

"Gladly would he learn and gladly teach."

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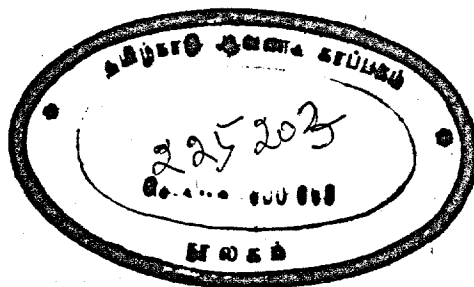
New Series.

EDUCATIONAL NEWS AND NOTES.

THE issue of the Matriculation, B. A., and M. A. results are the educational events of the greatest prominence this month. Out of 4,666 candidates that appeared for Matriculation 1,636 passed, viz. 208 in the 1st class and 1,428 in the 2nd class from twenty-four stations. The number of "plucked" was 3,057. For this examination above 4,680 candidates were registered, of whom 207 absented themselves. The results are fair,—better indeed than they were rumoured to be. For the B. A. Examination 227 appeared, of whom 120 passed, four in the First Class,—one each from the Presidency College, the Christian College, Kumbakonam, and St. Joseph's College, Negapatam. Of the 7 who registered their names for the M. A. Degree only two have passed, both in the Third Class. The high standard of the examinations has been maintained and, so far as we are at present informed, there is nothing to complain of. The Church of Scotland Institution carries off the blue ribbon at the Matriculation Examination (as one of its students will be found to head the list) and the Presidency College at the B. A. We are glad to learn that the Presidency College has again after a long interval won the Arni Gold Medal for Physical Science, but we are aware that the Christian College laboured under the disadvantage of Professor Michie Smith's absence on furlough. The Gajapati Rau Sanskrit Prize, and the Maharajah of Vizianagaram's Sanskrit Prizes are all gained by Presidency College students.

KUMBakonum COLLEGE.—Sanction has been accorded for the appointment of a "Lecturer on Physical Science" in this Institution on a salary of Rs. 200 a month, rising to Rs. 250 in five years. Mr. Grigg suggests that the post should be filled by a man from Bombay or Calcutta, as the study of Physical Science has advanced much more in those Presidencies than it has in Madras.

Published 1st March.



A correspondent of the *Madras Mail* writes in connexion with this: "I am given to understand that Mr. Grigg would prefer a graduate from the Bombay or Calcutta University to one of our local graduates, under the impression that the study of science has advanced more in those Presidencies. It is admitted that science has been taught in the sister-Presidencies for a longer time than here, and thus there are many more graduates in science there than here. But the amount of science one is expected to study for the B. A. Degree of our University is pretty much the same as what is prescribed for the M. A. in the other two Universities. Thus it will be seen that the Madras B. A. who has studied Physical Science for his degree is as well equipped for the work of teaching Science in College classes as the Bombay or Calcutta M. A. Besides, the Madrassee has a better right to the Combaconum appointment than an outsider ignorant of the languages and customs of South India. And Madras graduates who have had any experience already as teachers of Science to College students, or who have had any practical instruction in a laboratory should be preferred as possessing the necessary qualifications for the post in question."

THE MAHARAJAH OF VIZIANAGRAM'S GIRLS' SCHOOLS.—The 13th Anniversary of these Schools took place in Pachappah's Hall on Saturday, 17th instant, before a large and influential audience. The Hon. T. Muthusawmi Iyer delivered an address full of sound practical advice. We regret we have only space for a few extracts from it. Speaking of suitable courses of study for women, the learned Judge said:—

"A matter which requires attention is that the curriculum which is designed for girls should not be framed too much on the pattern of the curriculum prescribed for boys. It should be specially adapted to the wants of women in life. It should embrace subjects of study which supply information useful to women in their several life relations. It is not enough that they learn to read and write and keep accounts, but it is also necessary that they should be enabled to lay in a stock of knowledge which will be of service to them in managing the house, in nursing relations through illness, in bringing up and training children, in enforcing attention to cleanliness and to the laws of health, in rendering the home neat and tidy, in imparting to the home-life a tone of cheerful contentment, and in sustaining and raising that energy of female character which creates a lovely and happy home out of a bare competence, and in acquitting themselves well and honourably as wives, daughters and mothers, amidst all the vicissitudes of life. In proportion as education enhances their usefulness and value in life, it will secure a permanence in the country. There is something which does not harmonize with conventional sentiment in designating the different stages of culture that are attained by girls by tests devised for boys. I think this had better be avoided, and the tests prescribed for, and the certificates of proficiency issued to girls had better be differently designated. The several stages of culture that we provide may be classified as rudimentary, secondary, and higher education, but we should see that the first is marked by text-books which consist of short easy prose narratives, anecdotes, extracts from the lives of good men and women, illustrated scientific facts, and other objective forms of instruction which suggest to the young and growing mind a moral, or an abstract principle or truth as a living reality. The second stage should consist of text-books which are somewhat more difficult but which still deal with abstract principles in an easy and popular style, whilst the last

stage must consist of difficult studies and of classical and standard works. The aggregate culture which is provided should represent what in our judgment marks a good house-wife, an enlightened woman and a friend of progress. The group of text-books assigned to each stage of progress should mark a definite amount of abiding culture, although it may be limited in its scope. The general high class culture may, if necessary, be somewhat less in the case of women than in that of men and adjusted with reference to what is required from women in aid of progress, but we cannot be too active in giving to high culture a speciality with reference to the requirements of women in life, and of Hindu women in particular. Provision should also be made for teaching English in important towns where facilities exist for promoting a friendly and cordial social intercourse between European and Hindu ladies. But it should always be remembered that the vernacular of this country must be the recognized medium of instruction, and that particular attention should be paid to enriching it with text-books which are fitted for promoting the end we have in view. The education that is calculated to promote useful culture in this country must inoculate the pupil with the secular influences and principle of the virgin civilization of the West, in order that they may coalesce, with and modify the out-come of the old civilization of the East, so as to reanimate and rejuvenate the latter, and thereby lead to that "silver wedding" which was so feelingly alluded to by His Excellency the Viceroy and which we call 'national regeneration.'

Referring to the great difficulty that is experienced in getting suitable teachers for girls' schools, Mr. Muthuswami Iyer remarked as follows:—

"Another important matter is the necessity of training caste girls as teachers, in order that they may be freely received into Hindoo homes, and the system of home-teaching may rapidly spread in the country. Indigenous caste agency is not only likely to secure a ready reception but it will also be found to be cheap in the long run. It should be created by establishing normal schools or normal classes in connection with girls' schools. To aid the extension of home-teaching, it would be desirable to constitute local committees, consisting of men of influence and enlightenment in important towns, in order that they may aid and co-operate with the officers of the educational department. Their knowledge of practical difficulties and of special remedies and their local influence would be of considerable value."

MADRAS SCHOOL OF ARTS.—Upon the recommendation of the Director of Public Instruction, the Government have approved of a revised curriculum of studies, and scale-of fees for the School of Arts, suggested by the Superintendent, Mr. Chisholm. The curriculum is considered as the most conducive to the development of pictorial art, as opposed to industrial art, and consists of two grades, a higher and lower, each consisting of three stages, similar in both, but more advanced in the higher. The different stages are apparently to occupy one year's study each, and, while including perspective and geometrical drawing, &c., do away with architecture and the drawing of the human figure from life, painting being confined to monochrome and sepia. The Chief Engineer, P. W. D., having expressed himself in favour of draftsmen being educated in the School of Arts, the Government have directed that admission as draftsmen to the Civil Engineering College, or to employment in the P. W. D., can only be secured in the future by a certificate of having passed out of the School of Arts in the Lower Grade, the institution being treated in future as a portion of the educational machinery of the place.

THE MADRAS CHRISTIAN FEMALE NORMAL SCHOOL.—This institution was opened in 1870 for the purpose of training Christian school-mistresses for the girls' schools of the Free Church of Scotland Mission. It has already sent out for employment 3 First Grade, 5 Second Grade, and 10 Third Grade trained Christian school-mistresses, as well as others who have received a partial training in it for teaching in schools and homes. Last December, at the Middle School Examination, all the four students that went up from this school passed it successfully, while eight out of the nine pupils who appeared for the Special Upper Primary Examination, similarly distinguished themselves. With a view to meet the frequent demands made upon the managers by other Missionary Societies for a supply of suitable teachers, the school is being strengthened and developed. The number and amount of scholarships have been increased; and the school is to be shortly removed from the premises of the Madras Girls' Day School, Acharappen Street, where it has been conducted since its opening, to a commodious building in Popham's Broadway. The school consists of a Tamil and a Telugu department, due provision being made in the curriculum for the study of English as language.—*Mail*.

MR. D. S. WHITE.—The Director of Public Instruction has granted Mr. White, six months leave to Europe with eight days subsidiary leave. Mr. White is well-known to the Madras educational world as the hard-working and hard-worked assistant to a whole line of Directors of Public Instruction. He is also Secretary to the Board of Examiners for the Vernacular Civil Service Examinations, and last, but not least, President of the Eurasian and Anglo-Indian Association.

UNIVERSITY TEXT-BOOK COMMITTEE.

The following gentlemen have been appointed by the Syndicate as a Committee to select the Text-books for the Arts Course of the Madras University in English, Latin, Greek, French and German:—

H. B. Grigg, Esq., M.A., President.

Right Rev J. Colgan, D.D.
D. Duncan, Esq., M.A., D. Sc.
John Bradshaw, Esq., M.A., LL.D.
Rev. C. Cooper, M.A.
Rev. J. Cooling, B.A.
C. M. Barrow, Esq., B.A.
D. Sinclair, Esq., M.A.

Lieut. H. D. Love, R. E.
Rev. Geo. Milne Rae, M.A.
J. B. Bilderbeck, Esq., B.A.
R. B. Michell, Esq., M.A.
A. T. Arundel, Esq., B.A.
J. F. Gell, Esq.
J. W. Arbuthnot, Esq.

They held their first Meeting on the 8th February at 5-30 p. m. and, having approved of the Texts and portions proposed for the greater part of the course, appointed a Sub-Committee consisting of Messrs. Bradshaw, Sinclair, Cooling and Barrow, to report on some of the books suggested for the English Texts. When the Sub-Committee have sent in their report, the list of selections will be circulated to the heads of all First and Second Grade Colleges for their opinions, after receipt of which the Committee will decide finally on the selections to be recommended for the sanction of the Syndicate. This strikes us as being a great improvement on the old plan of keeping everybody in the dark until it was too late to object to any unsuitable selection that might have been made.

NOTICES OF BOOKS, &c.

THE INDIAN POPULAR ATLAS*—We have been favoured with a copy of this new Atlas, and can strongly recommend it to all who are in need of a handy Atlas at a moderate price (eight Annas.) It is strongly bound and has been prepared especially for India. The maps are excellent, and quite a new feature in this Atlas is, that it contains maps of the several Presidencies. This should induce many to buy it.

THE MADRAS MONTHLY MAGAZINE.†—We have received a copy of the first Number of this new candidate for public favour. Its declared object, is "to give information on topics of general interest to all classes, and be a medium of eliciting the views of educated natives on subjects which concern the general welfare of India." The Number before us contains several readable papers and is nicely got up. Elsewhere we reproduce from its pages Notes of a lecture on *Stimulus in Teaching* which we recommend to the careful perusal of our scholastic readers.

PARADISE LOST, BOOK VI, AND SHAKSPEARE'S TEMPEST.‡—Messrs. Higginbotham and Co., the well-known Publishers, have sent us a copy of this book for notice. From the title-page we gather that the Notes on Milton are by Dr. John Bradshaw, Inspector of Schools, and we therefore conclude that the book has been edited by him. It is very carefully edited and beautifully printed, and, seeing that it contains two out of the three Poetical Selections prescribed for the F. A. Examination of 1884, is priced very moderately at Rupees 1-12 per copy. There are 12 pages of Notes on *Paradise Lost*, and 26 pages on *the Tempest*, and, as we understand that only a small edition has been printed, there can be but little doubt that those who do not apply early will be disappointed.

A UNIVERSITY TEACHER'S TRAINING SYNDICATE.

The following is the Cambridge scheme for Examinations of Teachers in the Theory, &c., of Teaching. We commend it to the notice of the Madras University Syndicate, and would suggest that a similar course be laid down for Diplomas in Teaching:—

1. An Examination in the Theory, History, and Practice of Teaching will be held at Cambridge, and in London, in June 1882, for persons who have completed the age of 20 before June 1, 1882, and certificates will be awarded to those who have passed the Examination satisfactorily.

2. No Candidate can be admitted to the Examination unless he or she have either

1. Graduated in some University of the United Kingdom. [Including the Examination for the Degree of L.A. at St. Andrews.]
- Or 2. Satisfied the Examiners in Parts I. and II. of the Previous Examination.
- Or 3. Obtained a certificate in one of the Higher Local Examinations of the Universities of Oxford or Cambridge.

* The Indian Popular Atlas of Modern Geography, consisting of Twenty-four Maps, full coloured, William Collins, Sons & Co., London and Glasgow.

† The Madras Monthly Magazine (a Social and Literary Journal.) Madras, Addison and Co.

‡ Paradise Lost, Book VI, (reprinted with Notes from Dr. Bradshaw's Milton) and Shakspeare's Tempest, with Introductions by Jephson, Dowden and Horn, and full Notes. Price Rupees 1-12.

- Or 4. Obtained the certificate of the Oxford and Cambridge Schools Examination Board in the subjects accepted by the University as equivalent to Parts I. and II. of the Previous Examination.
- Or 5. Satisfied the Examiners in one of the Senior Local Examinations of the Universities of Oxford, Cambridge or Durham in English, and at least one language ancient or modern, and in Euclid and Algebra.

[Women who have passed the Senior Local Examination may qualify by passing a separate Examination in Euclid and Algebra.]

- Or 6. Passed the Examination for Matriculation at the University of London.

3. The subjects of Examination will be :

- (1) The Theory of Education.

- (a) The scientific basis of the Art of Education.

Characteristics of childhood and youth. Order of development and laws of growth and operation of mental faculties. Natural order of the acquisition of knowledge. Development of the will: formation of habits and of character. Sympathy and its effects.

- (b) Elements of the Art of Education.

Training of the senses, the memory, the imagination and taste, the powers of judging and reasoning. Training of the desires and of the will. Discipline and authority. Emulation, its use and abuse. Rewards and punishments.

- (2) The general History of Education in Europe since the Revival of Learning.

A general knowledge will be required of systems of education which have actually existed, of the work of eminent teachers, and of the theories of writers on education up to the present time.

The following special subjects have been selected for 1882: *Locke's Theory of Education*, and *The Life and Work of Pestalozzi*.

The special subjects for 1883 will be *Milton's Tractate on Education*, and the *Life and Work of Pestalozzi*. [two parts]

- (3) The Practice of Education. This subject will consist of

(a) Method, that is, the order and correlation of studies, oral teaching and exposition, the right use of text-books and note-books, the art of examining and questioning, and the best methods of teaching the various subjects which are included in the curriculum of an ordinary school.

- (b) School management. The structure, furniture, and fitting of school-rooms, books and apparatus, visible and tangible illustrations, classification, distribution of time, registration of attendance and progress, hygiene, with special reference to the material arrangements of the school, and the conditions of healthy study.

One paper will be set on each of the subjects (1), (2), (3). A fourth paper will be set containing a small number of questions of an advanced character on each of the three subjects.

A fee of £2. 10s. shall be paid to the Syndicate by each candidate.

4. The Syndicate will further award certificates of practical efficiency in teaching to candidates who have already obtained a certificate of theoretical efficiency, and have been engaged in school work for a year in some

school or schools to be approved of by the Syndicate. The bases for the certificate of practical efficiency will be:

- (1) Examination of the class taught by the candidate.
- (2) An inspection of the class while being taught.
- (3) Questions put to the teacher in private after the inspection.
- (4) A report made by the Head Master or Mistress.

5. The Syndicate will also be ready to inspect in the summer of 1882 any College established for the training of teachers other than elementary and to award certificates of theoretical knowledge to such candidates as may deserve them. They will also award certificates of practical efficiency if they are satisfied with the training in practical work received by the candidates.

Communications are to be addressed to the Secretary of the Syndicate, Mr OSCAR BROWNING, King's College, Cambridge, who will be happy to afford any further information.

CORRESPONDENCE.

TO THE EDITOR, M. E. RECORD.

SIR,—Will you be so good as to explain, in your next issue, the allusion in the following passage on p. 111 of *Green's Readings from English History*?

"Let us hope that in his (Simon de Montfort's) moment of agony he was consoled by some vision of what was to come, by the faith that in after years one yet greater and far more fortunate than he would arise and protect the liberties of the nation he had adopted for his own."

STUDENT.

[We take the reference to be to William of Orange.—Ed., M. E. R.]

DEAR SIR,—I observe that there is a tendency to use the letter *s* instead of the letter *z* in the spelling of some words which we have been accustomed to terminate with *ize*. Instance: *organise* instead of *organize*. Is the spelling with *s* authorized (or authorised), and if so, what is the authority?

Again, if I should write the verb "*to practise*" thus,—"*to practice*",—would it be considered wrong? Webster says of this verb, "*The orthography of the verb ought to be the same as that of the noun, as in 'notice,' and 'to notice.'*"

When spelling the passive participles and verbal nouns of verbs which end in a single consonant preceded by a single vowel, if the accent is not on the last syllable of the verb, should the final consonant be doubled before the suffix? Instance; should I write "*travelled, travelling,*" or "*traveled, traveling*"?

I once learned rules regarding this last inquiry; but the school which I attended is on the other side of the globe, and my question is designed to find out whether I may apply those rules here, or whether I must learn others. If others are required, where can they be found?

If I find that this is acceptable I may venture to ask some more questions; also I shall be as ready to answer questions as to ask them.

ARI.

[As we are just going to Press we are unable to reply to our correspondent in this number, but we shall always be happy to hear from him. An answer in our next,—Ed., M. E. R.]

FIRST IN ARTS EXAMINATION OF 1882.

We find from the complete list of Candidates in the *Gazette* that only 31 Candidates passed in the First class and 248 in the Second class, making a total of 279 out of 797 who registered their names. This gives only about one-third of successful Candidates, a result that can hardly be called satisfactory. In our view about two-thirds of the pupils sent up should pass at F. A., for we must remember that the course extends over two years and the students are those who have already run the gauntlet of the Matriculation Examination. No less than 18 Colleges are represented in the First class, but the only ones that have distinguished themselves are Kumbakonum with 5, the S. P. G. College, Trichinopoly with 4, and the Doveton Protestant College with 3, in the First class.

The subjoined analysis shows the numbers passed during the last nine years by the various Institutions.

