacamund.
 142. M. N. Rajagopaula Chetty, F. C. M. Institution, Madras.
 143. T. Ramanjooloo Naidoo, do. do.
 144. G. Shadagopulu, F. C. M. School, Chingleput.
 145. Sarah Searls, Civil Female Orphan Asylum, Madras.
 146. { G. D. Albert, L. M. S. Seminary, Nagercoil.
 { N. N. Sreeneerasa Pillay, F. C. M. Institution, Madras.

SUMMARY.

Number of Candidates registered.....	310
Number Examined.....	270
Prizes.....	14
Certificates (excluding prizemen).....	133

DAVID FENN, } Secretaries,
 R. C. MACDONALD, } C. M. S.

Church Mission House, }

18th December 1876. }

NOTES ON COWPER'S TABLE TALK.

(Continued from page 443.)

120. 'Was this the man?' Was this monster the man so praised by flatterers.—The contrast is between his real character, as shown in his deeds, and the character his flatterers gave him.

121. 'I pity kings, &c.' The student should compare the fifth book of the Task, lines 369—380.

'Worship.' As here used, this word means *obsequious respect*, the adj. of the next line agreeing with it as may be considered redundant.

124. 'Baby brother.' So in *Macheth* :—

What is this,
 That rises like the issue of a king;
 And wears upon his baby-brow the round
 And top of sovereignty?—IV. 1.

'Though baby' and 'infant' are exactly synonymous, they could not be transposed in lines 123 and 124; for, though we might speak of 'infant brows,' it would be a violation of usage to speak of 'baby eyes.'

125. 'State.' Formal pomp. Cf. another common use of 'state' in line 167. The meaning of line 125 is,—Who are trained to be formal and pompous from their infancy.

126. 'That dream.' The dream, namely, that they are greater than all, and therefore, than death.

127. 'Servility.' The servile complaisant flatterers. (Note the use of the abstract for the concrete.)

129. The worst intentions with the fairest professions.

131. This line merely expands what is implied in the word 'pampered.'

'The lead.' Guidance.

135. 'Mechanically.' As so many machines: without a will of their own, and so, *with precision*.

136. 'At beat of drum.' This nearly means *to order*, or, *as ordered*; since military orders are given by sound of bugle or by beat of drum. 'Martial franks.' A contemptuous expression for military manoeuvres.

137. 'Shouldering and standing.' Technical military terms. 'To shoulder' is to bring the piece to the shoulder. 'Stand' is used with some noun, as *stand at ease*, i. e., easily, with the leg bent:—*Stand at attention*; i. e., perfectly upright and motionless.

138. 'Condescending Majesty.' The king, in his condescension. (The phrase is somewhat ironical.)

139. 'If, &c.' Note the general summing up here of what is begun in line 127.

'Consist.' The conj. mood.

143. 'Point out, in skeleton form, the sentences dependent on and completed by this.'

141. 50 'To be, &c.' The student may, with advantage, note how the author prevents monotony by using the infin. in this para., and the next, in place of the subj. of the preceding para.

140. 'Called patriot, &c.' Patriot is here used ironically for a factious disturber of the Government.

146. The line means,—Impede the work of Government by causing a distrust of it in the public mind. Government is often likened to a machine of which the wheels may be clogged. Thus GOLDSMITH in the *Traveler* has,—

"Repressed ambition struggles round her shores,
Till, overwrought, the general system feels
Its motions stop, or phrenzy fire the wheels."

148. 'Palpably.' Palpable is, lit. such as can be felt by the touch: hence clear, obvious.

151. 'Clubs up stairs.' Clubs of working men, often held in the upper room of an inn.

152. 'The unwashed artificer.' Somewhat contemptuous for 'the working man.' Artificer=artizan. In the Task II, 491, Cowper speaks of—

"The brow respectful
Of the smatched artificer."

The "great unwashed" is a slang phrase that is occasionally met with.

153. 'His genius.' This is a peculiar use of the word 'genius,' which seems to mean little more than curiosity, or 'desire to meddle.' GOLDSMITH, too, talks of the politicians of the ale-houses

"Where village statesmen talked with looks profound,
And news much older than their ale went round."

154. 'Cabinet intrigue.' Secret acts of the Government. ["The cabinet council, shortly termed the cabinet, forms part of the ministry or administration. It is so termed on account of its being originally composed of such members of the privy council as the king placed most trust in and conferred with, apart from others, in his cabinet, or private room."]

155-6. 'What kings deem a fall, &c.' This construction the student may be assumed to be acquainted with, but we note it once for all. It may be looked at in two ways—either 'what' may be resolved into 'the

thing which,' when *thing* is nom. to *is*, and *which* is the obj. of *deem*. Or, the word *what* may be regarded as the obj. of *deem*, when, for the subject of *is*, we have the sentence 'what kings deem a fall.'

150. 'Perfoud.' This is an example of another ordinary construction. Point out the object of this trans. verb.

161. 'A cultivated taste.' A taste for literature, art, &c.

162. 'Galleries.' This word shows that the poet refers particularly to painting and sculpture. 'Gallery,' in this use, meaning a room or space used for the exhibition of works of art, specially pictures and statues.

164. 'Attendants.' In this sense the more usual word is 'accompaniments.' 'Attendants' is, usually, a personal noun.

167. 'Contemplation.' The accent is usually on the third syllable of this word; but here on the second.

169. 'Put.' It is not common to speak of *feeling*, or even of *expressing* 'a situation.' 'Placed in' a situation is the usual expression.

170.1. 'Governed, ruled.' Terse and expressive. It means 'inexperienced and unpractical.'

172. 'Prate and Prattle.' Contemptuous for 'theorize.'

'Prove.' Test by experience.

173. 'Ther.' The 'men' of line 168.

'Hand and glove.' Perfectly acquainted. The line means, as if they were thoroughly acquainted practically with what they write of.

174. 'Cope with.' Bear lines 174-5 put into common language might run thus,—Let every man mind his own business.

176-7. 'Poets of all men level regret in creating taxes.' This is a sneer at poets for their poverty.

178. 'Contrive.' Devise a plan for.

182. 'Brindley, &c.' "Francis, third and last Duke of Bridgewater, is called the father of British internal navigation. He was living quietly at a retired country house at Worsley, near Manchester, when his attention was called to the difficulties of transporting the coal of which the surrounding soil was full. He met with James Brindley, who undertook to make a Canal to Manchester, and with great engineering skill, backed by brave support from the Duke, he accomplished the design in 1769. Six years later Brindley began the "Grand Trunk Canal" from the Trent to the Mersey, and before his death in 1772 drew the plan for the Oxfordshire Canal, connecting the Trent with the Thames."

183. 'To use poetry to discuss Political economy.'

'Helicon.' A mountain of Boeotia, sacred to the muses, so 'the course of Helicon' is 'poetry.'

182. 'Not Brindley nor Bridgewater.' Not...nor is not according to usage, which requires *not...or*—or *neither...nor*.

184. 'The Nine.' All the muses. (In the Heathen Mythology, there were nine muses, patrons of poetry and the arts.)

184-7. The following is the sense of these lines:—Nor would it be possible to enlist poetry in the service of trade and commerce.

185. 'Cheapside.' This is the name of one of the chief centres of trade in the city of London. (Root the *Sax. ceap, sale*.)

186. 'Change Alley.' Change is here a contraction of Exchange, and the Alley, or narrow street so named, is a part of the city. There is now the Exchange, a centre where operations in exchange, stocks, and every sort of money transaction are carried on.

187. 'Jews.' Some of the principal money lenders were, and still are, Jews.

188. 'Pitch the key of.' Adapt.

189. 'Pertinent.' Connected with practical life.

190. 'Ministers.' For the conjunction of this and succeeding subjects, see line 198.

191. 'Patriots.' Sarcasm, as in line 143.

'At their hearts.' In reality (while their professions are very different.)

192. 'Admirals.' The reference appears to be to Admiral Keppel, who fought an indecisive action with the French in 1778; he was tried and acquitted in 1779, he became first Lord of the Admiralty in the first half of 1782, and again in 1783.

193. 'Doing nothing with a deal of skill.' This reminds one of the "masterly inactivity" of Lord Lawrence.

194. 'Generals, &c.' A note in the *Globe* edition, says: "The Generals are those of the American War."

196-7. 'When freedom, &c.' When there is loud complaints that our rights are in danger, though only the discontented can say exactly how.

199. 'I hear.' I give my attention.

'As mule as if a siren sang.' In mythology the sirens were three sea nymphs who charmed so much with their melodious voices, that all who heard them listened till they died for want of food.

201. 'Scorn of arbitrary claims.' Love of liberty.

202. 'Were.' Here, this is equivalent to the present "is indeed." The word implies supposition,—"is indeed if you would undertake it." In *MILTON'S P. L.* l. 114, we have,—

"That were an ignominy and shame beneath
This downfall."

Here—"were" is equivalent to "would indeed be, were it possible."

203. 'Poets cast in lead.' The dullest of poets.

204. 'The cause.' Of what?

205. 'Shrewd.' Here when in its present acceptance of astute penetrating. See its older meaning of *mischievous* in the well known passage in *Bacon's xxiiird Essay*,—"An ant is a wise thing for itself; but it is a *shrewd* thing in an orchard." In the phrase a *shrewd* turn there is much of the old force of the word.

206. 'A well directed aim.' A view in the right direction—a just view.

208. 'Nature, &c.' That is, throughout the year, man has to battle against the climate—(as detailed in the succeeding lines.)

210. 'Winter invades the spring.' Cf. Goldsmith, the Traveller—

"But Winter lingering chills the lap of May."

213. 'Carl the streamer.' Lash the rivers into waves.

Urge &c. Push off with their reaping, and turn the corn with the fork.

215. 'With double toil.' That is, the turning of the corn with the fork has to be done twice over on account of the rain and vapours, which prevent its drying.

217. 'Her favourite man.' Obs. that *favourite* is an adj. Goldsmith similarly calls the Bruton "The lord of human kind."

219. 'Half muscle and half bone.' Muscular and strongly made.

221. 'Well ledged.' In a healthy body.

'Of course.' Necessarily from its controlling circumstances.

223. 'His fierce but noble fires.' Compare Goldsmith again in illustration of this and following lines:—

"Stern o'er each bosom holds her state,
With daring aims irregularly great"

"Fierce in their native hardness of soul,
True to imagined right, above control,
While e'en the peasant boasts these rights to scan,
And learns to venerate himself as man."

224. 'Patent.' Adj. to 'he' of the following line.
'Constitutional control.' Legal authority acting in accord with law and the constitution.

227. 'Treads up on his free-born toe.' Encroaches in the smallest degree on his rights. (The expression is colloquial.)

229. 'Fires him, &c.' For the facts the student may refer to the History of Ch. I and James II particularly.

231. 'Heard.' The rhyme requires the pronunciation *heard* [In this connection the second chapter of EARLE'S Philology of the English Tongue is well worth studying. It is both interesting and instructive.]

232. 'His.' With prerogative for art.

233. 'Talk away.' Away, thus used, conveys the sense of continuation, repetition.

(To be continued.)

THE UNIVERSITY AS BOOK VENDORS.

TO THE EDITOR OF THE MADRAS MAIL.