Rank.	Names of Institutions.	Number passed in									Total.
		1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	
1	Kumbakonum College	22	30	29	40	30	71	22	67	37	348
2	Madras Christian College	24	28	27	30	24	31	31	63	44	302
3	Presidency College	27	21	20	18	14	26	14	27	12	179
4	Trevandrum Maharajah's College	17	22	11	13	17	22	11	20	19	152
5	Rajahmundry College	3	7	6	16	12	15	4	13	7	83
6	Trichinopoly S. P. G. College	4	7	4	2	4	15	7	20	12	75
7	Tanjore S. P. G. College	8	9	5	9	5	8	3	18	9	74
8	Calicut Government College	9	12	2	12	6	7	5	9	7	69
9	Central College, Bangalore	9	6	1	9	12	8	5	12	6	68
10	Mangalore Government College	8	4	4	6	9	10	5	6	14	66
11	Calicut Kerala Vidyasala						13	11	27	12	63
12	Negapatam St. Joseph's College	5		1	5	3	10	3	8	12	47
13	Mysore Maharajah's College	5	2		3	2	3	5	13	8	41
14	Ernakulam High School			4	7	10	6	2	6	4	39
15	Doveton Protestant College	5	7	2	1		2	4	4	6	31
16	Coimbatore College				4	3	11	0	8	4	30
17	Masulipatam Noble College	2	5	3	3	1	5	3	1	4	27
18	Bellary Government College	1	7	5		3	2	1	4	2	25
19	Tinnevely Hindu College					2	1	11	8		22
20	Pachappah's College								14	8	22
21	Vizianagaram Maharajah's College						6	2	7	5	20
22	Bishop Cotton's College, Bangalore		3	2	2	2	4	5	0	0	18
23	Cuddalore Government College							4	7	4	15
24	Madura Government College								8	7	15
25	Tinnevely C. M. S. College					2	2	2	4	4	14
26	Salem Government College							2	3	5	10
27	S. P. G. College, Sawyerpuram								6	4	10
28	Berhampore Government College						3	4	0	2	9
29	Vizagapatam Hindu College						4	3	2		9
30	Shimoga Government College					1	1	1	0	3	6
31	Hyderabad College								2	1	3
	(Private Study								5)		...

UNIVERSITY OF MADRAS.

MEETING OF THE SENATE.

A meeting of the Senate of the Madras University was held on Saturday evening, the 10th February. Present:—Sir Charles Turner, (Vice Chancellor), the Hon. Mr. Justice Innes, the Hon. Mr. Justice Muthusawmi Aiyer, the Hon. Mir Humayoon Jah Bahadur, the Hon. Mr. Seshayya Shastri, Bishop Colgan, Col. Shaw-Stewart, Dr. Bradshaw, Dr. Duncan, Mr. H. T. Bliss, Mr. H. H. Shephard, Mr. A. T. Arundel, Mr. H. B. Grigg, Dr. Dhanakoti Raju, Mr. R. B. Michell, Mr. B. Lavery, the Revs. G. Rae and C. Cooper, Dr. Wilson, Dewan Bahadur Runganadha Rau, Rai Bahadur Gopaul Rau, Doctors Keess, Rodgers and Bidie, Mr. Bashiam Aiyengar, Mr. Kistnama Chariar, Mr. Chentsal Rau, Mr. Balaji Rau, and Mr. Sashagiri Shastralu.

The meeting opened with the reading of Dr. Wilson's letter to the Registrar and the Sub-Committee's report, regarding the institution of a Convocation of the Graduates of the Madras University, which was published last month.

The following Memorial, signed by 167 candidates, was then read:—

"To the Chancellor, Vice-Chancellor, and Fellows of the University of Madras.

"Sirs,—We, the undersigned Graduates of the University of Madras, resident in Madras, beg to state on behalf of ourselves and our brethren of the University, that we have read with great pleasure and interest the proposals now before you of forming a Convocation of the Graduates of our University. It is hardly necessary for us to enumerate the benefits that will accrue from the formation of such an Association. It will be readily admitted, we presume, by all those who have the well-being of India at heart, that those whom the University sends forth as 'the promoters of sound learning' deserve to be taken into the counsels and deliberations of their *Alma Mater*. Without such a bond of union between the two, we must continue to remain isolated, with few or no opportunities for efficiently discharging those obligations which the University has laid on us. Our competency to render some aid, however humble, to the cause of education in our country will not, we trust, be questioned by our educators. In conclusion, we pray that the proposition which has received the support of such gentlemen as Dr. Wilson, the Honorable Justice Muthusawmi Iyer, the Rev. Miller and Mr. Bashyam Aiyengar, will be sanctioned by the Senate, and that the proposed Convocation will ere long become an accomplished fact."

The Hon'ble Mr. Justice Muthusawmi Iyer then addressed the meeting at some length. He thought that the introduction, of this measure would bring the Graduates together to discuss several questions of importance which would be acceptable to the Senate to some extent, and in a large measure awaken in the University an interest that was very desirable. The opening of this Convocation would be beneficial to the country and, in process of time, the Convocation would become the managers and governors of indigenous High Schools. The Association might be created with power to exercise certain privileges and to bring before the Senate questions of importance. The Association, however, would not assume legal rights. It might bring forward the names of Graduates to be appointed Fellows, but the Senate would not be bound by the opinion of the Convocation. He thought that the proposed Convocation might work for a time, and that, if it was a useful institution, then they could go to the

Legislature and obtain for the Association a legal status. If this Association was likely to be beneficial, as he believed it would be, he thought that the Senate ought to concede some privileges to it without legal rights. After some further remarks, Mr. Muthusawmi Aiyer proposed:—"That the Senate approve generally the formation, independently of the Senate, of such an Association as the report suggests, with a view to the future constitution of a Convocation. If such an Association is formed, the Senate will receive and give due weight to such suggestions as may be made by the Association and, it will afford such facilities as may be in its power for the establishment of the Association and the conduct of its business."

The Hon. Mir Humayoon Jah Bahadur seconded the proposal.

The Hon. Mr. Sashayya Shastri remarked that an Association of the kind proposed ought to come into existence of itself. There were many Associations in Madras and in the Mofussil, which had come into existence without help. An Association, such as that proposed to be started, ought to spring up spontaneously and then the Senate would be able to see what could be done for it. If an Association should of itself grow and live, and if it was able to get about two hundred subscribers, paying say either 10, 12, 15, or 25 Rupees, then it would commend itself. As far as he was concerned, he would prefer Associations being established under no one's auspices. According to the present proposal, the Association could not come into existence unless support was given. He deprecated such a measure. The proper course would be for the Association to come into existence and show what it was able to do in order to enable the Senate to give it its support. This, he thought, was the natural way to proceed in the matter.

Mr. Muthusawmi Aiyer believed that they did not go beyond the powers of the Act of Incorporation. The formation of the Association would be a very useful thing, which would by and by become a part of the Senate when the time came for the Legislature to give it a legal status.

Dewan Bahadur Raganadha Rau thought that, they must either attempt to make the status of the Association legal, or adopt the suggestion of Mr. Sashayya Shastri. If the Association came into existence by itself it would certainly be more honoured and respected.

Dr. Wilson said that, under the 8th para. of the Act of Incorporation, it was quite legal to incorporate the Association. This would be simply experimental, and afterwards they could apply to the Legislature to give effect to the application. He then referred to the London University, which exercised its functions under the Act. The establishment of this Association would not deprive them of any particle of power of incorporation and therefore this Senate ought not to refuse the memorial of the 167 Graduates. Unless the Senate took the initiative the Association could not come into existence.

Mr. Bashiam Aiyengar remarked that the Senate approved generally of the proposed Convocation, and that they ought to recommend to the Legislature to amend the Act of Incorporation. At present there was a Bill in the Council of the Governor-General for the Universities of Calcutta, Madras and Bombay to confer Honorary Degrees, and advantage might be taken now to recommend the amendment of the Incorporation Act. Such a Convocation would be of great advantage to the Senate and the country, and it was only right to take this opportunity of submitting a memorial to the Governor-General of India in Council to alter the Act in order to give effect to the establishment of the Convocation. This, he thought, was a

fitting opportunity if the subject commended itself to the University. He was of opinion that the Senate could not recommend the Bye-Laws to work this Association under Section 8 of the Incorporation Act, it appeared that, without the aid of the Legislature, the Association could not be carried on. It would have legal rights, as any other body, if brought into existence with legal effect. This institution would be a national help, and on that point he opined there was no dissenting voice. He would propose as an amendment, "That the Senate considers that the establishment of a Convocation of Graduates would be beneficial to the interests of the University and to the cause of education, and resolves to recommend Government to bring before the Legislature the desirability of such an alteration of the Act of Incorporation as will enable the Senate to establish such Convocation and regulations, and with such powers and duties as may from time to time seem advisable."

Mr. Justice Innes agreeing with Mr. Bashiam Aiyengar that the Senate was incompetent to make Bye-laws, seconded his amendment.

Mr. Michell remarked that, Mr. Muthusawmi's motion would pledge itself to the details of the Report, and was too vague.

Mr. Muthusawmi Aiyer said that, he did not mean that the Senate should pledge itself. He thought that certain facilities should be created without which the Association could not come into existence. If no facilities were given, where would the Graduates meet, and how were they to get copies of the Senate's proceedings. If this motion met with the approval of the Senate the Association, encouraged and developed, would do good service and afterwards become worthy of being recognized as a part of the Senate.

Mr. Grigg rose to propose another amendment.

Mr. Justice Innes remarked that, the first amendment must be put to the meeting before Mr. Grigg could be allowed to put his.

The Vice Chancellor ruled that, as there was an amendment before the meeting, it must be first put, and that afterwards Mr. Grigg would have an opportunity of bringing forward his proposals as an amendment to what would then be the substantive resolution.

Mr. Grigg then said that personally he was in favour of anything that tended to the interest and the enhancement of the value of degrees; at the same time the subject must be considered cautiously. According to Mr. Bashiam Aiyengar, they were practically to accept the report. He thought that it was very desirable that they should have a Committee to consider that subject instead of discussing it in a haphazard manner. This was a subject in which the Senate were bound to make further enquiries as to how far it would be beneficial to have this Convocation. If they wanted to memorialize Government, they must have sufficient and tangible information to lay before it, and sufficient argument to show for the granting of this liberal indulgence. He then alluded to the Incorporation Act of the London University as to the powers given to Convocation. The Senate should go carefully into the question as to what powers they were to confer on the Convocation, and the best method of arriving at such a conclusion would be the appointment of a Committee. It would be rash in the extreme to go before the Legislature without sufficient information.

Mr. Arundel dwelt on the advantages of a Convocation, and referred to the London University, of which he was a member. He strongly advocated the establishment of such a Convocation; the advantages, he said, would be undeniable to education and the University. He supported Mr. Bashiam Aiyengar, that the subject be referred to the Legislature.

The Rev. Rae then said that, in the Scotch Universities for the past thirty years there was an assembly of the general Council of Education. The establishment of the proposed Association was likely to be beneficial. He thought that Mr. Bashiam Aiyengar, was practically right, and of the two resolutions, he would suggest that Mr. Muthusawmi Aiyer withdraw his motion before Mr. Grigg's amendment came forward.

Mr. Shephard agreed with Mr. Grigg that, the Senate ought to be in possession of tangible and definite propositions to know what they wanted before the matter was formulated into an Act.

The Vice-Chancellor remarked that, the Meeting was under the apprehension that Mr. Muthusawmi Aiyer, wanted to pledge this University to the Convocation. He wanted nothing of the kind; what he advocated was, the formation of an Association, and to give it such assistance as was desirable. This topic was discussed more than a year ago, and the Committee had made its report. The Committee was a representative one, and supposing they were to create another Committee, it was very doubtful if they would get any thing more.

Mr. Krishnama Charry, Mr. Gopaul Rau and Dr. Rogers next made a few remarks.

Mr. Grigg again urged that the Senate ought to wait for a time. They should see how the Association should be worked, and when they had made up their minds, then go to the Government.

Mr. Muthusawmi Aiyer said that, if Mr. Bashiam Aiyengar's amendment was carried, he would be glad, but he would not withdraw his proposition, because, if the amendment was lost, his might be carried.

The amendment was then put to the Meeting and carried by 17 to 7.

Mr. Grigg, then brought forward the following amendment:—"That a Committee of the Senate be appointed to report on the expediency of amending the Act of Incorporation in view of providing for an Association of Graduates, and should the Committee consider the measure desirable to prepare a Draft Bill amending the Act."

The Vice-Chancellor suggested that the consideration of the subject be postponed to next Meeting.

The Registrar then proposed that the following Draft of Bye-Law XII to be substituted for Bye-Laws 44, 59, 73, 90, 103, 115, and 187, be passed:—"The Examiners in each subject or group of subjects shall appoint one of their number to forward to the Registrar, on or before a day to be fixed by the Syndicate, a statement in the prescribed form, showing the marks awarded by them to each candidate in each paper or portion of paper set by them, together with a letter containing any remarks or suggestions which they may consider to be deserving the attention of the Senate."

The Bye-Law was passed, and the Meeting adjourned.

HONORARY DEGREES.

The following Bill was introduced into the Council of the Governor-General of India for the purpose of making Laws and Regulations on the 2nd February, 1883:—

No. 3 of 1883.

A Bill to authorize the Universities of Calcutta, Madras and Bombay to confer certain honorary degrees.

WHEREAS it is expedient to amend the law relating to the granting of honorary degrees, and to give to the Universities at Calcutta, Madras and

Bombay the power of granting the Degree of Doctor of Laws to persons who have not undergone a previous examination.

It is hereby enacted as follows:—

1. Act No. XXI of 1875 (an Act to authorize the University at Calcutta to grant honorary degrees) is repealed.

2. If the Vice-Chancellor and not less than four of the other members of the Syndicate for the time being of any of the Universities at Calcutta, Madras and Bombay recommend that an honorary degree be conferred on any person, on the ground that he is, in their opinion, by reason of eminent position and attainments, a fit and proper person to receive such a degree, and if the Chancellor of the respective University confirms the recommendation, the Chancellor, Vice-Chancellor and Fellows for the time being of the University may confer on that person the Degree of Doctor of Laws, without requiring him to undergo any examination.

In the Statement of Objects and Reasons, we are told by the author of the Bill, the Hon'ble J. Gibbs:—By Acts II, XXII and XXVII of 1857, by which the Universities of Calcutta, Bombay and Madras were respectively established and incorporated, power is given to grant degrees only after examination, and Act XLVII of 1860 only extends the number and description of degrees which can be conferred, but leaves the necessity of a previous examination untouched. No Act giving power to grant honorary degrees was passed until 1875, when an Act was passed to enable the Calcutta University to confer honorary degrees. That Act enables the University to grant any honorary degree, but it is thought desirable to confine the power to the grant of the Degree of Doctor of Laws, in accordance with the ordinary practice of the Universities in England. Madras and Bombay have never had power to grant honorary degrees. It is now proposed to place the Universities at all the three Presidency towns on the same footing with regard to these degrees. With this view Section I of the proposed Bill repeals Act XXI of 1875. By the Act establishing the Universities, the power to confer degrees is granted to the Chancellor, Vice-Chancellor and Fellows, in whom, therefore, the power to grant honorary degrees is also vested by Sections 2 of the Bill. An honorary degree is not, however, to be granted to any person unless the Vice-Chancellor and not less than four of the other members of the Syndicate recommend the grant and the Chancellor confirms the recommendation.

STIMULUS IN TEACHING.

THE following notes were taken at a lecture, delivered by Mr. Arthur Sedgwick, for fifteen years a master at Rugby and for three years a Tutor at Oxford:—

Let us consider how it is that the best teachers do in fact succeed. No doubt Ruskin's advice, 'Be born a genius' is good, but it is useful to observe in what manner and to what extent the power of teaching may be developed. The securing of the attention of a class, though a small element in good teaching, is an essential part of it. Remember, however, that discipline is not so good as Stimulus. The dullest classes often are not inattentive, just as the lesson before breakfast is quiet, as the boys are half-awake and hungry. Some masters are like hunger and others like breakfast. It is the former who 'make a wilderness and call it peace.' If Jones talks to Smith while you are describing Cæsar's bridge, there are three courses open to you; first, that of the bad disciplinarian, to continue the description, taking no notice of Jones and Smith; secondly, that of the good disciplinarian, but bad teacher

'Jones, don't talk;' thirdly, that of the good teacher, to gain his attention by varying your manner, as by drawing the bridge on the board or by telling Jones to draw it, while Robinson corrects him. Cultivate variety of method in every thing.

To secure the attention of a class it is especially necessary to be natural in manner; the plea that a master must stand upon his dignity is generally the excuse for the monotony of a bore; it should never be forgotten that at school familiarity breeds affection and respect; even be 'amusing' though not necessarily making 'jokes,' for the simple reason that jokes are generally not amusing.

Two false methods should be noticed, that of the *nagging*, and that of the *satirical* master. The nagging master with his fire of little rebukes soon wears out the patience of the boys. As to sarcasm, it is on the very rarest occasions that it ever does any good at school, while it almost does immense mischief, and especially with the smaller boys; they do not understand you and they think you a brute. They feel that it is an unfair advantage for a master to take of his position.

To inspire real interest in the work it is necessary to be a thorough student of your subjects; for if you allow yourself to become at all stale the boys soon feel the difference, while the fact that you are evidently doing your best for them acts at once as a powerful stimulus. The hardest task is to interest the smallest boys, for it generally needs much careful preparation of every lesson to see where their difficulties will be and how to mark the way clear for them. What made the teaching of Dr. Arnold so effective was that, as we now see from his published correspondence, he was at the same time taking the deepest interest in the most important questions of the day and an active part in the discussion of them. It must not be forgotten however that the noblest duty of the teacher is to develop the moral character of his boys, and that no better means for this exists than that of himself setting an example of a high-principled life.—*Madras Monthly Magazine*.

UNIVERSITY OF MADRAS.

MATRICULATION EXAMINATION, 1882.

GENERAL ENGLISH.

Examiner—D. G. CLARKE, M. A.

I. Paraphrase—

Fair blossoms of a fruitful tree,
Why do ye fall so fast?
Your date is not so past,
But you may stay yet here awhile
To blush and gently smile,
And go at last.
What were ye born to be
An hour or half's delight,
And so to bid good night?
'Twas pity Nature brought ye forth
Merely to show your worth,
And lose you quite.

But you are lovely leaves, where we
May read how soon things have
Their end, though ne'er so brave:
And after they have shown their pride
Like you, awhile, they glide
Into the grave.

II. In regard to the following prefixes and suffixes give (1) the language from which each comes, (2) the meaning or force of each, (3) a word containing the prefix or suffix, and (4) the etymological meaning of the example given:—

anti, extra, retro, poly; kin, ous, fy, ness.

Examiner—J. COOLING, B. A.

III.

If I am
Translated by ignorant tongues
'Tis but the fate of place and the rough brake
That virtue must go through.

(a) Point out the grammatical relation between the clauses in the above extract.

(b) Parse fully the italicised words.

IV. Justify or correct the following sentences, stating fully your reason in each case:—

- (1) Early to bed and early to rise,
Makes a man healthy, wealthy and wise.
- (2) The lecture stated that light always travelled from the sun to our eyes in straight lines.
- (3) The man whom you thought was a coward turns out to be the bravest of all.
- (4) And many a holy text around she strews,
That teach the rustic moralist to die.
- (5) I expected from what he stated to have seen him at the head of the list.
- (6) We should pay respect to them who are older and wiser than ourselves.

Examiner—R. S. BENSON, B.A., LL.B.

V. Turn into the direct form—

The merchant begged the young man to pardon him the liberty which he took in asking him how it happened that he always made use of his left hand and never of the right: some accident surely, said he, had happened to it. The young man drew out his right arm from his robe when the merchant saw, to his utter astonishment, that his hand was cut off. He then said to the merchant that he was no doubt much shocked at seeing him eat with his left hand, but he would now see that he could not do otherwise. The merchant asked him if he might inquire how he had had the misfortune to lose his right hand.

VI. With the following independent statements construct one complex sentence, taking care to supply the proper connectives, and to attach each

subordinate clause to that member of the principal clause to which it relates :—

- (1) The Company's officers manifested a strong predilection for every thing Mussalman.
- (2) The Company's officers manifested this predilection from the first.
- (3) The Company's officers retained the Persian language in the law courts.
- (4) Justice was now dispensed in a language foreign to the parties and the witnesses.
- (5) Justice was also dispensed in a language foreign to the Judge.
- (6) The anomaly and the incongruity was thereby greatly increased.