SIR,—The Madras University is not only a learned, but it is a loyal body, devoted, like pattern natives, to the maintenance of the British Government. That Government has called aloud for economy, and peons have accordingly been transferred from official duty to act as volunteers at the relief camps. The Madras University had a few peons to dismiss, a few salaries that it could curtail, but small chances of effecting any great saving in pens or stationery, or even benches or stools. But it held a secret or secrets which had been worth much to text-book writers, annotators and book-sellers. That secret, it was determined to carry to account, with the aid of the Director of Public Instruction. And so, instead of informing the interested classes beforenamed, what the subjects for a coming examination would be, this august body secretly procured copyrights of books, and published the selected portions before any official intimation was afforded the public as to what these were. This was smart. But the University authorities did not stop here. They got the pledges of Heads of Schools, Institutions, Colleges, Missions and establishments to promise to use no book but the one published and sold by the University. Some of your readers, who may have been induced by eloquent auctioneers to purchase books in sealed envelopes, may wonder at the ostentatious respectability "Heads" purchasing books on mere speculation as to their contents. Political economists may be astonished to learn that the Director of Public Instruction hoped, while yet the book was a speculative lot, that "Heads" would use that and no other, and commanded the machinery of his department to facilitate the sale of the unknown, while that of the

known was to be obstructed in every way. The object of all this may have been financial success; the result will of course be inevitable loss.

If the object of the University were to enforce more attention to the text and less to the notes of English books selected for examination, I should condemn the mode of obtaining it; but this is not the object. The examination papers contradict any such laudable motive. A knowledge of a poem, a thorough inhalation of its sentiments, an identifying oneself with the poet, would rather stand in the way of than assist one in passing a University examination. It is of far more importance to know how to turn a sentence inside out, or find out a new meaning by the addition or substitution of a word, than to comprehend the thought of the writer. In fact, he is only the cabinet-maker, and allusions, paraphrases, analysis, condiments, are the clothes in the wardrobe of his making. Often, as I hear a sermon by a man who reads the "notes" on his Bible instead of the Scriptures themselves, I think that St. Paul would not have passed a modern examination in one of his own Epistles. We know that Goldsmith failed ignominiously when examined as to the meaning of the word "slow" in the "Traveller," until assisted by Johnson, and I am quite certain that a Madras examiner would spin him in the "Vicar of Wakefield." As to Shakspeare, he would wonder that he had meant so much, that he had so wonderfully preserved or forgotten the dramatic unities, that people should torture his sentences into all kinds of forms in order to sort out the nouns and verbs, the predicates and the peculiar uses which are only peculiar in an examination room. The shades of meaning which various emphasis may give to "She never told her love" would horrify him as much as his Hamlet's ghost ever horrified believers in the supernatural. But to have to begin with every word in the sentence, and so make a new sentence conveying the same meaning, would make him tear his hair.

Whatever object the University may have had in view in issuing this book, it will fail in attaining it. The book cannot be a penny-nary success. So much valuable time has been lost in its preparation, that both teachers and scholars will seize upon any of the royal roads that annotators may offer them. They may indeed use the text in school for appearances, but the delay alone renders necessary every assistance that is immediately procurable, and "cribs" and notes will be in greater force than ever. But I maintain that they are indispensable in spite of all their faults, until the examination turns more upon the writing, and less upon the writer, except in so far as the circumstances of the writer's life may give warmth and life to what he wrote. So long as the fact of an author's great aunt having run away with her father's butler is considered of as much importance as his meaning, so long must notes be had recourse to. But, however laudable it may be on the part of the University or of the Director of Public Instruction to endeavour to save or make money, or to discourage the use of cribs, neither the one nor the other has the right to use Government money or official influence, to further its own speculation in publishing, still less has either the right to use the large resources at their command, to render nugatory the efforts and curtail the industry and earnings of private individuals. This is another instance of the impractical nature of

the education given to the rising generation. Youths are taught that men work for existence, a competency, or affluence, that while doing this, they are benefactors not to themselves alone, but to the State in general, and that the worst thing that the State can do is to interfere with their industry. They see, moreover, a demand for certain books responded to by the supply and *vice versa*. The demand is caused by the nature of examination papers, and until that nature is changed, the demand will continue. Here the Government, the State, steps in and says "although the demand shall last, the supply shall cease." The result, it is true, may be a practical demonstration of the principles laid down in the lecture room and the futility of violent attempts to interfere with them. The most absurd part of the whole of this ridiculous attempt to interfere with private printing and publishing is recorded in the proceedings of the Director of Public Instruction. From them we learn that a number of "Heads" agreed to use the secretly produced book, without knowing anything of its contents to the exclusion of every other whatever the merits of each might be. The story of Jephthah has been lost on these "Heads."

EXAMINATION PAPERS. UNIVERSITY OF MADRAS.

Matriculation Examination.—1876.

GENERAL ENGLISH.

J. B. BILDERBECK, B.A., C. M. RAE, M.A.;
C. D. MACLEAN, B.A., MUS. DOCT.

PART I.

I. Paraphrase:—

At length awaking, with contemptuous frown,
Indignant Thales eyes the neighbouring town.
"Since worth," he cries, "in these degenerate days,
Wants ev'n the cheap reward of empty praise;
In these curst walls, devote to vice and gain,
Since unrewarded science toils in vain;
Since hope but soothes to double my distress,
And ev'ry moment leaves my little less;
While yet my steady steps no staff sustains,
And life still vigorous revels in my veins,
Grant me, kind heaven, to find some happier place
Where honesty and sense are no disgrace."
* devote=devoted.

II. The following *Complex* or *Compound* sentences are to be reduced to *Simple* ones, without any part of their meaning being violated or omitted:—

- (1.) As soon as he came into the room I went out that I might not be under the necessity of speaking with him.
- (2.) I asked my master whether he thought me fit to appear

for the examination, and, as he advised me to enter, I registered my name.

(3) Why he went that way, where and how he met with his death were questions which caused a stir in the village which it is impossible to describe.

III. (a) Explain the full force of the *of*'s in the following:—

(1) He *of* them all was most respected, as he came of an ancient family.

(2) I live in the town *of* Rangoon.

(3) What is the length *of* the leg *of* the table?

(b) Give the meanings of *but* and state what part of speech it is in each case:—

(1) All *but* three jumped into the water.

(2) There is no rose *but* has a thorn.

(3) He studied *but* to obtain honour.

(4) That would have happened *but* for him.

(c) What meanings have the Plurals of the following that are not to be found in the Singular:—*letter, number, force, beauty.*

PART II.

IV. Without paraphrasing the following passage, re-write it in correct prose, using the indirect form of speech:—

"Come hither, come hither," the sheriff said,

"Ask what thou wilt of me."

"O I will none of thy gold" said Robin,

"Nor I will none of thy fee."

But now I have slain the master," he says,

"Let me go strike the knave;

For this is all the reward I ask;

Nor no other will I have."

V. (a) Analyze into principal and subordinate clauses, giving the construction of the latter:—

"I knew a man that believed that if a man were permitted to make all the ballads he *now* not *are* who should make the laws of a nation."

(b) Parse the italicized words in (a.)

(c) Make sentences in which *since* shall be (1) a preposition (2) a subordinating conjunction of time.

VI. (a) Give the force of *-en* in *wooden, whiten, woven, oxen, vixen.*

(b) Give the appropriate collective nouns for a number of *ships, bees, sheep, fish* respectively.

VII. Select *one* (and only one) of the following topics for an exercise in composition and write on it a paragraph, not more than a page in length:—

(1) The need of a plentiful fall of rain at the monsoon.

(2) The kinds and the uses of palm-trees.

(3) The life of any author you know well.

PART III.

VIII. Give the more ancient and more recent forms of the past tense in the following verbs:—*knelt, work, yield, leap, creep.* Give the

difference in meaning at the present day of the two forms in the case of the word last mentioned. Give the more ancient and more recent forms of the plural in the following nouns:—*son, cow, brother.* Are the following nouns plural or singular:—*pease, deer, phenomena, chicken, news, summons, means?*

IX. Correct the following:—

Fast as he went, his pursuers follow faster.

We almost never meet.

I never saw him before, that I know.

The table's height is three feet.

This points to him as being the most renowned of all others.

I am determined he will go; I am certain he shall go. (In

this case explain *why* the two clauses are wrong.)

X. Define:—*Syntax, concord, subject, predicate and copula, ellipsis.* What parts of speech are the italicized words in the following sentences:—

He begins *cultivating* his fields.

I saw him *directly* he arrived.

ENGLISH TEXT BOOKS.

W. J. H. LEFANG, B. A., REV. T. E. SEATER, T. MARDEN, B. A.

PART I.

ENGLISH POETRY.

I. (a) Re-write the following in the order, of Prose construction

His horse who never in that sort.

Had handled been before,

What thing upon his back had got

Did wonder more and more.

(b) Supply the ellipses in the following lines

(1) Whereat his horse did snort as he

Had heard a lion roar.

(2) And all the world would stare

If wife should dine at Edmonton, &c.

(c) Annotate the use of the words italicised below.

(1) When the fresh springs burst o'er the lively *green*

(2) They met and yielded to the Spanish *force*.

(3) John Gilpin's spouse said to her *dear*.

(4) And every *soul* cried out "well done."

II. (a) Form nouns from *two, three* and *gray*; diminutives from *dear* and *stripe*; adjectives from *gleen* and *autumn* and past participles from *bereave* and *choose*.

(b) Is there anything objectionable in the following?

(1) so you must ride

On horse-back after we.

(2) Blaze not with fairy light the phosphor fly?

(c) To what do the pronouns italicised in the passages below refer

(1) The snoring beast began to trot

Which galled him in his seat.

(2) Grievous events, that from the memory drive.

Life's common cares, and *these* alone survive.

- III, (a) Explain the words italicised as used in the text *His*—a cunning artist—*Wash, Calendar, in merry pin, train-bonds, Estuary.*
- (b) State exactly what is denoted by each for that follows :—
- (1) Each baron for a sable shroud,
Sheathed in his iron panoply.
 - (2) A hat not much the worse for wear.
 - (3) The prating boy begged it for a fee, and I could not for my life deny him.
- (c) State briefly what you know about Luther.

PART II

SHORTER POEMS AND TALES FROM SHAKESPEARE.

- IV. (a) What part of speech is each of the following compounds?
- (b) Bring out the meaning of each compound by expanding it into a phrase, but without changing the words of the compound.
- (1) Summer-dried. (2) Mortal-moulded. (3) Toll-men
(4) Wife-like. (5) Back-door. (6) Stone-dead.

- V. Give the sense of the following extracts, stating very briefly to what or to whom reference is made in each.

- (1) Let the stag in thy standard bound wild in the gale.
- (2) And with the valour of her tongue she so chastised his sluggish resolution, that he once more summoned up courage to the bloody business.
- (3) I freely told you all the wealth I had ran in my veins.
- (4) When the homicida, o'ergone,
Left the bledge with———!

- [Fill up the blank in (4), and state whether the parties there referred to ever again encountered each other.]

- VI. Re-write, without altering the meaning :—

- (1) Bassanio had nearly exhausted his little fortune by living in too expensive a manner for his slender means :—
using the comparative.
- (2) She was nothing inferior to that Portia of whom we read :—*using a positive.*
- (3) If your love for me do not persuade you, let not my letter :—*using the positive form of the verb in each clause.*

- VII. A. Point out and name the figures of speech in the sentences below, and re-write the sentences according to their literal signification :—

- (1) Mark, Jew, a Daniel is come to judgment.
- (2) Ere thrice the moon into her port had steered.
- (3) He is gone on the mountain.

- B.—Use one word in place of each of the expressions in italics :—

- (1) There is no power in the tongue of man to alter me.
- (2) Words which have double sense.
- (3) Macbeth gave no heed to all they could say.

PART III.

TALES OF A GRANDFATHER.

- VIII. Describe the advantages, natural and artificial, of the ground occupied by the Scots before the battle of Bannockburn.

- IX. A. (a) The eldest of the two sisters.
(b) The Earl of Fife, whose duty it was to have placed the crown on the King's head.
(c) In subduing Wales, Edward had acted as treacherously, and more cruelly, than he had done in Scotland.
Correct or justify any peculiarities of construction in the above sentences, giving your reasons.