VII. Give the exact meaning of the italicised words in the following sentences :—

- (1) My father told me I *might* go to school.
You *might* have done me a service but you would not.
- (2) My brother said he *should* give me the money.
You *should* have done as you were told.
- (3) Before breakfast he *would* generally take a walk.
He *would* not help me, though I besought him greatly.
- (4) This *goes* for nothing with me.
It will *go hard* with him when his case comes before the High Court.
- (5) He *ran down* the man's character.
The lease of the house has *run out*.
- (6) I can *put up* with his impertinence no longer.
His father was very much *put out* at what he did.

Examiner—C. M. LEONARD, B.A.

VIII. (a) Write in the first person a short note to a friend, asking him to lend you a book to help you in preparing for an examination.

- (b) Write in the third person an order to a tradesman for an article, stating that you have forwarded the money for it, and specifying the mode in which it is to be sent to you.

IX. (a) State the grammatical construction of the infinitives in—

- (1) Your error is much *to be regretted*.
- (2) He said there were duties *to perform*, so that it was difficult for them *to attend* to the matter.
- (3) *To think of* your doubting whether young men ought to go to college *to study* medicine!

- (b) He promises us much but gives us little.
Write this in two ways using the passive for the active.
- (c) Come along with me now.

Write in the negative interrogative form.

X. Write down—

- (1) The feminines of *sloven*, *hero*, *fox*.
- (2) The comparatives and superlatives of *ill*, *nigh*, *gay*.
- (3) The plurals of *mischiefs*, *miasma*, *soliloquy*, *alkali*, *lady-in-waiting*, *Major-General*.
- (4) The past tense and past participle of *swell*, *slay*, *stride*, *spin*.

ENGLISH TEXT-BOOK.

Examiner—GEORGE DUNCAN, ESQ.

I. Relate "De Wilton's History" in your own words, the narrative not to exceed two pages in length.

II. State briefly to what or to whom reference is made in each of the following :—

- (1) The *rest* were all in Twizle glen.
- (2) I warrant *him* a warrior tried.
- (3) Like pine-tree rooted from the ground,
It sunk amidst the foes.
- (4) "Then it was truth!" he said, "I knew
The dark presage must be true."
- (5) Reckless of life *he* desperate fought,
And fell on Flodden plain.
- (6) *The precious hour* has passed in vain.

III. "Then did their loss *their* foemen know,
Their king, their lords, their mightiest, *low*,
They melted from the field *as snow*
When streams are swollen and south winds blow,
Dissolves in silent dew."

Write the meaning of the above passage in simple prose.

Examiner—E. H. ELLIOT, B.A.

IV. (1) Parse the words italicised in Question III.

- (2) State the difference between
Tradition and legend;
Defaced and mangled;
Reckless and desperate.

V. Explain—(1) The Howard's lion fell; (2) A Palmer's weeds; (3) Catherine's hand the stocking threw; (4) He charged his own paternal shield with bearings won on Flodden Field; (5) Thus in the proud baron's tomb, the lowly woodsman took the room; (6) The bull of Marathon.

VI. Write the following passage in indirect prose speech :—

Then said Adrastus (to Cræsus), "Now, were I grown base
Beyond all words, if I should spare for aught
In guarding him, so sit with smiling face,
And of this matter take no further thought,
Because with my life shall his life be bought,
If ill should hap; and no ill fate it were,
If I should die for what I hold so dear."

Examiner—A. W. SEWART, M.A.

VII. Relate in your own words (not exceeding two pages) so much of the story of Gaffori as is given in the text.

VIII. Give the force of the proposition in each of the following phrases:—(1) A boy of a captain; (2) a man of fortune; (3) a soldier of fortune; (4) a man of business; (5) the masts had been made too long for her; (6) I care not for this world.

IX. (a) Write the following sentences making the changes indicated, but retaining their present meaning:—

(1) Men-of-war were sent abroad for some other purpose than to be made a show of. Insert "not" before "sent".

(2) The foulest murderer that ever suffered by the hands of the executioner has infinitely less guilt upon his soul than the statesman who concluded the treaty and the monarch who confirmed it. Begin with "The statesman."

(3) "We are but few," said Nelson, "but of the right sort." Use two conjunctions instead of the one in the sentence.

(b) Use one word in place of each of the following expressions in italics:—

(1) The ship *which got on shore*. (2) Orders *to the same purport* were sent round to all the Commanders. (3) There was but one *choice of two things*.

Examiner—A. L. VENKATARAMANA PANT, M.A., B.L.

X. Explain—(1) under arms; (2) stand of arms; (3) the Chatham stage; (4) half pistol shot; (5) the Shunamite; (6) dead level of mediocrity; (7) between wind and water; (8) Westminster Abbey or Victory.

XI. Correct the following and underline the corrections:—

(1) Our dear friend has endured enough. His sufferings were in every respect more than any of us.

(2) That remorseless Government persisted in its flagitious project. They poured in troops dressed like the people of the country, by which means they deceived and destroyed many of the patriots.

(3) The Duke of Clarence, should I fall, will, I am confident, take a lively interest for my son-in-law, on his name being mentioned.

XII. Give (1) the adjective forms of *promptitude*, *giant*; (2) the noun forms of *reconnoitre*, *pursue*; and (3) the opposites of *detestation*, *promoted*. Introduce each of the newly formed words into appropriate sentences.

UNIVERSITY OF MADRAS.

B. A. DEGREE EXAMINATION, 1883.

STATICS AND DYNAMICS.

Examiner—RAI BAHADUR T. GOPALA RAU, B.A.

I. Enunciate the parallelogram of forces.

Resolve a given force into two components which shall be inclined at a given angle and have their difference equal to a given force.

II. Find analytically the position of the centre of gravity of any number of heavy particles in one plane.

If the particles be all equal, show that a system of forces acting at the C. G. and represented in direction and magnitude by straight lines drawn from the C. G. to the particles will be in equilibrium.

III. Explain what is meant by the coefficient of friction, and show how its value between given substances may be found.

Two particles connected by a string rest on a vertical circle of circumference equal to four times the length of the string. If the radii at the highest and lowest positions of either particle consistent with equilibrium make angles α and β with the vertical, show that the coefficient of

$$\text{friction} = \tan \frac{\beta - \alpha}{2}.$$

IV. Obtain analytically the condition of equilibrium of any number of forces in the same plane acting at any points of a rigid body.

A uniform rod AB rests with the end A against a smooth vertical plane, supported by a string which connects a point C of the rod with a point D in the plane vertically above A , AC and AD being each $= \frac{3}{2} AB$. Show that the angle $BAD = \cos^{-1} \frac{1}{4}$.

If the plane be rough and $\mu = \frac{1}{2}$, show that the least value which the angle can have $= \cos^{-1} \frac{1}{2} - \cos^{-1} \frac{1}{4}$ (i.e., $\tan^{-1} \mu$).

V. Find the ratio of the Power to the Weight in the Screw.

VI. If s be the space described from rest by a particle under the action of a uniformly accelerating force f in time t , show that $s = \frac{1}{2} ft^2$.

If f be the numerical value of an acceleration when a foot and a second are the units of space and time, and ϕ its numerical value when σ feet and τ seconds are the units, show that $\phi = \frac{\tau^2}{\sigma} f$.

VII. Prove that the path of a projectile is a parabola.

A particle projected along the surface of a smooth square desk, (inclination $\sin^{-1} \frac{\sqrt{3}-1}{9}$), from one of its lower corners, passes through the

opposite corner. If the velocity of projection be one-third that which would be acquired in falling freely through a space equal to the length of an edge of the desk, show that the direction of projection makes an angle of 60° with the lower edge of the desk.

Why are there not two directions of projection?

VIII. Explain the mutual action of two elastic balls when they impinge directly on one another.

Two equal balls move with equal velocities towards the vertex of an isosceles triangle (vertical angle 120°) starting simultaneously from the

extremities of the base. If their directions of motion after impact are a right angles, show that the modulus of elasticity $= \frac{1}{\sqrt{3}}$.

IX. Show that the normal acceleration at any point of a particle moving on a plane curve under the action of any force $= \frac{v^2}{\rho}$, v being the velocity and ρ the radius of curvature at the point.

A particle is projected up the concave side of a parabolic arc, whose axis is vertical and vertex upwards, from an extremity of the latus rectum, with the velocity which would be acquired in falling vertically from rest through a distance equal to the length of the latus rectum. Show that the pressure which the particle exerts on the curve when it has described an angle of 150° round the focus $= \frac{3\sqrt{3}}{4}$ of its weight.

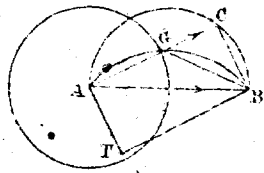
(SOLUTIONS IN STATICS.

I. *Vide* Parkinson's Mechanics, pages 15 and 16.

Problem :-

GEOMETRICAL METHOD.

Let AB = given force (represented geometrically) to be resolved; H the given angle at which the components should be inclined and EF , the given difference of components.



On AB describe segments of circles containing angles equal to D and $90^\circ + \frac{D}{2}$ where D is the supplement of H .

With centre A and radius of length equal to EF , describe a circle cutting the latter segment in G . Join AG , produce it to meet the first segment in C and join CB and BG . Now complete the parallelogram $ACBT$. AC and AT are the components required.

Now because the angle $AGB = 90 + \frac{D}{2}$, its supplement $CGB = 90 - \frac{D}{2}$.

And again because the angle $C = D$, the angle $CBG = 90 + \frac{D}{2}$.
 $\therefore D = 90 - \frac{D}{2}$.

Therefore the angles CGB and CBG are equal. Therefore $CG = CB$.

$\therefore AC - CB = AC - CG = AG = EF$, the given difference.

But $AC - CB = AC - AT$.

$\therefore AC - AT = EF$.

And the angle $CAT = 180 - C = 180 - D = H$, the given angle. Hence the Solution.

ANALYTICAL METHOD.

Let P = given force.

Q = given difference of components and α = the given angle of their inclination.

Let A and B be the components to be found out.

$A - B = Q$ and $\delta^2 = A^2 + B^2 + 2AB \cos \alpha$.

(*Vide* Parkinson's Mechanics, page 21.)

$\therefore P^2 = (A - B)^2 + 2AB(1 + \cos \alpha) = Q^2 + 4AB \cos^2 \frac{\alpha}{2}$.

$\therefore 4AB = \frac{P^2}{\cos^2 \frac{\alpha}{2}}$.

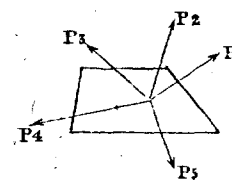
$\therefore (A + B)^2 = Q^2 + \frac{P^2}{\cos^2 \frac{\alpha}{2}} = \frac{P^2 + Q^2 \cos^2 \frac{\alpha}{2}}{\cos^2 \frac{\alpha}{2}}$.

$\therefore A + B = \frac{\sqrt{P^2 + Q^2 \cos^2 \frac{\alpha}{2}}}{\cos \frac{\alpha}{2}}$ and $A - B = Q$.

From these two equations, A and B can be found.

II. *Vide* Parkinson's Mechanics, pages 82 and 83.

Problem :-



Let any plane pass through the point O which is the CG of the particles $P_1, P_2, P_3, P_4, \dots$, and let the lines giving the point to the particles make angles $\theta_1, \theta_2, \theta_3, \dots$ &c., with the normal to this plane and let their lengths be $l_1, l_2, l_3, \dots$ &c., also, let the weight of each of the particles be P .

Then the moments of the particles with reference to the plane are :

$$P_1 \cos \theta_1 + P_2 \cos \theta_2 + P_3 \cos \theta_3 + P_4 \cos \theta_4 \dots = P$$

$$\{ l_1 \cos \theta_1 + l_2 \cos \theta_2 + l_3 \cos \theta_3 \dots \dots \dots (1) \}$$

Also the components of the forces represented by the lines $l_1, l_2, l_3, \dots$ &c., in a direction at right angles to the plane are :

$$l_1 \cos \theta_1 + l_2 \cos \theta_2 + l_3 \cos \theta_3 \dots \dots \dots (2)$$

Now, if the centre of gravity of a system of forces be in a given plane, the algebraic sum of the moments of the particles with respect to that plane is zero. (*Vide* Parkinson's Mechanics, page 86.)

$\therefore$ Series $\{ \text{number } (1) \}$ is equal to 0.

$$P \{ l_1 \cos \theta_1 + l_2 \cos \theta_2 + l_3 \cos \theta_3 \dots \} = 0$$

$$\therefore l_1 \cos \theta_1 + l_2 \cos \theta_2 + l_3 \cos \theta_3 \dots = 0$$

that is, the sum of the resolved parts of the forces represented by the lines $l_1 l_2 l_3 \dots$ &c., in any direction, is zero.

Hence the forces represented by $l_1 l_2 l_3 \dots$ &c., must be in equilibrium.

That is, if O be the centre of gravity of the equal particles $P_1, P_2, P_3 \dots$ &c., then the forces represented by $OP_1, OP_2, OP_3 \dots$ &c., are in equilibrium.

III. Vide Parkinson's Mechanics, Chapter III, on Friction.

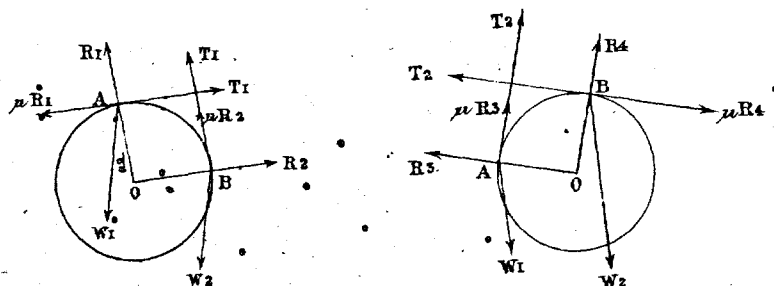


FIG. I.

FIG. II.

Figures I and II represent the highest and lowest positions of equilibrium of the particle A.

Since AB, the length of the string is one fourth of the circumference of the circle, $AOB = \frac{\pi}{2}$.

In the above figures, ω_1 and ω_2 represent the weights of the particles, T_1 and T_2 , the tensions of the string in the two positions of equilibrium, R_1, R_2, R_3 , and R_4 , the pressures of the circle in the two positions of the two particles and lastly $\mu R_1, \mu R_2, \mu R_3$ and μR_4 , the forces of friction. Let $\mu = \tan \phi$.

Resolving the forces in figure I vertically and horizontally, we get

$$R_1 = \omega_1 \cos a.$$

$$T_1 = \mu R_1 + \omega_1 \sin a.$$

$$\therefore T_1 = \mu \omega_1 \cos a + \omega_1 \sin a$$

$$= \omega_1 \{ \cos a \tan \phi + \sin a \}$$

$$\therefore T_1 = \omega_1 \frac{\sin(a + \phi)}{\cos \phi}.$$

$$\text{Again } R_2 = \omega_2 \sin a.$$

$$T_1 + \mu R_2 = \omega_2 \cos a.$$

$$\therefore T_1 = \omega_2 \cos a - \omega_2 \sin a \tan \phi.$$

$$= \omega_2 \{ \cos a - \sin a \tan \phi \}.$$

$$= \omega_2 \frac{\cos(a + \phi)}{\cos \phi}.$$

$$\therefore \omega_1 \frac{\sin(a + \phi)}{\cos \phi} = \omega_2 \frac{\cos(a + \phi)}{\cos \phi}$$

$$\therefore \frac{\omega_1}{\omega_2} = \cot(a + \phi).$$

Similarly, resolving the forces in figure II, we get

$$R_3 = \omega_1 \cos \beta; T_2 + \mu R_3 = \omega_1 \sin \beta \text{ and } R_4 = \omega_2 \sin \beta.$$

$$T_2 = \mu R_4 + \omega_2 \cos \beta.$$

$$\therefore T_2 = \omega_1 \sin \beta - \mu \omega_1 \cos \beta = \omega_1 \frac{\sin(\beta - \phi)}{\cos \phi} \text{ and}$$

$$T_2 = \omega_2 \cos \beta + \omega_2 \tan \phi \sin \beta = \omega_2 \frac{\cos(\beta - \phi)}{\cos \phi}$$

$$\therefore \frac{\omega_1}{\omega_2} = \cot(\beta - \phi).$$

$$\text{But } \frac{\omega_1}{\omega_2} = \cot(a + \phi)$$

$$\therefore a + \phi = \beta - \phi.$$

$$\therefore 2\phi = \beta - a.$$

$$\therefore \phi = \frac{\beta - a}{2}.$$

$$\text{But } \mu = \tan \phi \therefore \mu = \tan \frac{\beta - a}{2}.$$

IV. Vide Parkinson's Mechanics, pages 38 and 39.

Problem:—

In the figure

AB represents the rod, AD, the vertical wall, CD the string which connects a point C of the rod, with a point in the plane vertically above A and G, the centre of gravity of the rod.

$$AC = AD = \frac{3}{4} AB.$$

Let T = tension of the string

W = weight of the rod.

And R, the action of the wall on the rod.

Since there are only 3 forces acting on the rod (the plane being supposed to be smooth), and producing equilibrium, they must all meet at a point. Let them meet at O.

AD being parallel to OG and AC being equal to AD, it follows that CG = OG.

$$\text{But } CG = \frac{1}{4} AB - \frac{3}{4} AB = -\frac{1}{2} AB.$$

$$\therefore OG = \frac{1}{2} AB.$$

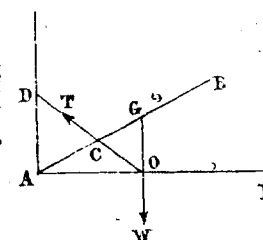
$$\text{But the angle } AOG = \frac{\pi}{2}.$$

$$\therefore \frac{OG}{AG} = \cos AGO = \frac{\frac{1}{2} AB}{\frac{3}{4} AB} = \frac{2}{3}.$$

$$\text{But } AGO = BAD.$$

$$\therefore \cos BAD = \frac{2}{3}.$$

$$\therefore BAD = \cos^{-1} \frac{2}{3}.$$



Let the plane be rough, and let μ = co-efficient of friction.
Resolve the forces vertically and horizontally and take moments about the point A.

$$AD = AC = \frac{3}{8} AB.$$

Let the angle CAD = θ .

Then each of the angles D and C are equal to $90^\circ - \frac{\theta}{2}$.

$$T \sin \frac{\theta}{2} + \mu R = W. \quad (1)$$

$$R = T \cos \frac{\theta}{2}. \quad (2)$$

Moments about A.

$$W \cdot AG \sin \theta = T \cdot \frac{3}{8} AB \cdot \cos \frac{\theta}{2}.$$

$$(i.e.) W \sin \frac{\theta}{2} = \frac{3}{8} T. \quad (3)$$

But from (1) and (2) we get

$$W = T \sin \frac{\theta}{2} + \mu T \cos \frac{\theta}{2}.$$

$$\therefore W = T \left\{ \sin \frac{\theta}{2} + \mu \cos \frac{\theta}{2} \right\}.$$

Put $\mu = \tan \phi$.

$$\text{Then } W = T \left\{ \frac{\sin \left(\frac{\theta}{2} + \phi \right)}{\cos \phi} \right\}.$$

$$\text{But from (3) } W = \frac{3T}{8 \sin \frac{\theta}{2}}.$$

$$\therefore \frac{\sin \left(\frac{\theta}{2} + \phi \right)}{\cos \phi} = \frac{3}{8 \sin \frac{\theta}{2}} = \frac{1}{2 \sin \frac{\theta}{2}}.$$

But $\frac{3}{4} = \mu = \tan \phi$.

$$\therefore \frac{\sin \left(\frac{\theta}{2} + \phi \right)}{\cos \phi} = \frac{\sin \phi}{\cos \phi} \cdot \frac{1}{2 \sin \frac{\theta}{2}}.$$

$$\therefore \sin \phi = 2 \sin \frac{\theta}{2} \cdot \sin \left(\frac{\theta}{2} + \phi \right).$$

$$= \cos \phi - \cos (\theta + \phi)$$

[But $\tan \phi$ being equal to $\frac{3}{4}$, $\sin \phi = \frac{3}{5}$ and $\cos \phi = \frac{4}{5}$.

$$\therefore \frac{3}{5} = \frac{4}{5} - \cos (\theta + \phi).$$

$$\therefore \cos (\theta + \phi) = \frac{1}{5}.$$

$$\therefore \theta + \phi = \cos^{-1} \frac{1}{5}.$$

$$\therefore \theta = \cos^{-1} \frac{1}{5} - \phi = \cos^{-1} \frac{1}{5} - \cos^{-1} \frac{4}{5} \quad (i.e.) (\tan^{-1} \mu).$$

V.—Vide Parkinson's Mechanics, pages 135, 6 and 7.