- B. Furnish grammatical notes upon the following :—

- (a) He went *a-fishing*.
- (b) Seven kings, *emitting* one or two temporary occupants of the throne, had reigned.
- (c) Where cavalry is so likely to act.
- (d) There was nothing but *manual and rifle*.
- (e) Wallace collected a body of men, willing to be outlawed rather than longer endure the oppression of the English.

- X. Explain the following expressions :—
Main force—To their very beards—Without quarter—To carry twelve Scotsmen's lives under his girdle—English horse—His namesake—With a vengeance—Must needs pass—by and by—Foster brother—Their common officers—Routed down.

SANSKRIT GRAMMAR, &c.

M. SESHADRI SASTRI, M.A.

- I. Translate the following into English :—

नानकं खानतन्नेऽस्तु किमहङ्करवापिते।

अथोपनरिदं वाक्यं प्राजापत्यो नरोऽब्रवीत्।

राजकृच्छया देवान् अधप्राप्तवदा फलं।

इदन्तु नृपशार्दूल पाय मन्देवनिर्मितं।

प्रजाकरं गृहाणत्वं धन्यमारोग्य वर्धनं।

भार्याणां मनुष्याणां मञ्जितेति प्रयच्छ्वैव।

तामुत्तमगुणेषु चान् यदर्थं यजसे नृप।

ततोदशरथः प्राप्तः पायसं देवनिर्मितं।

वभूवपरमप्रीतः प्राफविचमिवाधनः।

ततो हविः प्राश्यादुत्तमंसियः स्वयं नृपेण प्रतिपादितं मुदा ।

ऊनाशनादित्यसमानतेजसः क्रमेण गर्भानुपलेभिरेगुमान् ॥

II. Dissolve the underlined compounds in the above extract and state to what class each of them belongs.

III. Give the meaning of the following words:—

अद्यमेध, धनद, दारकिया, राजर्षि, शान्त्र, विवेक,
नीति, उपाय, कथाकृत्य, व्यवहार, भाषाकिया, कूट-
तुलामान, पायस, वैलोक्य, मेधाविन्, सैनिक.

IV. Decline the pronoun त्वम् (thou) fully; राजन्, आत्मन्,
in the accusative (द्वितीया) plural; पठन्, धीमन्, दधन्,
जायन् in the nominative (प्रथमा) singular, in masculine
gender; चि, चतुर् in the accusative (प्रथमा) plural, in
feminine gender; and सर्व in the genitive (पष्ठो) plural, in
feminine gender.

V. Give the third person singular aorist (लुङ्) of गृ (to go),
पा (to drink); पठ् (to read); स्था (to stand); and गम्
(to go); and the third person singular present tense (लट्) of
गम् to go; इष् (to wish); ब्रू to say; विद् (to know); and
विद् to exist.

VI. Conjugate ऐधिष्ठ and करोति in all numbers and
persons.

VII. Parse भगवन्, स्वागतं, ते and अस्तु (Vide. the
first line of the extract in the first question.)

VIII. Write the following with ordinary sandhi:—

यदि + एवं.

(b) शिवाः + ते.

(c) पंथानः + संतु.

(d) नः + अपि.

(e) सः + त्वम्.

(f) कस्मान् + विरात् + इहः + कसि.

(g) राजन् + एषः ते + अनुजः.

(h) पुनर् + पुनर् + अस्मी अत्र + आगच्छति.

IX. Into how many parts are the Ramayana and the Mahabharata divided? and mention their titles.

SANSKRIT TRANSLATION.

M. SESHAGIRI SASTRI, M.A.

X. Translate the following into English:—

(a) अस्त्यत्र धरातले वर्धमानं नास नगरम् । तत्र दन्ति-
लोनाम नानाभाण्डपतिः सकलपुर जायकः प्रतिवसति स्म ।
तेन पुरकार्यं च राजकार्यं च कुर्वता तृष्टिनीतास्तत्पुरवासिनो
लोकानुपतिश्च । किञ्चना नकोऽपि तादृक् केनापि चतुरो
दृष्टो नापि श्रुतः । अथैव वङ्गच्छतिकाले दन्तिलस्य कदा-
चिद्विवाहः मन्मथतः । तत्र तेन सर्वं पुरनिवासिनो राजम-
विधिलोकाश्च समानपुरस्सरं मामन्त्य भोजिताः, वस्ता-
दिभिश्चाकृताश्च । ततो विवाहा नन्तरं राजा सातपुरः
स्वगृहमासीत् ।

(b) अलिदाहिणालेजनपदे मरिचारीयं नाम नगरं ।

तत्र मकलार्थिकरूपदुःखः प्रवरनृपमकुट मणिमरोचिमञ्ज-
रोचयचर्चितनृणयुगलः सकलकलापारङ्गतोऽमरशक्तिर्नाम-
राजावभृत् । तस्य नयः पुत्राः परमदुर्मेधसः वज्रशक्ति
रयशक्ति रमन्तशक्तिश्चेति नामानि वभूवुः । अयं राजा तां
शास्त्रविमुखा नाम्नीक्य सन्निवानाञ्च प्रोवाच । भी ज्ञातमे-
तद्भवन्नि यममते पुत्राः शास्त्रविमुखाः विवेकरहिताश्च
नदेतान् पश्यामी मरुदपिराज्यं नमोऽस्य मायवति ॥

(c) युक्तियुक्तम् वचोमाहं बालादपि श्रुतादपि ।

मर्त्यजनः काश्चन मायवन्ति

चत्वरद, धर्मचर.

क्षयः कणशयैव विद्यामयं माययेत् ।

विद्याराजमुपैष्यते नदिधनम् विद्याविहीनः परः ।

यदेकतेयदि नमिधति कोऽत्रदोषः ।

अहिंसा परमोधर्मः

यस्यार्थस्तस्मिन्चापि यस्यार्थस्तस्मिन् बांधवाः ।

यस्यार्थस्तस्मिन् लोके यस्यार्थस्तस्मिन् पण्डितः ॥

पूजते यदपूज्योऽपि यदगम्योऽपि गम्यते ।

वन्दते यद्वन्द्योऽपि सप्रभावी धनस्य च ॥

II. Translate the following into Sanskrit idiomatically :—

(a) He makes me read Grammar.

(b) He gave me ten cows.

(a) He struck me while I was threatening (the adverbial clause implying contempt.)

(b) Devadatta makes Yajnadatta do the business.

(c) He asked me my welfare.

(d) Away with fear.

(e) In the sacred grove of Gautama there is a sage called Mahatapas. In the neighbourhood of his hermitage he saw a mouse fallen from the beak of a crow. He, then, touched with compassion reared it with grains of nirara. Soon after this a cat was observed by the sage running after the mouse to devour it. The mouse was therefore, changed into a cat by him. But the cat feared the dog and was transformed into a dog. But great is the dread of the dog for a tiger. It was, consequently, transformed into a tiger. The sage regards the tiger as he did the mouse. The tiger, irritated therefore, attempted to kill him. But he discovered the intention of the beast and changed it into a mouse again, saying "Become a mouse."

ARITHMETIC.

F. S. EVANS, M.A., CAPT. W. H. COAKER, R. E.

PART I.

I. A and B run a mile race, A running 11 yards whilst B runs 16 yards. How many yards start ought B to give A that they may reach the winning post at the same instant?

II. In buying rice on three occasions, I found the prices per bag were as 1 : 2 : 3 respectively. The price of 30 bags, 10 bought on each day, was Rs. 480. Find the price per bag on each day.

III. The length of a room is 30.142557 feet, the breadth 15.428571 feet, and the height 21 feet. Find the cost of papering the four walls at 16 annas the square foot.

IV. If a piece of work can be done by 30 men in 12 days, and if, after working 4 days, 18 men leave the work, and 18 women take their places: find the time taken to do the remainder of the work, the work of a man being half as much again as that of a woman.

V. In a railway train the total lengths of all the first class carriages, all the second-class carriages, and all the third-class carriages, are the same: the length of a first class carriage being 12 feet, of a second-class carriage 18 feet, and of a third-class carriage 24 feet. Each first-class carriage contains the same number of first-class passengers, each second-class carriage the same number of second-class passengers, and each third-class carriage the same number of third-class passengers; the number of passengers in a first, second, and third-class carriage being different. The total fares received from the first-class, second-class, and third-class passengers are the same. If Rs. 5, Rs. 3, Rs. 2 be the fares of a 1st, 2nd, and 3rd class passengers respectively, find the least amount of the total fares.

PART II.

VI. Find by practice the cost of 140321 articles at 13 annas, $11\frac{1}{4}$ pice each.

[No marks will be given if worked by any other method.]

VII. Find the side, and diagonal to two places of decimals, of a square containing 315·0625 square feet.

VIII. Madras Railway shares issued at £100 and guaranteed 5 per cent., are now worth £112 10s. Exchange being at 1s 7½d. per rupee, find the income in pounds sterling that would be derived from an investment of Rupees 18,000.

IX. A certain sum of money at simple interest amounts to Rupees 505·2 in two years, and to Rupees 589·4 in four years. Find the principal and the rate of interest.

X. A material which costs Rupees 3 Annas 8 per ton, and which has 20 cubic feet to the ton, has to be carried 16 miles at a rate of 6 pies per ton per mile; while another material which cost Rupees 2 Annas 4 per ton, and has 16 cubic feet to the ton, as to be carried 36 miles at a rate of 4 pies per ton per mile. What saving can be effected by employing the latter material on 100,000 cubic yards of breakwater?

ALGEBRA.

WM. ROSS, M.A., REV. J. H. WALTON.

PART I.

I. Divide $(a-b)(a+b-c) + (b-c)(b+c-a)$ by $(a-c)$.

II. Separate into four factors:—

$$(a^2-b^2)^2 + (c^2-d^2)^2 - (a+b)^2(c-d)^2 - (a-b)^2(c+d)^2$$

III. In what cases is $a^2 - b^2$ divisible by $a + b$ and $a - b$ respectively?

(i) Show that $(a-1)a^2 + (b-1)b^2$ is not divisible by $a + b$.

(ii) and that $(2a+b)^2 - (a+2b)^2 - a^2 + b^2$ is divisible by both $a+b$, and $a-b$ whether n be odd or even.

IV. (i) If an Algebraical Expression is a common measure of two other Algebraical Expressions, prove that it will measure the Sum or the Difference of any Multiples of those Expressions.

(ii) If $x^2 - (2q-1)x + 2q$ and $x^2 - 2qx + 2(q+1)$ have a common factor, determine q ; and hence find the L. C. M. of the two expressions.

V. Simplify

$$(i) (a+b+c)(l+m+n) + (b+c-a)(m+n-l) + (a-b+c)(l-m+n) + (a+b-c)(l+m-n)$$

$$(ii) \frac{a-b}{(x+a)(x+b)} + \frac{b-c}{(x+b)(x+c)} + \frac{c-d}{(x+c)(x+d)} + \frac{d-a}{(x+d)(x+a)}$$

PART II.

VI. Express the following as the difference of two squares:

$$\{(a+b)x - (c+d)y\} \cdot \{(a-b)x - (c-d)y\}$$

VII. If $(m+a)(b+c) + a^2 = (m+b)(c+a) + b^2 = (m+c)(a+b) + c^2 = n$ determine the values of m and n in terms of a, b, c .

VIII. Find the Cube Root of

$$(x+y)^3 - (x-y)^3 - 12xy(x^2 - y^2)^2$$

IX. Solve the following Simple Equations:

$$(i) \frac{a-b}{x+c} + \frac{c-d}{x+b} = \frac{a-b}{x+d} + \frac{c-d}{x+a}$$

$$(ii) \sqrt{(ax+c)} + \sqrt{(ax+d)} = \sqrt{(bx+c+c)} + \sqrt{(bx+d+c)}$$

$$(iii) \begin{cases} a(x+y) + b(x-y) = a^2 - ab + b^2 \\ a(x+y) - b(x-y) = a^2 + ab + b^2 \end{cases}$$

X. A letter-carrier has a house allowed to him for going from A to B and back again, including c hours for rest at B. But he finds that he can get b hours for rest by going d miles an hour faster each way. Find his ordinary speed and the distance from A to B.