E. SEETHARAMA ROW, B. A.

APPENDIX TO THE GRANT-IN-AID CODE.

A.—THE HIGHER EXAMINATION FOR WOMEN.

(Continued from page 38, Vol. II, No. 1.)

I.—COMPULSORY SUBJECTS.

A—English—(Maximum 150 marks, Minimum 50 in the case of Europeans and Eurasians and 30 in the case of Natives).

(a) Dictation—A passage from a book equal in difficulty to the Matriculation prose text-book. (20 marks.)

(b) Questions on the prose and poetry appointed for the ensuing Matriculation Examination. (50 marks.)

(c) Questions on the language generally. (30 marks.)

(d) *Translating into the vernacular one or more passages from a book not previously studied, equal in difficulty to Lethbridge's Easy Selections. (20 marks.)

Or if the candidate knows no vernacular, paraphrasing one or more passages of poetry not previously studied, equal in difficulty to Gay's Fables. (20 marks.)

(e) *Translating into English one or more passages from the vernacular. (30 marks.)

Or if the candidate knows no vernacular, composition, such as a description of a place, an account of some useful, natural, or artificial product, or the like. (30 marks.)

B—Vernacular Language—(Maximum 150 marks, Minimum 30 in the case of Europeans and Eurasians, 50 in the case of Natives).

(a) Dictation—A passage from a book equal in difficulty to the Matriculation prose text-book. (20 marks.)

(b) Questions on the prose and poetry appointed for the Matriculation Examination. (35 marks.)

(c) Questions on the grammar, structure, and idiom of the language. (40 marks.)

(d) Original composition of the Matriculation standard. (35 marks.)

C—Arithmetic—(Maximum 90 marks, Minimum 30).

The first four simple and compound rules, reduction, vulgar and decimal fractions, simple and compound proportion, practice, extraction of the square root, interest.

D—Geography and Indian History.

(a) General Geography, and the Geography of India in particular. (Maximum 60 marks, minimum 20.)

(b) The History of India from 1817 to 1858. (Maximum 50 marks, minimum 17.)

II.—OPTIONAL SUBJECTS.

E—Mathematics—(Maximum 80 marks, Minimum 20.)

Euclid—The first two books with easy deductions.)

Algebra—Addition, subtraction, multiplication, division, involution and Evolution of algebraical quantities, and simple equations with easy deductions.

F—Physics—(Maximum 80 marks, Minimum 20).

Balfour Stewart's Physics (Macmillan's Science Primers), first 67 paragraphs, or any similar book.

G—Chemistry—(Maximum 80 marks, Minimum 20).

Roscoe's Chemistry (Macmillan's Science Primers), or any similar book?

* N. B.—In the case of European and Eurasian candidates translation into the vernacular will carry 30 marks, from 20 and vice versa with native candidates.

H—Botany—(Maximum 80 marks, Minimum 20).
 Hooker's Botany (Macmillan's Science Primers), with the exception of Sections XIX and XXV, or any similar book.

I—Geology—(Maximum 80 marks, Minimum 20).
 Geikie's Geology (Macmillan's Science Primers), or any similar book.

J—Astronomy—(Maximum 80 marks, Minimum 20).
 Lockyer's Astronomy (Macmillan's Science Primers), or any similar book.

K—English History—(Maximum 80 marks, Minimum 20).

The leading facts of the History of England to the year 1858.

L—History of English Literature—(Maximum 80 marks, Minimum 20).

Brooke's English Literature (Macmillan's Literature Primers), or any similar book.

M—Needle-work—(Maximum 80 marks, Minimum 27).

Cutting out and making a woman's dress in miniature, accurately cut and finely made; or cutting out and making on fine cloth a native man's jacket, accurately cut and finely made.

(a) To obtain a certificate a candidate must pass in all the compulsory and two of the optional subjects. Candidates coming up for an imperfect certificate under Rule 22 will be required to pass the same examination with the exception of the omission of one language.

(b) Marks will be deducted for bad writing and spelling in every subject.

(c) The answers in the non-language subjects must be in English, except in the case of candidates who do not bring up English.

N.B.—To entitle a candidate to a first class, one-half of the total aggregate marks assigned to the subjects in which she appears must be obtained, to a second class one-third.

B.

THE MIDDLE SCHOOL EXAMINATION.

(a) Male and female candidates, who obtain a first class in the Middle School Examination, but pass in one language only, fall under Rule 22 such candidates can receive only imperfect certificates and the reduced grants attached to such certificates.

(b) Female candidates desiring to qualify for the General Education Test of Second Grade Mistresses must pass the following test in needle-work:—

Cutting out and working on fine cloth a finely-made European shirt; also fine darning and patching; or cutting out and making finely a native man's jacket, also fine darning and patching.

C.

THE SPECIAL UPPER PRIMARY EXAMINATION.

I—COMPULSORY SUBJECTS.

A—English-speaking Candidates.

English—(Maximum 120 marks, Minimum 40).

(a) Dictation—A passage from a book equal in difficulty to Chambers' Moral Class Book. (20 marks).

(b) Composition—A letter on some easy subject. (25 marks).

(c) Grammar, as contained in any approved elementary grammar. (30 marks.)

(d) Poetry—Explanation of one or more passages from Selections in Poetry No. I, or such book as may from time to time be named by the Director of Public Instruction. (45 marks.)

B—Vernacular-speaking Candidates.

Vernacular—(Maximum 120 marks, Minimum 40).

(a) Dictation—A passage from a book equal in difficulty to the Third Book of Lessons, Public Instruction Press. (20 marks.)

(b) Composition—A letter on some easy subject. (25 marks.)

(c) Grammar, as contained in the elementary grammars used in the first and second classes of a Government school, or any others of equal difficulty. (30 marks.)

(d) Text-book—Explanation of one or more passages from the following books (45 marks):—

Tamil—Poetical Anthology, No. I.

Telugu—Do. do. No. I.

Malayalam—Panchatantram, Part I.

Canarese—First Book of Canarese Poetry.

Uriya—Hitopodesh, Part I.

Hindustani—Urdu Poetical Reader (Majmua Sakhun), Part I, pages 1–30.

Persian—Gulistan, Book I, expurgated edition, or such books as may from time to time be named by the Director of Public Instruction.

C—Arithmetic—(Maximum 80 marks, Minimum 26).

Four simple and compound rules, reduction, and vulgar fractions.

(English figures must be used, and the candidate must be acquainted with the principal Indian weights and measures).

D—Geography—(Maximum 60 marks; Minimum 20, including Map-drawing).

(a) The elements of general geography as given in any approved Geographical Primer.

(b) The Geography of the Madras Presidency as given in the short account of the Madras School Book Society.

II—ALTERNATIVE SUBJECTS.

E—History—(Maximum 60 marks, Minimum 15).

The leading facts of the History of India to the fall of Seringapatam.

F—Hygiene—(Maximum 60 marks, Minimum 15).

An elementary knowledge of the laws of health as contained in Dr. Dhanakoti Raju's Elements of Hygiene, First Lessons in Health by J. Burners, Personal Care of Health by Dr. Parkes, or any similar book.

G—Agriculture (for Male Candidates)—(Maximum 60 marks, Minimum 15).

The elements of Indian agriculture as contained in Robertson's Agricultural-Class Book or any other approved book.

H—Needle-work (for Female Candidates)—(Maximum 60 marks,

Minimum 20.)

(a) For Europeans and Eurasians—

Cutting out and making on fine cloth a European night-gown containing gathering, setting on a band, back-stitching, button-hole, felling, and hemming.

(b) For Natives—

Cutting out and working on fine cloth a Native woman's jacket and shirt, also a button-hole.

(a) To obtain a certificate a candidate must pass in three compulsory and two optional subjects. Only one language can be brought up for this examination.

(b) Marks will be deducted for bad writing and spelling in every subject.

(c) The answers in the non-language subjects must be in the language brought up by the candidate unless the language is Persian, in which case the answers may be in Hindustani.

N.B.—To entitle a candidate to a first class, one-half of the total aggregate marks assigned to the subjects in which he or she appears must be obtained, to a second class one-third.

D.
SCHOOL MANAGEMENT.

First, Second, and Third Grade Schoolmasters and First Grade Schoolmistresses—

- (a) To answer questions on the best methods of teaching English and Vernacular reading, spelling, grammar, composition, translation, writing, arithmetic, geography, and history in a high school.
- (b) To answer questions in the art of oral teaching generally.
- (c) To answer questions on the form of school registers, the mode of keeping them, making returns from them and regarding the correct forms of official correspondence.
- (d) To write notes of a lesson on a given subject.
- (e) To answer questions on the organization of a high school.
- (f) To answer questions connected with moral discipline, as affecting the character and conduct of the pupils of a high school.
- Fourth Grade Schoolmasters and Second Grade Schoolmistresses—
- (a) To answer questions on the best methods of teaching, reading, spelling, grammar, writing, arithmetic, geography, and history in a Middle School.
- (b) To answer questions on the art of oral teaching generally.
- (c) To answer questions on the form of school registers, the mode of keeping them and making returns from them.
- (d) To write notes of a lesson on a given subject.
- (e) To answer questions on the organization of a Middle School.

E.
FORM OF APPLICATION.

1	2	3	4	5	6	7	8	9
Locality.								
Circle or Municipality.								
Taluk.								
Town or village.								
Description of School.								
Responsible Manager.								
Names of Masters and Nature of Examinations passed by them.								
Average Number of Pupils during the last three Months.								
Average Expenditure during the last three Months.								
Rates of Fees levied in each Class and Average Monthly Fee Collections during the last three Months.								
Probable Number of Pupils that will be presented for Examination under each head of each Standard, and Languages in which they will be presented.								
Remarks.								

I, the responsible Manager of the above school, promise to comply with all the provisions of the Grant-in-Aid Rules in case of my receiving a grant according to the system of payment for results.

Signature of Manager.

F.
EXAMINATIONS UNDER THE RESULT SYSTEM.

Standards of Examination.

Maximum of Marks.	Heads.	Tests.
		FIRST (LOWEST) STANDARD.
8	1st Head (Reading).	(a) To read correctly a few lines from any approved book, not previously studied, equal in difficulty to the first part of the First Book of Lessons.
8	...	(b) To answer very simple questions on the meaning and subject-matter of the first part of the First Book of Lessons, or of an equivalent portion, previously prepared, in any approved book of equal difficulty. Manuscript or cadjan books may be brought up instead of printed books.
16		
4	2nd Head (Writing).	(a) To transcribe in large hand on a slate, board, or cadjan a short sentence from the reading book in use.
4	...	(b) To write from dictation short words out of the reading book in use.
8		
16	3rd Head (Arithmetic).	Notation and Numeration to four places of figures. Multiplication table to 4 times 16. Simple addition of numbers of four figures in five lines. English figures must be used in this as well as in the higher standards.
		Extra Subject for Girls.
16	13th Head (Needle-work).	Hemming on calico or coarse cloth.
		SECOND STANDARD.
6	1st Head (Reading).	(a) To read correctly a few lines from any approved book, not previously studied, equal in difficulty to the second part of the First Book of Lessons.
10	...	(b) To answer simple questions on the meaning and subject-matter of the Second part of the First Book of Lessons or of an equivalent portion, previously prepared, in any approved book of equal difficulty. Manuscript or cadjan books may be brought up instead of printed books.
16		

Standards of Examination—(continued.)

Maximum of Marks.	Heads.	Tests.
6	2nd Head (Writing).	(a) To transcribe in round hand on a slate, board, or cadjan a sentence from the reading book in use.
10	...	(b) To write from dictation short sentences out of any book, not previously studied, equal in difficulty to the second part of the First Book of Lessons.
16		
24	3rd Head (Arithmetic).	Notation and Numeration to seven places of figures. Multiplication to 12 times 16. Four simple rules.
3	4th Head (Poetry).	(a) To recite a few lines of very easy poetry or moral aphorisms. Fifty lines to be brought up.
5	...	(b) To answer simple questions on the meaning and subject-matter of the poetry or moral aphorisms brought up.
8		<i>Extra Subject for Girls.</i>
24	13th Head (Needle-work).	Hemming, top-sewing, and felling on fine cloth.
		THIRD STANDARD.
		<i>Vernacular.</i>
6	1st Head (Reading).	(a) To read with ease and correctness a few lines from any approved book, not previously studied, equal in difficulty to the Second Book of Lessons, and also from a plainly-written manuscript.
14	...	(b) To answer questions on the meaning and subject-matter of the lessons comprised in a portion, previously prepared, of the Second Book of Lessons, or any approved reading book of equal difficulty. Sixty pages to be brought up.
20		
6	2nd Head (Writing).	(a) To transcribe in small hand on paper a sentence from the reading book in use.
10	...	(b) To write from dictation a passage out of any book, not previously studied, equal in difficulty to the Second Book of Lessons.
16		
32	3rd Head (Arithmetic).	Easy questions in the compound rules and reduction, restricted to the Indian weight, measure, and money tables published by the Director of Public Instruction. Easy mental arithmetic restricted to the simple rules.

Standards of Examination—(continued.)

Maximum of Marks.	Heads.	Tests.
4	4th Head (Poetry).	(a) To recite a few lines of easy poetry or moral aphorisms. One hundred lines to be brought up, not including any brought up under the second standard.
8	...	(b) To answer questions on the meaning and subject-matter of the poetry or moral aphorisms brought up.
12		
16	5th Head (Grammar).	To answer questions on etymology, as contained in any approved elementary grammar, with easy applications of the rules to the reading books.
8	6th Head (Geography).	To point out on a map the districts, chief towns, and principal rivers and mountains of the Madras Presidency, and to have such a knowledge of the geography of the district in which the school is situated as may be acquired from "A Short Account of the Madras Presidency" or any similar book.
		<i>English.</i>
12	7th Head (Reading).	(a) To read a few lines from any approved book, not previously studied, equal in difficulty to the First Book of Reading of the Madras School Book Society.
20	...	(b) To construe a passage from the First Book of Reading or any approved book of equal length and difficulty previously prepared.
32		
8	8th Head (Writing).	(a) To submit a full copy-book in large hand, each page to be dated.
8	...	(b) To write from dictation words from the English reading book in use.
16		<i>Alternative Vernacular Subjects.</i>
48	10th Head (History).	The leading facts of the History of India to the fall of Seringapatam in 1799, as contained in any approved Elementary History, with such a knowledge of General and Indian Geography as may be necessary for an intelligent study of the subject.

Standards of Examination—(continued.)

Maximum of Marks.	Heads.	Tests.
		<i>Extra Subject for Girls.</i>
32	13th Head (Needle-work).	Gathering, back-stitching, working button-holes and darning on calico, generally such work as is on the sleeve of a somewhat coarse shirt or a native man's jacket.
		FOURTH STANDARD.
		<i>Vernacular.</i>
8	1st Head (Reading).	(a) To read with ease and correctness a few lines from any approved book, not previously studied equal in difficulty to the Third Book of Lessons, and also from any ordinary manuscript.
24	...	(b) To answer questions on the meaning and subject-matter of the lessons, comprised in a portion previously prepared of the Third Book of Lessons or any approved reading book of equal difficulty. Fifty pages to be brought up.
32	2nd Head (Writing) ...	(a) To transcribe in <i>clear and intelligible small hand</i> on paper a sentence from the reading book in use.
4	...	(b) To write from dictation a passage out of any book, not previously studied, equal in difficulty to the Third Book of Lessons.
12	...	
16	...	
48	3rd Head (Arithmetic)...	Miscellaneous questions in the compound rules and reduction, easy questions in vulgar fractions, mental arithmetic applied to bazaar transactions. In Vernacular Schools the questions will bear exclusively on the Indian tables published by the Director of Public Instruction, including the native multiplication table of integers and fractions marked A, and the table used in native bazaars marked B.
4	4th Head (Poetry) ...	(a) To recite a few lines from any approved book of poetry or moral aphorisms equal in difficulty to the Poetical Anthology No. I. Two hundred lines to be brought up not including any brought up under the previous standards.
12	...	(b) To answer questions on the meaning and subject-matter of the poetry or moral aphorisms brought up.
16	...	

Standards of Examination—(continued.)

Maximum of Marks.	Heads.	Tests.
24	5th Head (Grammar)...	To answer questions in any approved elementary grammar with parsing and application of the rules to the reading book.
24	6th Head (Geography)...	An elementary knowledge of the Geography of Asia, as contained in Duncan's Introduction to the Geography of the World, Part I, or any approved Geographical Primer.
		<i>English.</i>
12	7th Head (Reading) ...	(a) To read a few lines from any approved book, not previously studied, equal in difficulty to the Second Book of Reading of the Madras School Book Society.
36	...	(b) To construe a passage from the Second Book of Reading, or any approved book of equal length and difficulty, previously prepared.
48	...	
8	8th Head (Writing) ...	(a) To submit a full copy-book in round hand, each page to be signed and dated by the pupil.
16	...	(b) To write from dictation sentences from the English reading book in use.
24	...	
12	9th Head (Grammar) ...	(a) Simple questions on etymology with parsing and easy applications of the rules to the reading book.
12	...	(b) Oral translation of very easy sentences into English.
24	...	<i>Alternative Vernacular Subjects.</i>
48	10th Head (History) ...	The leading facts of History of India from the fall of Seringapatam in 1799 to the abolition of the East India Company's political power in 1858, as contained in any approved elementary history, with such a knowledge of General and Indian Geography as may be necessary for an intelligent study of the subject.
48	11th Head (Hygiene) ...	W. E. Dhanakoti Raju's Elements of Hygiene or any approved book containing easy lessons on the preservation of health.
48	12th Head (Agriculture).	Robertson's Agricultural Class-book or any other approved book.

Maximum of Marks.	Heads.	Tests.
		<i>Extra Subjects for Girls.</i>
		Higher Test.
64	13th Head (Needle-work).	(a) Cutting out and working on fine cloth a finely-made European shirt—such portion as can be completed within the time available.
		Or
		Lower Test.
48	...	(b) Cutting out and working on fine cloth a native man's jacket, or a native woman's jacket and petticoat, finely made—such portion as can be completed within the time available.
		FIFTH STANDARD.
6	1st Head (Vernacular).	(a) To read a few lines of poetry, not previously studied, equal in difficulty to the Anthology No. I
10	...	(b) To answer questions on the meaning and subject-matter of the lessons comprised in a portion previously prepared of the Brief Sketches of Europe, or any approved reading book of equal difficulty. Sixty pages to be brought up.
12	...	(c) To write from dictation a passage out of any prose book, not previously studied, somewhat more difficult than the Third Book of Lessons.
12	...	(d) To translate five lines from the portion prepared in the English Reading Book in use.
12	...	(e) To recite a few lines of poetry equal in difficulty to the Tamil Anthology No. II or the Telugu Nalacharithram, and to answer questions on the meaning and subject-matter. Three hundred lines to be brought up.
12	...	(f) To answer questions on any approved grammar equal in difficulty to pages 1—40 of Mahalingiah's Tamil Grammar, or pages 1—18 of Venkiah's Telugu Grammar.
64		
12	2nd Head (English).	(a) To read a few lines from any approved book, not previously studied, equal in difficulty to the Third Madras Reader.
20	...	(b) To explain in the vernacular a passage from the Third Madras Reader, or any similar book, previously prepared. Fifty pages to be brought up.

Maximum of Marks.	Heads.	Tests.
8	...	(c) To exhibit a full copy-book in small hand, each page signed and dated by the pupil.
16	...	(d) To write from dictation five lines from the portion read of the reading book in use.
24	...	(e) To translate into English a fable or a portion of a fable from the Second Book of Lessons, or any similar book.
24	...	(f) To answer questions on the Grammatical Primer, Christian Vernacular Education Society, pages 1—46, or any approved grammar of equal difficulty.
104		
56	3rd Head (Arithmetic).	Simple compound rules, reduction, vulgar and decimal fractions, mental arithmetic applied to bazaar transactions.
32	4th Head (Geography and History).	(a) The Geography of Europe as contained in the vernacular version of Duncan's Introduction to the Geography of the World, Part II, or any approved Geographical Primer.
32	...	(b) The leading facts of the History of India as contained in any approved Vernacular Text-book, with such a knowledge of General and Indian Geography as may be necessary for an intelligent study of the subject.
64		SIXTH STANDARD.
6	1st Head (Vernacular).	(a) To read a few lines of poetry, not previously studied, equal in difficulty to the Tamil Anthology No. II, or the Telugu Nalacharithram.
10	...	(b) To answer questions on the meaning and subject-matter of the lessons comprised in a portion previously prepared of Brief Sketches of Europe or any approved reading book of equal difficulty. Seventy pages to be brought up, not including any brought up under the fifth standard.
12	...	(c) To write from dictation a passage from the Poetical Anthology No. I.
12	...	(d) To translate a passage from the portion prepared in the English Reading Book in use.
12	...	(e) To recite a few lines of poetry equal in difficulty to the Tamil Anthology No. II, or the Telugu Nalacharithram, and to answer questions on the meaning and subject-matter. Four hundred lines to be brought up.

Maximum of Marks.	Heads.	Tests.
12	...	(f) To answer questions on any approved grammar equal in difficulty to pages 41—70 of Mahalingiah's Tamil Grammar, or pages 19—36 of Venkiah's Telugu Grammar.
64		
12	2nd Head (English).	(a) To read a few lines from any book, not previously studied, equal in difficulty to Barrow's Fourth Reader, English series.
24	...	(b) To explain in the vernacular a passage from Barrow's Fourth Reader, English series, or any similar book previously prepared, and to answer questions in English on the subject-matter.
12	...	(c) To exhibit specimens of writing in fair exercise-books, each exercise to be signed and dated by the pupil.
16	...	(d) To write from dictation five lines from a book equal in difficulty to the reading book in use.
24	...	(e) To translate into English five lines from any book equal in difficulty to Brief Sketches of Europe.
24	...	(f) To answer questions on the Manual of English Grammar, Christian Vernacular Education Society, pages 1—132, or any grammar of equal difficulty.
112		
48	3rd Head (Mathematics).	(a) Arithmetic—as for the fifth standard with the addition of Practice and Simple Proportion.
32	...	(b) Euclid, Book I, to the end of the 16th proposition.
80		
32	4th Head (Geography and History).	(a) The Geography of Asia as contained in Clyde's Elementary Geography or any similar book.
32	...	(b) The History of India as contained in Chapters I—IX of Morris' History of India or any similar book.
64		
		SEVENTH STANDARD.
		The Middle School Examination.

PACHEAPPAN'S COLLEGE.

We extract the following from Dr. Bradshaw's inspection Report, dated 9th October last:—

The College and Matriculation Classes I did not examine, but I spent some time in each, making myself acquainted with the teacher and his mode of work, and inspecting the class-rooms appliances, library, registers, &c.—with all which I was generally satisfied; but I consider that (as noted in your Proceedings on the last inspection Report) the sections of the Matriculation class are too large; probably, as was shown at the last University Examination, all are not fit for the class if so, there is all the more reason for opening another section.

The Fifth Class.—I examined all the sections of this class very thoroughly in English—in particular, Section B; in it the Reading was only moderate, one-third of the class doing poorly; and the answering and Parsing and Grammar being far from satisfactory. Out of four rounds of questions not one correct answer was given by sixteen boys out of twenty-nine, and only five boys did fairly; one of the most glaring mistakes being inability to parse *there* in “There was no time,” and those who were able to tell that it was an ‘expletive,’ imagined that the meaning of the word was ‘having no meaning’; this I attribute to teachers, as a rule, not taking the trouble to see whether a boy understands the answer which on paper would pass as correct, and to their being satisfied with a stereotyped reply to a question, instead of *drawing out* further information on even simple words, and so teaching that the pupil will have grasped the matter, and be prepared when questioned in a different way from what he has been accustomed to.

The *Time-tables* of the Fifth Class I enclose for your reference, as I would suggest, for the consideration of the Principal, what I consider a better arrangement, which is that a whole hour, twice a week, should not be given to English Grammar, and that it should not be taught as a separate lesson from ‘English,’ but a small portion out of the Grammar should be taken daily in the English hour and everything included in the term Grammar should naturally form part of the instruction in English, through the medium of the text-book; there would thus also be no necessity for a separate hour for “General English”; and instead of Prose and Poetry being taken on alternate days, some of each might be taken every day. Again a whole hour is given once a week to Indian History, to English History, to Indian Geography and to General Geography.

I would divide the forenoon into two portions—one hour-and-a-half for “English,” and the second hour-and-a-half for Mathematics (some questions in Arithmetic, Algebra and Euclid to be given every day). In the afternoon, one hour every day to Vernacular (and all included under that head), one to History and Geography (both to be taught same day) and the third hour to other subjects.

Not only is there no *gymnasium* but there may be said to be no compound; and as the masters and pupils are so much confined throughout the day, there is all the more need for provision being made for exercise in the open air. Possibly a small plot on the Esplanade could be obtained and railed in for gymnastic apparatus and performances; in fact, as there are several other institutions close by which have no *gymnasium*, steps might be taken to erect one for the benefit of the schools in the neighbourhood.

The Director of Public Instruction remarks on the above in his Proceedings of the 29th January:—

Communicated to the Trustees. The Acting Inspector's remarks and suggestions seem to be deserving of careful consideration. The Director fully endorses the remarks made in the first section of para. 7. The Institution, on the whole, is in a fairly satisfactory condition. The co-operation of the schools in Black Town is needed for the establishment of a gymnasium, and there seems little doubt that the authorities will receive favorably an application as regards one of the Esplanades, if they have not already done so.

The result of the F. A. Examination was very good, but that of the Matriculation Examination was very unfavourable. The Brahman pupils number 138 to 40 Vaisyas and 163 Sudras. The Institution is thus purely Hindu. Among parents, the official class, as must be expected in a city like Madras, is strongly represented. Traders come next and then Farmers. Artizans form a very small number—only five. Others are represented by sixteen. The Eighth and Seventh Classes show increase—a satisfactory feature. The Matriculation Classes are too strong, and further sub-division seems very necessary. The Institution seems well equipped. No information is given regarding the science apparatus or the existing arrangements for instruction therein. The Director will be glad to see such instruction placed on a thoroughly satisfactory basis and is prepared to grant aid for a special teacher of suitable acquirements.

THE CIVIL ORPHAN ASYLUM.

The Anniversary of this Institution was held on the 5th February. The Hon'ble D. F. Carmichael presided, and Mrs. Carmichael distributed the Prizes to the girls. We extract the following from the Report on the Inspection held in September last:—

On the whole, the answering was very satisfactory and the results of the examination reflect credit on the teachers—especially the Headmaster, and I do not recollect having ever examined a school with which I was so well pleased,—the order and regularity and perfect state of discipline making my task light. Much no doubt of what is satisfactory in the condition of the school is due to the interest taken in it by the Chaplain, Rev. W. Leeming, who, a couple of times a week, takes the highest class in Mathematics.

As regards the study of Tamil, it seems to me that, during their school-life, these boys are not likely to acquire sufficient knowledge of Reading, Writing and Grammar to be of any practical use to them, and the time spent on it might, perhaps, be better occupied otherwise, for if they obtain appointments in which a knowledge of the written language is required, they should be able to work it up as officials born in Europe have to do, and they start with the advantage of a colloquial knowledge.

Gymnastics are taught by an Instructor, and some of the boys obtained prizes at the New Year's sports in the People's Park.

It occurs to me to suggest that, as the orphanage is so near the Museum, it would be well if the classes were occasionally brought there and some lessons in Natural History, &c., were given them in connexion with their visits.

In the Director's Proceedings, dated 19th January, he observed:—

This report, which the Director of Public Instruction has perused with much pleasure, will be communicated to the Directors. The Director does not agree with the Inspector in considering that the study of Tamil

should be given up. He rather thinks that the Directors should insist on its being taught more carefully. An absence of written knowledge of the Vernaculars has hitherto been a very effectual bar against the employment of Eurasians and Europeans born in the country in the Revenue, Judicial and other services of Government; and at the present moment it would be particularly unwise to abandon the study, as Government have applied Vernacular tests to many departments and even offered liberal rewards for passing such tests. What is required is, that an Eurasian Master who can teach Tamil efficiently should be engaged and that the teaching should bear somewhat on the tests to be passed for admission into the Government service. It is trusted that the Directors will give their early and careful attention to these remarks.

The attention of the Directors is also invited to the suggestions made by Dr. Bradshaw, in paras. 10 and 12 of his report, more especially to the former paragraph.

APPOINTMENTS

Sanctioned by the Director of Public Instruction, during the month of January 1883.

P. Appalanarasayya Pantulu, Head Master, Normal School, Narasapur, to be Head Master, Government Middle School, Bimlipatam.
G. Dishatulu Sastri, 3rd Assistant, Chicacole High School, to be Head Master, Normal School, Narasapur.

S. Saundararaja Aiyangar, 4th Assistant, Chittoor High School, to act as Head Master, Middle School, Walajapet.

C. R. Krishna Aiyar, B. A., to be 6th Assistant, Cuddalore College.

C. Ranganatham Nayudu, B. A., to be *Sub pro tem.*, 2nd Assistant, High School, Cuddapah.

P. Sesha Aiyangar, Head Master, Vellore Normal School, to act as 1st Assistant, Middle School, Arni.

K. K. T. Joseph, B. A., 2nd Assistant, Brennen High School, Tellicherry, will be considered to have resigned the service from the 1st December 1882.

T. V. Vaidyanatha Aiyar, B. A., 4th Assistant, to be *Sub pro tem.*, 2nd Assistant, Tellicherry High School.

M. Seshagiri Prabhu, to be *Sub pro tem.*, 3rd Assistant, Brennen High School, Tellicherry.

Mr. David Kitto, Head Clerk, Office of the Inspector of Schools, 5th Division, has been granted leave on furlough for six months from the 16th September 1882. This cancels the leave granted in Proceedings No. 5659 of October last.

T. Krishna Rau, has been appointed to act as Head Clerk, during Mr. Kitto's absence.

R. Tiruvengadam Pillai, has been appointed to act as Librarian, Presidency College.

Muhammad Bagir, Head Master, Muhammadan School, Arcot, has been granted leave of absence for one year from 1st February 1883.

T. Srinivasa Rau, Deputy Inspector of Schools, Chittoor East, has been granted leave of absence for one month and a half.

K. V. Kartikaya Pillai, Head Master, Middle School, Tirupatur, has been appointed to act as Deputy Inspector, Chittoor East.

P. Srinivasa Rau, 1st Assistant, to act as Head Master, Middle School, Tirupatur.

G. N. Gideon Pillai, 2nd Assistant, to act as 1st Assistant, Middle School, Tirupatur.

P. Sitaram Sastri, Clerk to Deputy Inspector of Schools, Salem, to act as 2nd Assistant, Middle School, Tirupatur.

V. Ramachandrayya, B. A., 1st Assistant, Palghat High School, to be 7th Assistant, and to act as 6th Assistant, Kumbakonam College.

N. R. Subba Rao, B. A., 2nd Assistant, to be 1st Assistant, Palghat High School, but to continue to act at Tellicherry.

R. Chackravarti Aiyangar, B. A., 2nd Assistant, Saidapet High School, to be 2nd Assistant, Palghat High School, but to continue to act at Kumbakonam, as 7th Assistant.

T. J. Venkatachala Aiyar, B. A., 6th Assistant, Mangalore College, to continue to act as 2nd Assistant, Palghat High School.

Mr. R. S. Bower, B. A., 2nd Assistant, Berhampoor College, *Sub pro tem.*, 2nd Assistant, Saidapet High School, to be 2nd Assistant, in the latter Institution.

M. V. Subrahmanya Aiyar, Head Master, Trivāḷur, Middle School, to act as 1st Assistant, Palghat High School.

N. Subbaya Sastri, Head Master, Middle School, Erode, to act as Head Master, Middle School, Tiruvāḷur.

G. V. Sivaramayya, F. A., 6th Assistant, Madura College, to act as Head Master, Middle School, Erode.

S. Raghava Aiyangar, 8th Assistant, to act as 6th Assistant, Madura College.

M. R. Vaidyanatha Sastri, 7th Assistant, Cuddalore College, to act as 4th Assistant, in the same Institution.

K. R. Srinivasa Aiyangar, 1st Assistant, Middle School, Tirupati, to act as 5th Assistant, Cuddalore College.

T. Paramasiva Aiyar, B. A., has been appointed to act as Assistant to the Professor of Physical Science, Presidency College.

H. B. GRIGG,

Director of Public Instruction

RESULTS GRANTS.

TO THE EDITOR,

Madras Educational Record.

The Director of Public Instruction hereby notifies, for the information of the Manager of Results Grant Schools, that no grants will be paid from Provincial Funds in 1883-84 for Standards I, II, and III in Boys' Schools, except Schools for Europeans and Eurasians and Muhammadans.

2. Poor Schools will, as heretofore, be aided from Municipal Funds.

H. B. GRIGG,

Director of Public Instruction.

GOVERNMENT NORMAL SCHOOL, MADRAS.

The next admission of Students into this Institution will take place between the 1st and 15th March 1883.

For particulars of admission vide G. O., Educational Department, No. 22, dated July 11th, 1881, and published in the Fort St. George Gazette of July 12th 1881.

To those who have not access to the Gazette copies of the Notification will be furnished on application to the undersigned.

GEO. DUNCAN,

Acting Principal.

GOVERNMENT NORMAL SCHOOL,
MADRAS, 22nd January 1883.

"Gladly would he learn, and gladly teach."

THE Madras Educational Record.

VOL. II.
No. 3.

MARCH 1883.

New Series.

EDUCATIONAL NEWS AND NOTES.

THE appointment of Mr. Marsden to the graded service has, we understand, caused some dissatisfaction among certain Officers in the Department who consider that they have been superseded and their claims to promotion ignored by the appointment of an outsider. At first sight there would appear to be some ground for this view of the matter, but on inquiry we find that there are circumstances connected with the appointment which will, we imagine, if known, tend to remove any feelings of discontent that may have arisen.

The new appointment is the *fifteenth* on the graded list. There have hitherto been fourteen. The incumbent is Inspector of Schools in Coorg, and Principal of the Merkara Central School, as well as Inspector of the Seventh Division, *i. e.*, South Canara. The nomination to the appointment, in case of a vacancy, rests with the Madras Government, and will fall on some Officer in the Madras Educational service. Only *one-third* of the salary of the appointment is paid by the Madras Government, the other two-thirds being met from Imperial funds, *i. e.*, the revenues of Coorg.

How have the Subordinate Officers of the Madras Establishment suffered by this arrangement? It is plain that so far from being an injury, it is a most decided boon to them. A new appointment is thrown open to them, the greater part of the pay coming from another Presidency, and their prospects of promotion thereby have been improved. The present incumbent cannot stay for ever.

Had an outsider been appointed to one of the existing fourteen appointments, there would have been, no doubt, some reason for complaint from the Senior Subordinate Officers, such as Messrs. Ranganadam Mudali, Moss and Seshayya, but it is hard

to see how an Officer who so to speak, brings an additional appointment with him into the service, supersedes any one in that service. At the same it does seem to us a decided hardship that Mr. Moss who is the Senior man should now be under his junior. Has not the time fully come for exempting Second Grade Colleges of the 1st Class from inspection?

Of the qualifications of the new Officer, we know nothing beyond the facts that he was the senior Graduate of his year (1870), that he has about seventeen years service in India and that he has been an Inspector of Schools in Mysore-Coorg for about nine years. But we have no doubt that the Director and the Governor of Madras satisfied themselves regarding his qualifications before appointing him to the position of an Inspector.

GOVERNMENT, have appointed the following Committee to report regarding changes in the Grant-in-aid Code in the interests of European and Eurasian Education.

H. B. Grigg, Esq., M. A., President.

Right Rev. J. Colgar, D. D.

Rev. J. Cooling, B. A.

Rev. G. D. Clarke, M. A.

B. Lavery, Esq.

We have no doubt that the Committee will do its best, but we must confess that we should have preferred to see a rather more representative one.

MR. EDMUND THOMPSON, Principal of the Madras Presidency College, who went home a year ago with the expectation of retiring at the end of his leave, has changed his mind, and now intends to return to Madras in October to resume charge of his appointment from Dr. Duncan, who is acting for him.—*Mail*.

THE MILITARY FEMALE ORPHAN ASYLUM.—We have much pleasure in noticing the very gratifying success gained by the pupils of this institution at the recent Governmental Examinations. Candidates were presented at all the Examinations, and in every case the Military Female Asylum attained marked success: notably so in the Middle School, where two of the girls headed all the Schools in the Presidency. Such results speak volumes for the efficient instruction imparted by the Head Mistress (Miss Rose) and staff. The results were as follows: Higher Examination for women 1; Middle School 5, out of 5 presented, and 4 in the 1st Class; Special A Primary 11 out of 13, with 8 in the 1st Class; Method I presented and passed well.—*Madras Times*.

UNIVERSITY INTELLIGENCE.—Committee for nominating Examiners. The result of the voting for this Committee is that the following Fellows have been elected:—

1. Rai Bahadur T. Gopala Rau, B.A., (Chairman).
2. Surgeon General W. R. Cornish, C.I.E.
3. Mr. B. Lavery.
4. The Honorable A. Seshayya Sastriyar, C.S.I.
5. M. R. Ry P. Rungantha Mudaliyar Ayergal, M.A.
6. V. Krishnamachariyar Ayergal.

7. Rev. E. Sell, B.D.
8. Mr. John Bradshaw, M.A., LL.D.
9. Mr. D. Sinclair, M.A.
10. M. R. Ry P. Chentsal Rau Garu.
11. Rev. G. M. Rae, M.A.
12. Mr. J. Cook, M.A.
13. Mr. W. H. Wilson, Ph.D.
14. The Right Reverend J. Colgan, D.D.
15. Mr. H. H. Shephard, M.A.
16. Lieut. H. D. Love, R. E.

The above order is that of their seniority, and the Chairmanship falls to the senior Fellow.

PETER CATOR EXAMINATIONS.