GEOMETRY.

P. KRISHNASAWMI, CHETTI M. A., W. LESMING, M. A., J. T. MARGOSCHIS, F.R.G.S.

PART I.

I. (a) What is meant by the principle of superposition, and where is it first applied?

(b) Enunciate the Proposition in which the 12th axiom is first used.

(c) What is the shortest distance between a point and a right line? Prove your answer.

II. If two triangles have two sides of the one equal to two sides of the other, each to each, and have likewise their bases equal; the angle which is contained by the two sides of the one, shall be equal to the angle contained by the two sides equal to them, of the other.

III. ABC is a triangle, AB is produced to D. Shew that the angle CBD is equal to the sum of the angles BAC and ACB, and that the angles ABC, BCA and CAB are together equal to two right angles.

On the sides of an acute-angled triangle, isosceles triangles are described externally; determine the nature of the equal angles of these isosceles triangles in order that the sides of these triangles terminated at each angular point of the given triangle may be in one and the same straight line.

IV. ABC is an isosceles triangle. The line AB bisecting BC is produced to E, and DE made equal to AD. E is joined to the middle point of AB and AC by lines cutting BC in F and G. Shew that AFEG is a Rhombus.

PART II.

V. The straight lines which join the extremities of two equal and parallel straight lines towards the same parts, are themselves equal and parallel.

From the extremities of the straight line AB perpendiculars AC, BD are drawn on opposite sides of it, such that AC and BD together are equal to AB. Show that the straight line CD always makes the same angle with AB.

VI. In every triangle, the square on the side subtending any of the acute angles is less than the squares on the sides containing that angle, by twice the rectangle contained by either of these sides and the straight line intercepted between the perpendicular, let fall upon it from the opposite angle, and the acute angle.

Having given the base, and difference of the squares of the sides, of a triangle, shew that the vertex will always lie on a straight line perpendicular to the base.

VII. Show, without the help of Book III, that in a right-angled triangle the straight line drawn from the right angle to the middle point of the base is equal to half the base.

PART III.

VIII. If a straight line touch a circle, the straight line drawn from the centre to the point of contact shall be perpendicular to the line touching the circle.

Let OSR and PTN be two equal circles not touching or cutting each other. Join their centres O and P. It is required to draw a straight line touching the circle PTN, which being produced shall cut the line OP and touch the circle OSR.

IX. The angles in the same segment of a circle are equal to one another. Prove this when the segment is not greater than a semicircle.

In a circle, a quadrilateral figure is inscribed, two opposite sides of which are equally distant from the centre but are not parallel, shew that the other two sides are parallel.

X. Let SMPT be a semicircle on SM and let the chords SP and PM cut each other in N. Prove that the square on SN is equal to the rectangle contained by SN and SP, together with the rectangle contained by RN and RM.

INDIAN HISTORY.

R. HARVEY, M.A.; J. CREIGHTON, Esq.; G. ORRERT, M. A.

PART I.

I. Answer as shortly as possible the following questions regarding the Aryans:

- (1) About what time they invaded India.
- (2) In what part of Asia they had previously lived.
- (3) What daily occupations they followed.
- (4) What language they spoke.
- (5) In what part of India they first settled.
- (6) In what kind of districts the rudier remains of the tribes they conquered are now found and why it is natural we should find them there.

II. Delhi was captured on several occasions before the reign of Aurangzeb. Mention when and by whom it was taken together with any circumstances of interest attending the capture.

III. Account for the origin of the name Bahmany as applied to the Mahomedan dynasty of the Deccan and tell anything you know of the part played in its history by Mahmood Gawan.

IV. (a) On several occasions in the course of Indian History, ladies have taken a prominent part in its political affairs. Mention in one short sentence for each anything of interest you know regarding any four of these.

- (b) Taking Huzia Sultans of the slave dynasty as a fifth, give some fuller particulars of the parts played in its history.

PART II.

V. (a) What battle placed the Moguls on the throne of India, and what battle firmly established their power? Give the dates and contending parties.

- (b) What acts of Aurangzeb led to the dissolution of the Mogul Empire?

What Emperor of this dynasty pursued a different policy, and with what results?

VI. Who were known as the Syuds during the decline of the Mogul Empire, and what part did they play in the history of the period?

VII. When, where, and by whom was the first check given to the progress of the French power in India?

Enumerate the reverses sustained by the French from this time down to the battle which put an end to their hopes of empire.

VIII. (a) State shortly what you knew of the following:—
Nizam-ul-mulk, Balaji Vishwanath, Ali Verdy Khan, Calvert.

- (b) Enumerate the chief acts of Clive after his third return to India.

PART III.

IX. (a) Give the names and situation of the leading Native States in India in the year 1773.

- (b) State briefly the principal features of the Regulating Act.

- X. (a) Mention the more important Mahratta dynasties, now reigning and those which preceded them.
 (b) Give the dates of the four Mahratta Wars.
 (c) Mention four battles fought during those wars, and
 (d) The names of four English Generals engaged in them.
- XI. (a) When did Malabar, the Carnatic, Ceylon, Coorg, and the Punjab, become English?
 (b) Who are the Goorkhas, Sikhs, and Santals?
- XII. (a) Name one principal event which took place in 1782, 1799, 1806, 1823 and 1846 respectively.
 (b) Mention one act of importance passed during the administration of Lord William Bentinck, Sir Henry Hardinge and Lord Canning.

PHYSICS AND PHYSICAL GEOGRAPHY.

W. A. PARKER, M.A.; W. H. WILSON PH. D.; GEORGE DUNCAN, Esq.

PART I.