We are glad to announce that it is proposed to hold from time to time, probably, biennially an examination of a more advanced nature than that for the Higher Grade. The first of such "Honour Examinations" will be held in January 1885. The prizes will be of the values of Rupees 200, 150, 100, 50. Candidates for this examination must have passed the Higher Grade. In order to qualify for a certificate in the Honour Examination Candidates must get $\frac{1}{2}$ of the maximum marks in each subject and $\frac{1}{2}$ of the whole. The portions of scripture appointed are Isaiah, the Acts of the Apostles and the Epistle to the Romans. There will be two other subjects of examination, one of which is not yet announced. The other already appointed is "Grounds of Christian Hope," a small work on Christian evidences, which can be procured at the Religious Tract Society's Depot. The fourth subject of examination will be announced shortly but meanwhile "Higher Grade" Students can commence reading for "Honours." The entrance fee will be Rupees 2. The idea is a good one and as only those who have passed the Higher Grade can compete, it should have the effect of largely increasing the number of Competitors for that examination.

PETER CATOR PRIZES.

LOWER GRADE EXAMINATION.

January 1884.

PRIZES.

NINE Money Prizes of Rupees 50, 40, 30, 30, 20, 20, 15, 10 and 5 respectively, will be awarded to the nine highest Candidates, and Certificates of Merit to all who obtain half the total number of marks.

SUBJECTS.

OLD TESTAMENT	Genesis I. to xxxvii.
NEW TESTAMENT	Gospel of Mark.
MEMORITER	Psalms I. xxiii. cxlv.
	Isaiah xl. 28—31.
	„ lvi. 1—8.
	John iv. 1—26.
	1 Corinthians xiii.
	Ephesians vi. 10—17.

CANDIDATES.

Candidates must not be below fourteen nor above nineteen 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 duly filled up in the printed blank form of application, which can be had at the Church Mission Office, Egmore, Madras, must be sent in on or before the 31st of October, with the entrance fee of eight annas. Applications made after that date can only be received on payment of a double entrance fee till the 15th of November. A printed form of acknowledgment will be forwarded to each on the receipt of the entrance fee, and this printed form will have to be produced at the time of examination.

HIGHER GRADE EXAMINATION.

January 1884.

PRIZES.

THERE will be four Money Prizes of Rs. 120, 60, 50, and 30, respectively, and Certificates of Merit to all who obtain half the total number of marks.

SUBJECTS.

OLD TESTAMENT.....	The History of the Israelites from the death of Moses to the death of Samson
NEW TESTAMENT.....	Gospel of Matthew. I Corinthians I—IV. XII—XV.
CHRISTIAN EVIDENCES.....	Reasons for Believing in Christianity by the Rev. C. A. Row, M.A., omitting the first three chapters. [Published by the Church of England Sunday School Institute.]
MEMORITES.....	Genesis XVIII. 23—32; Psalm LXVII. Ezekiel XXXVI. 21—33; Amos V. 21—25, IX. 11—15; John VIII. 33—47; Galatians III; I John IV.

HIGHER GRADE EXAMINATION.

January 1885.

OLD TESTAMENT.....	The History of the Israelites from the birth of Samuel to the anointing of David at Hebron.
NEW TESTAMENT.....	Gospel of Mark. Epistle to the Philippians.
CHRISTIAN EVIDENCES.....	Bushnell's character of Jesus.
MEMORITES.....	I Kings VIII. 12—30. Psalms C. CL. CIII. Isaiah LII. 13 to LIII. 12. John XIV. 12—27. Romans XII.

CANDIDATES.

The Examination is open to all persons between the age of sixteen and twenty-six except Ministers and Catechists.

The names of Candidates duly filled up in the printed blank form of application, which can be had at the Church Mission Office, Egmore, Madras, must be sent in on or before the 31st of October, with the entrance fee of one Rupee. Applications made after that date can only be received on payment of a double entrance fee till the 15th of November. A printed form of acknowledgment will be forwarded to each on the receipt of the entrance fee, and this printed form will have to be produced at the time of examination.

E. SELL,

Secretary C. M. S.

NOTICES OF BOOKS.

VAKYAMANJARI.*—This is a collection of Telugu idioms, colloquial expressions and proverbs translated into English by A. Narasimha Charlu, Translator, Collector's Office, Nellore. The compiler seems to have done his work with great care, and though he modestly tells us that his book is chiefly for the use of native students, we have no hesitation in recommending it to Europeans also—especially to those who are preparing for the Telugu Translation Tests.

SINCLAIR'S HISTORY OF INDIA—TAMIL.

This valuable little work is a Summary of Indian History for the use of Primary Schools receiving aid under the results system. We regret we were not able to notice the work earlier, but have much pleasure now in recommending its use in all schools where Tamil is taught. The "Summary" is neatly got up and the type is very clear and readable. We have no doubt but the work will become as popular as Mr. Sinclair's "Indian History (English) for use in Middle Schools in India." The "Summary" is divided into Chapters, and these again into sections or paragraphs, each paragraph having a heading. The get up much resembles that of its English fellow, except that the paragraphs do not altogether correspond.

Mr. Sinclair deserves the thanks of the Tamil reading people of India for so clear and interesting a translation.

FROHNMEYER'S CATECHISM OF PHYSICS.†

We have to acknowledge, with thanks, the receipt of Rev. Mr. Frohn-meyer's 'Catechism of Physics.' It is a handsome volume of 432 pages—292 of which are in Malayalam. The illustrations, of which there are no less than one hundred and forty four, are as good as those in any standard scientific work.

* Vakyamanjari, Madras: printed for the Proprietor by W. Pushparatha Chettiar, Kalaratnakaram Press.

† Mangalore—Basel Mission Book and Tract Depository, 1893—Price Rupees 1.8-0.

Mr. Frohnmeier's repute as a scholar renders it hardly necessary for us to say that this work is a thoroughly reliable guide to the student of elementary Physics. It is singularly appropriate that such book should have been first written by one who hails from the Fatherland of exact scientific research—Germany.

The *Catechism*—which is really an elaborate treatise—embraces all the subjects prescribed for the B. A. Degree Examination of the Madras University, so that it will be a great help to the many students in our Colleges whose optional language is Malayalam. But its usefulness will not be limited to them alone, for the second part of the work which is in English, is an admirable summary of the whole subject, and will be of great use to any one who is beginning the study of Physical science.

Natural Science will never make much way in this country till such books as the one under review are published in the different languages of India; and it is to such men as Mr. Frohnmeier, men who are accomplished linguists, as well as thorough scientists—that we must look for the development of science in our midst.

The Author says "Mr. G. T. Vurgese, B.A., was kind enough to consider with me every sentence and to call my attention to what in the South of Malabar would not be understood. . . . The help of this gentleman was the more valuable as he is also one of the few graduates in this Presidency, who possesses a solid knowledge of Natural Sciences." This is as it ought to be. Every graduate pledges himself at Convocation to help to spread knowledge among his fellow countrymen, but very few do so. The Mangalore Basel Mission Press deserves commendation for the excellent fashion in which it has turned out the work: we have seldom seen an Indian publication so clearly printed and so well got up. Mr. Frohnmeier, has, by permission dedicated his work to H. H. the Maharajah of Travancore.

CORRESPONDENCE.

TO THE EDITOR, M. E. RECORD.

SIR,—Can you tell me why it is that the English Poetry set for the Matriculation is often so much more difficult than that for the F. A. Examination. Is it to discourage private students?

2. Would it not be possible in the whole range of English literature to find suitable pieces of Prose, in reading which the boys' minds would not have to be familiarized, in all the publicity of the class-room, with the words which a feeling of common decency generally impels us to write as "d—d" or "d—l"?

As I teach my boys I blush for my country-men who can speak so lightly of Satan, and of so awful a thing as a soul everlastingly lost.

Yours, &c.,

AN ENGLISH TEACHER.

[We are happy to be able to inform our correspondent that the subjects for next year's Matriculation Examination are likely to meet with his entire approval. We concur with his views.—ED. M. E. R.]

1883.]

Correspondence.

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TO THE EDITOR,

Madras Educational Record.

Sir,—I beg to draw your attention to a few of the many Notes on the Matriculation Text for 1883, published by Mr. J. D'Vaz, Head Master, Patchenappalli's School, Chidambaram. I make no comment on them as they speak for themselves, but should we allow our pupils to buy such books? I beg to remain,

Yours obediently,

SCHOOL MASTER.

Life of Nelson, page 52. "THE BODY=Caraccioli's dead body. Brute Nelson, we shudder again to think of you, brute, monster, demon. Don't you feel it now? Does the recollection of your brutalities cool you? Do come and let us know from *Tartarus*. Good night, sir, many happy returns! May Lady Hamilton and your abhorrence of the spouse of Christ and of the Vicar of Christ, be your Ever-blissful comfort now, as it will unquestionably one day be of modern evangelists."

Chapter VII, page 2. (Third part of the book) "Pretentious fool," down with you. *Trafalgar! Trafalgar!*—the Pharisee has "had his reward."

Page 36. "Pointing out and detecting—Fool! Southern should you not have said *detecting and pointing out*? How the dickens *point out* before you *detect*?"

Page 66. "Praying!!! dear, dear!—Nelson should be canonised."

Page 23 (Second Part). "May we not exclaim, from the experience we have been blessed with since the incarnate demon Nelson was translated in the *chariot of fire*, unquestionably to the *regions of fire*, "fool, fool, the French are not so low down as thou art now—vouchsafe a visit from *infernum*, indubitably thy present blissful habitat and just let the benighted children of Adam know that the glorious reformation and the March of intellect that that bright sham paved the way for, and Aboukir and Trafalgar and Lady Hamilton, have been thy salvation—do, do—that sunshine of Luther, and Calvin, and Bega Zuinglius, that meridian splendour is not appreciated by the dim optics of the Asinine Papist—poor fellow, he is a simpleton insensible to the entrancing felicity of the Elysium of Private Judgment—come angels of peace, come Apostles of Evangelism, come Anglican and Presbyterian, come Free and Low, come, come free hasten liberatus, and free the Papist from the woes that *yourself* are not and never will be free from. Come teach, who should be taught, come teach whom you should be taught by, come teach what you know not, and preach Zero."

Page 84. "Spoiled the women's chats=disturbed women in the course of their talk."

"Experience must have convinced us that the author has rightly specified *chattering* as the distinguishing characteristic of *women*—the smallest woman has a tongue of sufficiently respectable magnitude to give one's amicular appendages occupation enough for a millennium."

Page 48. "This is a *big* note on the *big* fellow but not a tenth as *big* as the *big* man, or the *big* fool who, at the *big* Matriculation Examination, may perpetrate the *big* blunder of avoiding a question on the *big* man, because forsooth, there happens to be a *big* note on the *big* man as if *big* notes were *big* treason, and *big* men were the less *big* for the *big* notes that the *big* fools make such a *big* fuss about, unless the *big* notes come from *big* London across the *big* waters, to the *big* land where the *big* Briton fills his *big* pockets."

Analysis of the Matriculation Results of December 1882.

Rank.	NAMES OF INSTITUTIONS.	First Class.	Second Class.	Total.
1	Patcheappall's College	7	52	59
2	Madras Christian College	14	44	58
3	Maharajah's College, Trevandrum	8	45	53
4	S. P. G. College, Trichinopoly	3	44	47
5	Presidency College	9	37	46
6	Hindu Union High School, Kumbaconam	6	38	44
7	St. Peter's College, Tanjore	4	38	42
8	Town High School, Kumbaconam	10	28	38
9	Government College, Mangalore	4	31	35
10	Rajahmundry College	11	23	34
11	Hindu College, Tinnevelly	2	32	34
12	Coimbatore College	3	27	30
13	Government College, Calicut	4	23	27
14	Church of Scotland Mission High School, Madras	4	20	24
15	Government College, Madura	4	20	24
16	Kerala Vidyasala, Calicut	1	23	24
17	Native High School, Kumbaconam	5	19	24
18	St. Joseph's College, Negapatam	6	17	23
19	Government High School, Palghat	5	16	21
20	Maharajah's College, Vizianagram	4	17	21
21	Central College, Bangalore	3	18	21
22	London Mission High School, Bangalore	0	21	21
23	S. P. G. College, Sawyerpuram	3	16	19
24	Wesleyan Mission High School, Bangalore	0	18	18
25	Government College, Berhampore	3	14	17
26	Doveyton Protestant College	2	15	17
27	Bishop Corrie's Grammar School, Madras	4	12	16
28	Government High School, Chittur	4	12	16
29	Hindu Union High School, Madura	0	16	16
30	Hindu High School, Masulipatam	4	11	15
31	Free Church Mission High School, Nellore	1	14	15
32	St. Joseph's Institution, Cuddalore	3	11	14
33	St. Aloysius College, Mangalore	2	12	14
34	Government College, Salem	1	13	14
35	Church of Scotland Mission High School, Vellore	3	10	13
36	Hindu High School, Cocanada	2	11	13
37	Native High School, Coimbatore	0	13	13
38	Church Mission Society's College, Kottayam	4	8	12
39	High School, Ernadulam	3	9	12
40	Wesleyan Mission High School, Royapettah	1	11	12
41	Lutheran Mission Central School, Tranquebar	2	9	11
42	Wesleyan Mission High School, Manargudi	2	9	11
43	Wesleyan Mission High School, Mysore	2	9	11
44	Government College, Cuddalore	1	10	11
45	Maharajah's College, Mysore	1	10	11
46	Patcheappall's High School, Chidambaram	1	10	11
47	Wesleyan Mission High School, Negapatam	1	10	11
48	Church Mission Society's College, Tinnevelly	0	11	11
49	Hindu College, Vizagapatam	3	7	10
50	Government High School, Tellicherry	2	8	10

Analysis of Matriculation Results, &c.—(continued.)

Rank.	NAMES OF INSTITUTIONS.	First Class.	Second Class.	Total.
51	Hindu High School, Nellore	1	9	10
52	Maharajah's College, Pudukota	1	9	10
53	Noble College, Masulipatam	0	10	10
54	Taylor High School, Narsapur	0	10	10
55	Government High School, Saidapet	3	6	9
56	Native High School, Manargudi	3	6	9
57	Bishop Cotton's College, Bangalore	1	8	9
58	Hyderabad College	1	8	9
59	London Mission High School, Vizagapatam	1	8	9
60	High School, Shimoga	0	9	9
61	Pasumalai College, Madura	0	9	9
62	Patcheappall's High School, Conjeveram	0	9	9
63	Basel Mission High School, Calicut	0	8	8
64	Free Church Mission High School, Conjeveram	0	8	8
65	Hindu High School, Trichinopoly	0	8	8
66	London Mission High School, Bellary	0	8	8
67	London Mission High School, Madras	1	6	7
68	Native High School, Madura	1	6	7
69	Basel German Mission High School, Tellicherry	0	7	7
70	Church Mission High School, Ellore	0	7	7
71	St. Mary's Seminary, Madras	0	7	7
72	Anglo-Vernacular High School, Triplicane	2	4	6
73	Government High School, Kurnool	2	4	6
74	St. Andrew's High School, Bangalore	1	5	6
75	Government High School, Chicacole	0	6	6
76	Government High School, Tumkur	0	6	6
77	Hindu High School, Palamcottah	0	6	6
78	S. P. G. High School, Ramnad	0	6	6
79	Church Mission Society's High School, Palamcottah	0	5	5
80	Free Church Mission High School, Chingleput	0	5	5
81	London Mission High School, Coimbatore	0	5	5
82	Mission Anglo-Vernacular High School, Narsapur	0	5	5
83	Nagercoil Seminary	0	5	5
84	Saint Thome, Seminary	0	5	5
85	Native High School, Negapatam	1	3	4
86	American Lutheran Mission High School, Guntur	0	4	4
87	Free Church Mission High School, Trivallur	0	4	4
88	Government High School, Guntur	0	4	4
89	High School, Hassan	0	4	4
90	S. P. G. High School, Vepery	0	4	4
91	Veeraraghava Pillay's High School, Tanjore	0	4	4
92	Government College, Bellary	2	1	3
93	Government High School, Amalapuram	2	1	3
94	Government High School, Cannanore	1	2	3
95	Hindu Vidyasala, Kumbaconam	1	2	3
96	Marimallappah's School, Mysore	1	2	3
97	American Mission High School, Dindigul	0	3	3
98	Baptist Mission High School, Ongole	0	3	3
99	Church Mission Society's College, Tinnevelly	0	3	3
100	Government High School, Cuddapah	0	3	3
101	Town High School, Tinnevelly	0	3	3

Analysis of Matriculation Results, &c.—(continued.)

Rank.	NAMES OF INSTITUTIONS.	First Class.	Second Class.	Total.
102	High School, Mercara ...	1	1	2
103	High School, Chikkamagalur ...	0	2	2
104	High School, Chittledroog ...	0	2	2
105	Municipal High School, Mayaveram ...	0	2	2
106	Nadar's High School, Porayar ...	0	2	2
107	Patriotic Hindu High School, Rajahmundry ...	0	2	2
108	Pettah High School, Bangalore ...	0	2	2
109	Remount Depot English School, Hosur ...	0	2	2
110	Samasthanam High School, Bobbili ...	0	2	2
111	Avignon and Negapatam ...	1	0	1
112	Baldwin's School, Bangalore ...	1	0	1
113	Convent ...	1	0	1
114	Poitiers and Negapatam ...	1	0	1
115	All Saint's Institution ...	0	1	1
116	Arnell's Seminary ...	0	1	1
117	Central School, Jaffna ...	0	1	1
118	Church Mission High School, Amalapur ...	0	1	1
119	Church Mission Society's High School, Bezwada ...	0	1	1
120	Glendower Hall College ...	0	1	1
121	Harris High School, Royapettah ...	0	1	1
122	High School, Black Town ...	0	1	1
123	High School, Chicacole ...	0	1	1
124	London Mission High School, Vizianagram ...	0	1	1
125	London Mission High School, Salem ...	0	1	1
126	St. Aloysius School, Vizagapatam ...	0	1	1
127	St. Joseph's Seminary, Bangalore ...	0	1	1
128	St. Mark's Grammar School, Bangalore ...	0	1	1
129	Town High School, Mayaveram ...	0	1	1
130	Wesleyan Central Institution, Batticaloa ...	0	1	1
131	Wesleyan Mission High School, Vellore ...	0	1	1
	Private Study ...	5	159	164
	Grand Total...	208	1,428	1,636

At a meeting of the Statistical Society, a paper was read by the Rev. J. Johnson on "Education in India, and the Indian Commission on Education." That Commission, he said, had excited great interest and given a great stimulus to education. Its object was to inquire into the working of the Education Despatch of 1854, and to find out the best means of carrying out the provisions of that great charter of education in India; these provisions being the education of the masses, the encouragement of voluntary effort, the system of grants-in-aid, and the establishment and temporary maintenance of colleges, when needful, by Government, until the people were able to conduct themselves, when they were to come under local government. Universities to be set up in the three presidencies were to be intrusted with the personal maintenance of the character and standard of the higher education. Under this system during the last twenty-eight years 16,649 educational institutions, with 769,074 pupils, had been established under Government management; 50,207 institutions with 1,111,843 pupils, under the grant-in-aid system; and 15,705 institutions, with 314,697 pupils, unaided but more or less under the influence or inspection of the Education Department. This gives a total of 2,195,614 on the roll, and an average daily attendance of little more than 1,500,000 for the whole of India. There are thus still in India upwards of 50,000,000 unprovided with any means of education worthy of the name.

UNIVERSITY OF MADRAS.

The undermentioned Candidates have passed the B. A. Degree Examination held in January 1883:—

Rank.	Register Number.	NAME.	Where educated.
FIRST CLASS.			
1	104	Paramasivan, T. ...	Presidency College.
2	189	Swamikkan, L. D. ...	St. Joseph's, Negapatam.
3	106	Parthasarathi Chetti, Vemuru ...	Madras Christian College.
4	191	Swaminatha Aiyar, S. A. ...	Kumbakonam College.
SECOND CLASS.			
1	193	Swaminatha Aiyar, T. K. ...	Kumbakonam College.
2	181	Subrahmanya Aiyar, S. A. ...	Do.
3	166	Sripivasa Aiyangar, Ramanujapuram, A. ...	Presidency College.
4	44	Kenrick, William Henry Gordon.	Private Study.
5	168	Srinivasa Aiyangar, Tiruvenkattur Aiyangar ...	Madras Christian College.
6	204	Vedanyakam, John Emmanuel.	Do.
7	150	Saunyanarayana, Sholavandan.	Presidency College.
8	38	Janakirama Aiyar, Tiruvalem ...	Madras Christian College.
9	9	Arogyasawmi, T. V. ...	St. Joseph's College, Negapatam.
10	56	Krishna Rau, Madhava Gopal ...	Presidency College.
11	76	Muttu, Desikan ...	Madras Christian College.
12	224	Wilkinson, Honor Joseph Darling ...	Doveton Protestant College, Madras.
13	27	Ganapati Aiyar, K. ...	Kumbakonam College.
14	172	Sripati Rau, T. R. ...	Private Study.
15	43	Kelly, Septimus Montague ...	Doveton Protestant College, Madras.
16	88	Narayana Pillai, Madhavau C. ...	Madras Christian College.
17	36	Jagannathan, Kalluri ...	Rajahmundry College.
17	121	Ramachandrayya, M. ...	Kumbakonam College.
20	220	Venkoba Rau, R. ...	Do.
20	146	Sama Rau, Narasipuram ...	Central College, Bangalore.
21	184	Subrahmanyappa, Yanamandaram ...	Madras Christian College.
22	79	Nagesa Rau, Pandit ...	Presidency College.
22	178	Subrahmanya Aiyar, M. ...	Madras Christian College.
24	133	Ramasawmi Aiyar, Basavapatna ...	Do.
25	10	Arunachalam Aiyar, Swami Aiyar ...	Kumbakonam College.
25	100	Padmanabhachari, R. ...	Maharaja's Coll., Trivandrum.

Ranks.	Register Number.	NAME.	Where educated.
27	41	Kamesvara Aiyar, B. V. ...	Kumbakonam College.
	110	Raghava Rau, Gade ...	Presidency College.
29	223	Visvesvara Rau, Kudla Nadakarni ...	Do.
30	47	Koneti Aiyar, Ranga Aiyar ...	Private Study.
31	139	Rangaramanujam Tiruvendipuram ...	Presidency College.
32	8	Appu Nedungadi, Talakkoti Mattattil ...	Madras Christian College.
33	179	Subrahmanya Aiyar, N. ...	St. Peter's College, Tanjore.
34	70	Luther, Martin ...	Madras Christian College.
35	122	Ramadas, Bachu Venkata ...	Rajahmundry College.
36	194	Syaminathan, S. ...	St. Peter's College, Tanjore.
37	18	Bernard, Edwin Townshend ...	Dorseton Protestant College, Madras.
38	145	Rego, Eusebius Francis ...	Presidency College.
39	3	Adinarayanayya, Pandipeddi ...	Madras Christian College.
	20	Bhujanga Rau, C. ...	Private Study.
41	170	Srinivasaraghavachari, Comandur Elayavilli ...	Presidency College.
42	51	Krishnamachari, Velamur ...	Do.
	61	Kulandaiyela Mudali, Tandalam ...	Madras Christian College.
44	108	Paul, Pilo ...	Maharaja's Coll., Trivandrum.
45	116	Rama Aiyar, T. ...	Presidency College.
THIRD CLASS.			
46	59	Krishnaswami Aiyar, N. P. ...	Kumbakonam College.
1	46	Koman Nayar, Kinattinkare ...	Presidency College.
	82	Narasimha Aiyar, Bangalore Pappu ...	Madras Christian College.
3	219	Venkatesvara Aiyar, T. K. ...	Presidency College.
4	5	Anantarama Aiyar, Aiyilam Rama Aiyar ...	Madras Christian College.
	55	Krishna Rau, Hattiyangadi ...	Presidency College.
	83	Narasimha Aiyar, Dindigul S. ...	Do.
6	137	Rangachari, Kanjivakkam ...	Madras Christian College.
	213	Venkatarammana Aiyar, Karur P ...	Do.
9	190	Swaminatha Aiyar, K. R. ...	Do.
	37	Jagannatham, Pulipaka Richard Hay ...	Do.
10	78	Muttasawmi Aiyar, T. S. ...	Maharaja's Coll., Trivandrum.
	171	Srinivasa Rau, V. ...	Kumbakonam College.
	85	Narasinga Rau, Narayan ...	Central College, Bangalore.
13	124	Ramakrishna Rau, Pabbaraju, Y. ...	Presidency College.
	169	Srinivasan, R. ...	Kumbakonam College.
16	149	Satakopacharlu, Bellary ...	Presidency College.
	177	Subrahmanya Aiyar, G. S. ...	Kumbakonam College.

Ranks.	Register Number.	NAME.	Where educated.
18	54	Krishna Pillai, T. R. ...	Maharaja's Coll., Trivandrum.
	225	Williams, Joshua ...	Madras Christian College.
	3	Anantanarayana Aiyar, Kollan-gode N. ...	Do.
20	65	Kuppa Tambi Maraikkayar, Nagore M. ...	Do.
	95	Natesa Sastri, P. K. ...	St. Peter's College, Tanjore.
	141	Rangaswami Aiyar, V. ...	Madras Christian College.
24	207	Zynulabidin, Tanjore ...	Kumbakonam College.
25	120	Ramachandra Rau, K. ...	St. Joseph's College, Nega-patam.
26	105	Paranjyotiva Pillai, S. ...	Presidency College.
	16	Balarama Rau, Cunchi ...	Madras Christian College.
27	40	Jogiraju, Urivi ...	Madras Christian College.
	50	Krishna Kurup, Komat Kizbakadattu ...	Presidency College.
	22	Chengalvapati Nayudu, Vadla-mudi ...	Madras Christian College.
30	144	Rayiru Nambiyar, Vavakkara ...	Presidency College.
	201	Vaidyanathan, Kalpatti A. ...	Madras Christian College.
	215	Venkata Rau, Bijar ...	Presidency College.
34	84	Narasimhaswami, Gade ...	Do.
	94	Natesa Aiyar, K. ...	Kumbakonam College.
	155	Shunmukhasundaram Pillai, Panamche ...	Madras Christian College.
36	202	Vaidyanathan, P. ...	St. Peter's College, Tanjore.
	111	Raghavendra Rau, Dronamraju ...	Rajahmundry College.
38	180	Subramanya Aiyar, P. K. ...	Madras Christian College.
40	205	Velayudham, P. ...	Maharaja's Coll., Trivandrum.
41	148	Sankarayya, Brahmasamudra ...	Madras Christian College.
	221	Venku Aiyar, N. I. ...	Do do
43	175	Subharaya, Sulibeli ...	Central College, Bangalore.
	52	Krishna Menon, Oralattu ...	Madras Christian College.
44	68	Kuppuswamy Sastri, T. V. ...	Kumbakonam College.
	125	Ramakrishnayya, Panambur ...	Presidency College.
	162	Srinivasa Aiyengar, Haravu, R. ...	Madras Christian College.
48	99	Padmanabha Aiyar, S. ...	Maharaja's Coll., Trivandrum.
49	153	Seshachari, Vanbakkam Comandur ...	Presidency College.
	26	Gahan, Charles ...	Private Study.
50	74	Muhammad Yakub ...	Madras Christian College.
52	129	Ramanujam, Gade ...	Presidency College.
	112	Raghunatha Pillai, Triplicane Reddipalayan ...	Do.
53	134	Ramaswami Aiyar, Palghat Subrahmanyan ...	Madras Christian College.
55	42	Kannan Nambiar Mufara, C. ...	Do.

Rank.	Register Number.	NAME.	Where educated.
56	90	Narayanaswami Aiyar, Bhavani, C.	Madras Christian College.
58	142	Ratnavelu Mudali, Annambedu...	Do.
	158	Singaravelu Mudali, Ekkadu ...	Do.
	80	Namberumal Chetti, Vemuru ...	Do.
59	81	Nambi Aiyangar, T. S. ...	Maharaja's Coll., Trivandrum
61	35	Hyder Sheriff ...	Presidency College.
	2	Abraham, Periyasayakam ...	Madras Christian College.
62	23	Daniel Elcazar, S. V. ...	St. Peter's College, Tanjore.
	140	Rangaswami Aiyangar, S. V. ...	Private Study.
65	107	Pattabhiraman, Singanullur, A. ...	Presidency College.
66	207	Venkatachalla Mudl. Ponamallee	Madras Christian College.
	157	Singara Mudali, Trichinopoly ...	Do.
67	212	Venkatarama Aiyar, Villiyar	Do.
		Varambal ...	Presidency College.
69	77	Muttukumaraswami Mudali, Chunampet ...	Do.
70	197	Tinmakrishna Rau, Hurli ...	Central College, Bangalore.

FIRST IN ARTS EXAMINATION OF 1883.

SELECTED PAPERS.

LIFE OF JOHNSON.

- I. 1. Show from your text that Johnson not only possessed great physical power, but was somewhat of a proficient in athletic exercises.
2. Relate any anecdote in illustration of the recklessness of Grub Street writers.
3. Give a brief account of how Johnson must have lived on first coming to London and before he became known.
- II. 1. Write a short sketch of Savage, and explain how it was that he had such a strong influence upon Johnson's mind.
2. Johnson describes Savage as a critic on human life. What is the only remark of his that survives to justify this statement?
3. Mention an anecdote about Savage that bears a strong resemblance to a certain story about Johnson.

- III. (a) "It is a fact which some philosophers may think worth setting down, that Scott's organization, as to more than one of the senses, was the reverse of exquisite. He had very little of what musicians call an ear."
- (b) "Erskine was left a widower in middle life, and Scott used to accuse him of philandering with pretty woman." Quote or give the substance of somewhat similar passages in your text.
- IV. 1. How was the plan of his *London* probably suggested to Johnson's mind, and what is there remarkable about it as a production of Johnson's?
2. Write down what you know about the *Rambler*.
3. Quote Johnson's opinion of Chesterfield, and Chesterfield's opinion of Johnson.
- V. Mention :—
 - (a) The sound doctrine which Johnson held, but which was deplored by his respectable biographer Hawkins.
 - (b) The sound principle observed by Richardson.
 - (c) The richest author that ever grazed the common of literature.
 - (d) The most formidable of the whole tribe of literary gladiators.
 - (e) An incident of Johnson's life that doubtless refreshed the soul of many authors.
 - (f) Johnson's definition of a lexicographer.
 - (g) The only remedy for sorrow.
- VI. 1. Derive:—Lichfield—Sheriff—Antics—Usher—Ominous—Pedagogue—Amateur—Cockney.
2. Write short notes on :—
 - Macpherson of Ossian celebrity—*Preciense*—Servitors and Sizzars—Dominie Sampson—Bohemia—The Senate of Lilliput—The contemporary Cave of Adullam.
3. Explain the following allusions:—
 - His favourite drink was not, like Johnson's free from intoxicating properties—
 - The iron had entered into his soul—
 - Hear Lydiat's life and Galileo's end—
 - The great contemporary Mæcenas.
- VII. 1. Paraphrase:—
 - (a) Disease and superstition had thus stood by his cradle, and they never quitted him during life.
 - (b) He gorged books.
 - (c) Even in those days, most gates were barred with gold and opened but to golden keys.
 - (d) Patrons were never too propitious to the uncouth giant, who had to force his way by sheer labour, and fight for his own hand.
 - (e) The greatest of their number had an incessant struggle to keep the wolf from the door.

- (f.) A man who has to work like his own dependant must discount his talents.
 (g.) This man will soon be *déterré*.
 (h.) It would be gross injustice to regard him as nothing but a fribble.
 (i.) Nothing could be more prettily turned.
 2. Explain :—A devoted High Churchman—Touching for the King's evil—Endowment of research—The Laureate's pittance—Party government—Pilloried in the Dunciad—The debtor's ward or the sjunging house—Hero-worship—The great truth that the scissors are a very superior implement to the pen considered as a tool of literary trade.

SCOTT'S.—'THE LAY OF THE LAST MINSTREL.'

I. What is the date of the publication of the Lay of the Last Minstrel? At what period is the action of the poem laid? At what time and where is the Minstrel supposed to relate the story?

II. Quote the passage beginning "If thou would'st view fair Melrose aright," and ending "Was never scene so sad and fair?"

III. Give the meaning of the words printed in italics in the following lines:—

- "The *viewless* forms of air."
 "Wer't my *neck-verse* at Hairibee."
 "For *Papum* countries I have trod."
 "Ye *ween* to hear a melting tale."
 "It was by dint of *passing* strength."

IV. Explain fully the meaning of the words printed in italics in the following lines, and mention which are derived from Saxon and which from foreign roots—

- "Why do these steeds stand ready *dight*?"
 "A *stark* moss-trooping Scott was he,"
 "The moon on the east *oriel* shone"
 "Nor mingled with the *menial* flock."
 "The *Lady* forgot her purpose high."

V. Describe the course of William of Deloraine's ride from Brank-some Tower, mentioning each of the places he passed.

- VI. "A wizard, of such dreaded fame,
 That when, in Salamanca's cave,
 Him listed his magic wand to wave,
 The bells would ring in Notre Dame!"

Who is the "wizard" alluded to and what is the story to which the lines refer?

COMPOSITION.

VII. Write an Essay on

"The evils of war." Or,

On the lines—

"Order is Heav'n's first law; and, this confess,
 Some are, and must be, greater than the rest,"

Or,

On 'Magna Charta and its results.'

UNIVERSITY OF MADRAS.

MEETING OF THE SENATE.

A meeting of the Senate was held March 8th, when there were present :—Sir Charles A. Turner (Vice-Chancellor), the Hon'ble Mr. Justice Muthusawmi Iyer, the Hon'ble T. Rama Rau, Dr. D. Duncan, Dr. J. Bradshaw, Dr. W. H. Wilson, M. R. Ry. Y. Vencataramayya Sastriyar, Dr. T. K. Rogers, Dr. J. Keess, Dr. W. Macrae, Mr. D. Sinclair, the Rev. C. Cooper, the Rev. G. Milne Rae, Mr. A. T. Arundel, the Right Rev. Dr. J. Colgan, the Hon'ble A. Seshaya Sastriyar, Mr. Basil Lavery, M. R. Ry. M. Sashagiri Sastrulu, Mr. H. H. Shephard, Dr. W. E. Dhanakoti Raju, M. R. Ry. V. Bashyam Iyengar, M. R. Ry. P. Vijiaranga Moodelliar, M. R. Ry. R. Raghunatha Rau, Dewan Bahadur, M. R. Ry. R. Balaji Rau, M. R. Ry. V. Krishnamachariyar, M. R. Ry. P. Chentsal Ran, and Rai Bahadur T. Gopala Rau. The Vice-Chancellor first read a letter from the Hon. Mr. Justice Imes, explaining the circumstances under which he was absent from the present meeting, and then proceeded with the first subject on the agenda paper—the election of a registrar.

Mr. Justice Muthusawmi Iyer proposed, and Dr. Bradshaw seconded : "That Dr. Duncan be re-elected as registrar for the two years commencing on the 1st April next." The motion was carried unanimously.

A CONVOCATION OF GRADUATES.

The Hon. Seshaya Sastriyar next proposed the following amendment on Mr. Bashyam Iyengar's motion, viz., "that in the opinion of the Senate it is desirable in the interests of the University and of its graduates that a convocation of graduates should be instituted, formally connected with the University, chiefly as a consultative and advising body;" Mr. Seshaya explained that although he was at first in favor of the graduates forming themselves into a Convocation without the aid of the Senate, now that he had heard the matter thoroughly discussed, he was in favor of its being established under the sanction of the Senate; he thought that Mr. Grigg's amendment at the last meeting simply overturned what had taken place at the previous meeting when the majority were in favor, as they were at the last meeting, also, of Mr. Bashyam Iyengar's motion, Mr. Grigg's amendment seemed to be a flying movement in order to defeat what was proposed by Mr. Bashyam Iyengar, and after a good deal of discussion, extraneous matter was brought in. One of the strongest objections to Mr. Bashyam Iyengar's motion before was, that the Senate was in ignorance as to what the powers and functions of the Convocation were to be. These important points were kept in the background, and it was not very desirable to take a leap in the dark by recommending under those circumstances the formation of the Convocation. Now, however, there was systematic action with the view of carrying the motion into effect; they had before them a complete scheme, and in order to admit of the various details being brought before the Senate, and the sense of the Senate being taken, the scheme had been cut up into four parts, (1) that steps be taken at once to call the Convocation into existence; (2) the constitution of the Convocation; (3) its powers and functions; and (4) the manner in which it was to carry on its business. In considering the question regard must be had to the fact, that a number of graduates from various parts of the country had asked for the formation of a Convocation; and then there was no financial difficulty in the case, and the sooner they dissipated the

"caste" question from the deliberations of the Senate, the better; many similar Universities in England, it must be remembered, had such Convocations as it was desired to form now in connection with the Madras University; the association should be so formed, its proceedings so conducted, that it would be really a useful and honorable auxiliary as well as a credit to the Senate.

Mr. Justice Muthusawmi Iyer, in seconding the amendment, said that after the remarks made, and after the discussion that had taken place at the two previous meetings, it would be scarcely necessary for him to say more than that he seconded the amendment. Still he thought it was necessary to say a few words. The object with which the formation of a Convocation was proposed was three-fold; (1) the Convocation would aid the Senate and assist the cause of progress, it would improve graduates by accustoming them to consider educational questions in a rational and enlightened spirit; (2) it would from time to time bring junior graduates under the influence of their seniors; (3) it would bring together all the graduates periodically to a common platform where they would learn to subordinate their personal idiosyncrasies, it would enable the Senate to secure an accurate representation of the views entertained by the educated classes and the parents of boys with regard to questions of importance which may come up before the Senate for decision. He (the speaker) would submit that the concession now asked for was neither novel, unreasonable nor premature; it was not novel, because Convocations under some name or other existed in the English and Scotch Universities; it was not unreasonable because the proposed Convocation was to be substantially a consultative body and its opinion was not to be binding upon the Senate. He would also add that it was nothing but fair to the educated classes and to parents that there should be an organization through which they might from time to time make known to this body their wants and feelings with regard to educational questions; the concession was not premature because, as far as he was aware, no question of general importance was ever decided by the Senate without an attempt to ascertain the feeling of the native community on the subject; these were some of the reasons which induced him and other members to submit the report in favor of the formation of a Convocation of graduates, but his statements, he thought, would be considered if he passed over the objections taken at the last two meetings. It was said that the Convocation, in place of aiding, might annoy and worry the Senate. He would submit that the Senate had called the graduates into existence; they stood in peculiar relationship with the Senate; they looked for the approbation of the Senate throughout their public career; it was to the interests of the graduates to merit and to continue to merit the approbation of the Senate; there was no likelihood whatever that the Convocation working under the supervision of the Senate, would forget the position and relation in which it stood to the Senate; there was no likelihood that the Convocation would worry and annoy the Senate, there would be honest and earnest endeavours to strengthen their claim as a body upon the Senate in order that they may really be an auxiliary to the Senate. Another objection was that if the Convocation were at once instituted, it would not be sufficiently representative in its character. He (the speaker) did not see in what sense it was intended to be representative; of course it would not be representative in the same way that the agricultural and mercantile communities were represented in Parliament; it would not be representative in the sense of religion, race, and caste; but surely it would be representative

in the sense in which University degrees were conferred upon all classes without regard to religion, caste, colour, or race. The members of the Convocation would be men of culture, recognised by the Senate and by the country as the pioneers of progress—men who would not stain the University gown which they wore by advocating views hostile to the Senate; they would shudder at the thought of suggesting such views. It was also observed: "Why should the Senate step forward and help these men?" If the graduates came forward with an application to the legislature to form a Convocation, otherwise than through the Senate and with its active support, the chance of success would be very small indeed, and it would be ungracious on the part of the Senate not to help them when they desired to labour for the Senate; it might also be added that it would be this body (the Convocation) whose history would head the history of progress in the country; it was one of the important functions of the Senate to aid in the formation of the Convocation.