I. A rupee is placed at the bottom of an open vessel filled with water to the depth of six inches, and another in a similar vessel filled to the depth of a foot; shew that if the height of the water barometer is 30 feet, the pressures on the upper surfaces of the rupees will be in the ratio of 61 to 62.

II. State how the two points first marked on a thermometer tube are obtained.

If a thermometer which was graduated at the top of a mountain be placed in the same room with another graduated at the sea level, which will give the higher reading?

III. A tall cylindrical glass vessel filled with water at an ordinary temperature stands on a table, and two thermometers are inserted in the water one near the bottom and the other at the top. A freezing mixture is then placed like a belt round the outside of the vessel about half way up. Which of the thermometers will first begin to fall, and which will first reach the freezing point?

PART II.

IV. A solid body weighs in air 100 grains, in water 79 grains, and in another liquid 84 grains; what is the specific gravity of the liquid?

V. Make a drawing of an air pump and describe the mode of using it.

Give reasons why it is impossible to pump out all the air.

VI. Explain the following circumstances:—
 A piece of wood is accurately counterpoised by a lead weight. On placing the balance under the receiver of an air pump and exhausting, the wood is found to be heavier than the lead.

PART III.

VII. (a) Explain the terms *rapids*, *moraine*, *trade-winds*, *water-bed*.

(b) What are fogs? At Madras there are none to speak of, but at Bangalore they are frequent; why?

(c) Account for the fogs of Newfoundland.

(d) Explain the agency of water in forming rocks.

- (a) Name the various classes of lakes. Give an example of each.
 (b) Which class is generally salt?
 (c) What is a lagoon?
- IX. (a) Enumerate the movements of the ocean.
 (b) Ships sailing from Britain to Australia double the Cape of Good Hope, but double Cape Horn on the return voyage; why?
- X. "The cold ice of the Alps has its origin in the heat of the sun." Show how this is so.

GENERAL GEOGRAPHY.

J. SHARP, M.A.; J. MACMILLAN, M.A.

PART I.

I. (1) Describe with some accuracy the situations of *Archangel*, *Corin*, *Queslar*, *Yarmouth*, *Chittagong*, and *Bombay*.

(2) In about a century Manchester has grown from 20,000 inhabitants to above 400,000. What has mainly caused this increase?

(3) Copy the following, supplying words where they are omitted and underlining those you insert. "A part of Central Europe forms a ——— about 2,000 ——— in elevation. Owing to its ———, the snowline of the Alps is only about 8,000 ——— above ———. The Alps are intersected by numerous ———. There is a long ——— through the Alps at Mount ———. As the ——— Mountains are on the frontiers of Asia, the ——— are sometimes considered the highest mountains in Europe."

II. (1) What separates England from Scotland?

(2) Name, in order, those counties in each which touch the boundary between them.

(3) In what counties are *Sheffield*, *Elton*, *Woolwich*, *Killarney*, and *Glasgow*; and for what are they respectively noted?

III. Name

(1) (a) The most densely, and (b) the most thinly, peopled country in Europe.

(2) (a) The largest inland body of salt water, and (b) the richest city, in the world.

(3) Two of the special geographical features of (a) Europe and (b) S. America.

(4) (a) The largest river which falls into the Adriatic, and (b) the town situated at the junction of the Save and the Danube.

IV. (1) What are the eight principal rivers of Russia in Europe? Group them according to the waters into which they fall, and name the latter.

(2) Name four of the chief lakes of Switzerland. What languages are spoken in the country?

(3) What four means of inland communication are found in great perfection in England, and how do they affect its prosperity?

V. Draw an outline map of the continent of Africa, adding *Niagar*, *St. Helena*, *Socotra*, and *Madeira*. Mark only (1)

Equator, (2) three of the chief rivers, (3) three of the large lakes, four prominent capes, one each for the North, South, East, and West sides of the continent, and (5) the following Sierra Leone, Kilimajaro, Port Said, Algiers, Table Bay, and Timbuctu.

PART II.

VI. What seas are united and land separated by Torres Strait, the Strait of La Perouse, and the Strait of Belle Isle?

VII. Name the following:—

- (a) The states (of the United States of America) that border on the Pacific.
- (b) The large lakes in the basin of the Mackenzie.
- (c) The two most important parts of America on the Pacific.
- (d) The two largest towns in the basin of the Jumna.
- (e) Three rivers of India that rise near the same place in the Central Provinces.

VIII. Name (a) the largest island, and (b) the largest town in (1) the Sandwich Islands, (2) the Sanda Islands, (3) the Philippine Islands, and (4) the Greater Antilles.

IX. Give the name applied to each of the following:—

- (a) The vast low-lying tracts of land in North America.
- (b) A low fertile tract of land situated in a desert and watered by perennial springs.
- (c) That portion of land which borders on a large body of water.
- (d) The land bordering on the sides of a river.

X. Name all the British possessions in Asia to the south and to the east of British Burma, and all the British possessions on the steamer route from Bombay to Southampton by the Suez Canal, describing the situation of each.

XI. What are the two chief sources of revenue in (a) India, (b) England, and (c) China; and the two most important articles of export from (d) Australia, (e) the United States of America, (f) Canada, (g) Japan, and (h) British Burma?

PUBLIC INSTRUCTION IN BOMBAY.

The Principal of the Deccan College finds reason to complain of the conduct of the students towards the close of the year 1875-76. A large number of them, he says, committed a gross breach of discipline, for which eleven of the seniors were sent down for six months lighter punishment overtaking the juniors. The incident is worth noticing in connection with the spirit of insubordination which manifested itself a few months ago among the Calcutta students. The time was, and not long since, when the docility of Indian youth was almost proverbial and their teachers congratulated themselves on the facility with which discipline was maintained among the pupils—young men, for the most part, of eighteen to three or four and twenty years of age. Is it then the tone of native society becoming more manly and self-reliant, emboldened by deference now paid to their opinions, that they have become insolent and contumacious? Or is it the latter alternative, a true one, and the overstrained mind made to avoid giving scope to the feelings and prejudices of the people which give