Mr. Arundel said that he voted in favor of the amendment, and he would explain the reason: it was thought that his intention was to defeat the establishment of a Convocation whereas it was nothing of the kind. Mr. Bashyam Iyengar's motion was not very clear on several points; a Sub-Committee was necessary to look into it, but now that several members had taken the trouble to look into it themselves, which would have been the work of the Sub-Committee, and to divide it into sectional parts, the motion was clear, and there was no necessity for the Sub-Committee.

The Vice-Chancellor then put Mr. Seshaya's amendment to the vote which was carried *nem. con.* The amendment then became a substantive motion before the Senate.

Mr. Bashyam Iyengar said that it might be necessary to consider what the constitution of the Convocation was to be? The constitution was defined in the proposition he was now about to move; and as regarded the consideration of the constitution he would explain that he had taken the London University as a model, as the Madras University was founded on the basis of the London University. He then proceeded to speak of the constitution of Convocations of other Universities such as Aberdeen, Cambridge, Edinburgh, &c., and said that in some of those Universities the Convocation was called a general council, and as to the London University he read Section 15 of the London University character, which described the qualifications necessary for a member of a Convocation. The London Convocation admitted graduates in Arts of two years' standing. He would not admit them under five years, but he left it to the Senate to reduce it if it thought proper to do so; his proposition was "that in the opinion of the Senate any person possessing any of the qualifications hereunder mentioned shall be eligible to be a member of Convocation, provided he has attained the age of twenty-one years:—

(a). Masters of Arts of the Madras University.

(b). Masters of Law do.

(c). Doctors of Medicine do.

(d). Bachelors of Law of two years' standing or more.

(e). Bachelors of Medicine do. do.

(f). Bachelors of Arts of five years' do.

(g). Bachelors of Civil Engineering, five years' standing or more.

(h). All graduates holding such other degrees to be hereafter conferred by the said University as shall be recognised from time to time by the Senate as qualifications for admission to Convocation."

Dr. Keess objected that there was no mention made of Licentiates of Medicine and Surgery.

Dr. Wilson replied that as Licentiates of Medicine and Surgery only passed in Matriculation it was thought undesirable that they should be admitted as members of the Convocation.

Dr. Keess did not think it desirable that they should be omitted.

The Vice-Chancellor said the proposal was not yet seconded.

Mr. P. Balaji Rau seconded the proposal.

Dr. Bradshaw proposed an amendment to the effect that graduates of the Bombay, Calcutta, Punjab Universities, and graduates of the Universities of Great Britain and Ireland be admitted as members of the Convocation when they visited Madras and applied for admission.

Dr. Rogers seconded the amendment because "in the multitude of Councillors there was wisdom.

Mr. P. Vijiaranga Moodelliar wished to know what the practice was in London.

Dr. Wilson replied that other graduates were not admitted in London. Mr. V. Krishnama Charriar believed that the University was intended for the benefit of Southern India, and he therefore objected to the admission of members of other Universities.

Mr. Bashyam Iyengar doubted very much whether graduates of other Universities would come and reside in Madras.

The Vice-Chancellor put Dr. Bradshaw's amendment to the vote and it was lost.

Mr. Krishnama Charriar did not see the necessity of requiring graduates to wait a certain number of years before they could be admitted; he believed that in Scotland the graduates became at once members of the Convocation.

Mr. Bashyam Iyengar wished to substitute three years for five years in the case of Bachelors of Arts.

Mr. Arundel rose to order and said that the proposition had been seconded, and he was prepared to vote for it in its original form.

Mr. Krishnama Charriar proposed an amendment that graduates be admitted without any restriction as to standing or age.

The Vice-Chancellor thought the amendment was out of order as they were discussing the number of years.

Mr. Justice Muthusawmi Iyer thought the extent of the standing required was a little too high; and proposed an amendment, reducing five years to two years in the case of Bachelor of Arts, and omitting the word "two years standing and more" in the case of Bachelors of Law.

The Rev. M. Rae seconded the amendment.

Mr. Arundel could not support the amendment; it was going further than the London University.

Dr. Wilson agreed with Mr. Arundel, and thought that if Bachelors of Law were admitted immediately after obtaining their degree they would be a source of weakness.

Mr. Seshaya Sastri's object in insisting on five years was that graduates commenced study at the age of eleven or twelve years and remained at school until they obtained their degree, but they then knew nothing whatever of the world; they would be too fresh to express an opinion on any subject, and not much good could come from them. These young men should first mix with the world and know something of the outside world, as it was very important that the Convocation should represent the opinion of the outside world; he would even increase the five years for that matter.

Dr. Macrae believed that the graduates had to complete their education after leaving school.

The amendment to omit the words "two years' standing" and reducing five years to two years was then put to the vote and

Dr. Keess proposed that Licentiates of Medicine and Surgery on years standing should be members of the Convocation. These Licentiate passed their Matriculation and then continued their study for four years in the Medical College; they were fully on a par with Bachelors of Arts in culture.

Mr. Raghunatha Rau seconded the motion.

Dr. Rogers supported the motion.

Mr. Arundel wished to know if the Licentiates were graduates of the University, if they were they should be admitted into the Convocation.

V. Krishnama Charriar thought they could not consider the Licentiate as graduates.

Dr. Duncan said that they were graduates.

The Vice-Chancellor was of opinion that in one sense they were graduates and in another they were not. It was proposed to establish a Convocation to aid the Senate in giving effect to the University system. Licentiate of Medicine and Surgery were not likely to render much aid.

Dr. Duncan was against their admission into Convocation.

Dr. Keess was not prepared for the opposition, but he thought the Licentiate were not inferior to graduates in Arts; for years medical study enlarged their minds; they also came in contact with the public in various aspects and knew something of the world.

The motion was put to the meeting and lost, but the Vice-Chancellor thought it should be brought up again at the next meeting. The meeting then adjourned to Monday, the 12th March.

An adjourned meeting of the Senate was held March 12th. There were present Sir Chas. A. Turner (Vice-Chancellor), Mr. H. B. Grigg, Mr. A. T. Arundel, the Hon. Mir Humayun Jah Bahadur, Mr. R. Raghunatha Rau Dewan Bahadur, Mr. J. W. Handley, Dr. Mohideen Sheriff Khan Bahadur, the Rev. E. Sell, Mr. D. Sinclair, Mr. R. B. Michell, the Rev. G. Milne Rac, Mr. R. Balaji Rau, Dr. W. H. Wilson, the Hon. Mr. Justice Muthusawmi Iyer, Mr. P. Vijiaranga Moodelliar, the Hon. A. Seshaya Sastriar, Mr. P. Chentsal Rau, Mr. V. Bashyam Iyengar, Mr. V. Krishnamachariar, Mr. M. Seshagiri Sastrulu, Dr. D. Duncan, Dr. J. Keess, Dr. T. K. Rogers and Rai Bahadur T. Gopala Rau.

The Vice-Chancellor said that Dr. Keess did not intend to bring forward to the present meeting his amendment regarding the admission of Licentiate of Medicine and Surgery as members of the proposed Convocation; he wished to defer it to a larger meeting.

Mr. Bashyam Iyengar then proposed "That the officers of the Convocation of Graduates shall be a Chairman and a Secretary who shall be elected by the Convocation from among its members." The mover said that in the general council (as the Convocation was called) of the Aberdeen University, the President was the Chancellor of the University, but in London (which it was intended to follow in the proposed Convocation) the Chairman of the Convocation was elected by the members of the Convocation, although the first Chairman was appointed by Royal Charter; but it was provided that he should hold office for only one year and then the members of the Convocation should elect every succeeding Chairman who was to hold office for three years, Mr. Bashyam Iyengar was of opinion that the election of a Chairman ought to be by the members of the Con-

Convocation, though a subordinate body to the Senate, is not desirably independent of the Senate in its deliberations and was not desirable to place any restrictions on the Convocation.

Seshagiri Sastrulu seconded the proposition.

Mr. Grigg then proposed an amendment: "That the officers of the Convocation of Graduates shall be a Chairman who shall be appointed by the Chancellor, and a Secretary who shall be elected by the Convocation from among its members." Mr. Grigg said that they were all agreed that the machinery they were to create to work the Convocation was to be such that it would work it with the greatest proficiency. One most important point to be settled was who shall have the management of the Convocation? They were all aware that the members of the proposed body would consist of men of very little experience in life, whatever their attainment in letters might be, and it was quite possible, if the members elected their own Chairman, they might elect one who was utterly unfit for the post; they had no knowledge of the qualifications which were likely to make a good Chairman and under those circumstances he (Mr. Grigg) would urge, in the interests of the proposed Convocation, that the power rest with the Chancellor of the University of appointing a Chairman.

Mr. Arundel, in seconding the amendment, said that it seemed to him that if the Convocation were brought into existence they would probably have some twenty or thirty young men coming into Madras from the Mofussil to meet for the first time, and probably at the outset they would select an inefficient Chairman, and if the Chairman selected at first be inefficient discredit would be thrown on the whole body, and again, dignity would be conferred on the body if the Chairman were appointed by the Chancellor, just as in the Senate dignity was conferred by the distinguished gentleman appointed as the guide.

The Hon. Seshaya Sastri supported the view that the Chairman be appointed by the Chancellor, but with the provision that only the first Chairman be so appointed, and afterwards the Convocation should be left to elect its own Chairman.

Mr. Justice Muthusawmi Iyer's idea was that Mr. Grigg's amendment was really an improvement on the original proposition. The Chairman should enjoy the confidence of the public; he should be a man of experience, but there appeared to be a misapprehension that the Chairman should be an outsider.

Mr. Arundel. No; both the Chairman and Secretary should be members of the Convocation.

Mr. Chentsal Rau thought that as the members were men of culture they should be allowed to elect their own Chairman. If they were not qualified to elect a proper Chairman they were not qualified to be members of a Convocation.

The Rev. G. M. Rae said that he sympathised with Mr. Chentsal Rau, but he would nevertheless vote for the amendment on the ground that the Chairman of the Senate was appointed by the Chancellor; the members of the Senate too might consider themselves competent to elect their own Chairman, but they could not do so; at the same time the Senate had been well supplied with excellent Chairman in every way, by the Chancellor. After some further discussion the amendment was put to the vote and carried by twelve by five; it then became the substantive motion before the house.

The Hon'ble Seshaya Sastri then proposed an amendment as follows: "That the officers of the Convocation of Graduates shall be a Chairman

(of whom the first shall be appointed by the Chancellor) and who shall be elected by the Convocation from among its members.

Mr. Bashyam Iyengar seconded the amendment, and said that the Chairman would hold office for three years, and that would be sufficient to give shape to the Convocation; the Chairman appointed by the Chancellor need not necessarily be a member of the Convocation, the successive Chairmen should of course be members of the Convocation and elected by the members.

Mr. R. Raghunatha Rau could not vote for the amendment if the first Chairman was not a member of the Convocation, as that was wrong constitutionally, and it was against the object for which the Convocation was meant to be convened; it would seem that an outsider was selected because the graduates were considered very unruly, and the outsider was required to keep the unruly boys in order; and again, the Chairman appointed by the Chancellor should be elected out of say 10 or 15 or 20 members, their names being submitted to the Chancellor by the Convocation.

Mr. Arundel agreed somewhat with Mr. Raghunatha Rau, Mr. Grigg's motion, however, gave the Chancellor a larger choice; he had the whole body to select from. If Mr. Raghunatha Rau's argument had any force, Mr. Grigg's had greater force.

The Hon. Seshaya Sastri said that all he meant to say was that the Convocation should have an entirely independent existence, but in order to clear the body from perils arising from the Chairman selected by the members being unfit for his post, he thought it desirable that the first Chairman should be appointed by the Chancellor, and after the expiration of three years the Convocation might pursue its own independent course.

The Vice-Chancellor then put the amendment to the vote, and it was lost 9 by 7, Mr. Grigg's being carried 11 by 4.

Mr. Bashyam Iyengar next proposed, and it was seconded by Mr. V. Krishnamma Charriar: "That the said offices of Chairman and Secretary be tenable for a period of three years or until a successor is appointed, and that if the Chairman shall be absent at any meeting of the Convocation, the members of the Convocation then present or the major part of them shall elect a Chairman who shall hold office during such meeting. Carried unanimously.

Mr. Bashyam Iyengar then proposed, and it was seconded by Mr. Seshagiri Sastrulu: "That a register of the graduates constituting for the time being the Convocation of the University shall be kept by the Secretary to the Convocation in such manner as the Senate of the University shall from time to time appoint and direct, which register shall be conclusive evidence that any person whose name shall appear thereon at the time of his claiming to vote in Convocation is so entitled to vote, and that any person whose name shall not appear thereon at the time of his claiming to vote is not entitled so to vote." Carried unanimously.

Mr. Bashyam Iyengar next proposed, and it was seconded by Mr. T. Gopala Rau: "That each member of Convocation shall pay such reasonable annual fees in that behalf and at such times and with such liberty to compound for the same as the Senate shall from time to time direct, and that the Senate may make bye-laws and regulations for taking off the name from the register of any such members for non-payment of such fees and for re-instating such name on such terms as they shall by such bye-laws prescribe in that behalf." After some little discussion, the proposal was carried unanimously.

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Iyengar further proposed, and it was seconded by "that such fees (referred to in the previous resolution) be added to the University General Fee Fund, from which fund the fees of the Convocation of graduates shall be paid subject to the sanction of the Senate, and the said income and expenditure of the Convocation shall be included in the annual accounts of the University." carried unanimously.

The meeting then adjourned to Thursday, the 15th March.

An adjourned meeting of the Senate was held 15th March. Present, Sir Chas. A. Turner (Vice-Chancellor), the Hon. Mr. Justice Innes, the Hon. Mr. Justice Muthusawmy Iyer, Mr. H. B. Grigg, Dr. D. Duncan, Mr. A. T. Arundel, Mr. D. Sinclair, Mr. H. H. Shephard, Mr. R. Raghubatha Rau Dewan Bahadur, Mr. R. B. Michell, the Right Rev. Dr. J. Colgan, Mr. Balaji Rao, Mr. P. Vijayarunga Mudaliyar, the Rev. E. Sell, the Rev. Cooper, the Rev. G. Milne Rae, Dr. W. H. Wilson, the Hon. A. Seshaya Sastriyar, Mr. P. Cheptsal Rao, Mr. Y. Venkataramya Sastriyar, Mr. M. Seshagiri Sastrulu, Rai Bahadur, T. Gopala Rau, Dr. T. K. Rodgers, and Dr. J. Keess. The business of the meeting commenced with the Vice-Chancellor reading a letter from 27 graduates from Tinnevely, and a letter from A. Sankara Aiyar, Trichoor, on the subject of the proposed Convocation.

Mr. Justice Muthusawmy Iyer, in rising to move the next set of propositions, said that they related to the functions and powers of the proposed Convocation, but for the sake of convenience he would move each proposition as if it was a distinct and independent proposition, but at the same time he hoped the house would consider all the propositions together as a whole, keeping in mind their independence of each other, when voting on any one of them; he thought it desirable to offer a few remarks in order that he might indicate the stand-point from which he looked at the several questions, and made up his mind to formulate them into distinct propositions; the first two related to what might be termed the functions of the Convocation; the Convocation was to be mainly a consultative and advising body; the first proposition was intended to recognise its character as an advising body, and the second was intended to recognise its character as a consultative body; the only difference between the two propositions consisted in that, in the one case a requisition from the Senate or Syndicate was necessary, whilst in the other it was not necessary; he would also offer a few remarks upon a proposition which would be moved later on by Mr. Chentsal Rao, for graduates who were not residents in Madras to vote by proxy. That proposition was introduced with the object of enabling the Senate or Syndicate to have before them the opinion, not merely of a few graduates who might happen to be at Madras and in a position to attend the meetings, but to have the opinion of all the graduates who were members of the Convocation throughout the Presidency; in his (the speaker's) first proposition (a) the words "any matter relating to the University" occurred; he would point out that this expression was borrowed from the charter for establishing a Convocation in connection with an English University, and he believed that the expression was synonymous with matters which were within the cognizance of the Senate; it would be well that the Senate should fully discuss the opinions and suggestions sent up from the Convocation. He had looked into the question as far as he was able to do so and formulated these two propositions in order to defeat any objections that might be taken to them, and he

would move, first, "That in the opinion of the Senate the graduates should have the powers and functions hereunder mentioned."

(a). The power of discussing any matter relating to the U. and of declaring to the Senate the opinion of Convocation in such matter.

The Hon. A. Seshaya Sastri, seconded the motion.

Mr. Arundel thought the powers proposed in this first proposition were rather more than the Senate ought to recommend. It should be remembered that the body was as yet a perfectly unknown body, and they did not know what kind of a body it would turn out; they ought to take care that the powers were not used in such a way as to defeat the object they had in view in forming the Convocation; they should provide against any contingency, and especially at the present time when they were making preparations to start the Convocation; it would be prudent of them to insert a proviso in the rules. He would move an amendment as follows:—

"That in opinion of the Senate, the Convocation of graduates should have the powers and functions hereunder mentioned; (a) Subject to such limitations as may be prescribed by the Senate, and sanctioned by the Governor in Council, the power of discussing any matter relating to the University and of declaring to the Senate the opinion of Convocation in such matter."

The Right Rev. Dr. Colgan seconded the amendment.

Dr. Wilson could not vote for the amendment as he thought provision was made in the last proposition (i), which read:—"The power to frame such rules as are necessary to give effect to the above objects, such rules being subject to the confirmation of the Senate."

Mr. Venkataramaya was against the amendment.

The Hon'ble Seshaya Sastri, thought the action of the Convocation could not embarrass the University or the Senate. The Convocation were to be restricted in their discussions to matters relating to the University and there could not possibly be any danger; besides the Convocation would consist of some 400 to 500 members belonging to different parts of the Presidency. He was altogether opposed to the amendment. The Convocation should be as independent as possible and at liberty to take up any lawful subject for discussion.

Mr. Grigg believed that Mr. Arundel's proposal was a very wise one; the proposition (i) was not of sufficient force to meet the danger or difficulty which might arise in connection with the powers proposed to be conferred on the Convocation, as in that provision the power of confirmation rested only with the Senate, whilst in the amendment the power of approval rested with the Senate and final sanction with the Governor in Council. It was unwise to give a new body that might number some 400 or 500 members unlimited powers. Mr. Seshaya Sastri was of opinion that they would only discuss matters which would come before the Senate. The Convocation would be composed of a number of young inexperienced men, or perhaps experienced only in driving the quill in some Government office, and it would not be possible for them to refrain from bringing foreign matters before the University. He (Mr. Grigg) doubted extremely whether at the outset this new body would bring anything but rash and crude opinions and suggestions before the Senate, and Mr. Arundel's amendment would guard against the evil; he would ask the house if it was desirable or wise or politic to confer on a body of young men this unlimited power, and to have their discussions open to the Press; he did not think it was wise and he would beg of all those who held moderate conservative views to use every safeguard in regard to the working of

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he would draw special attention to a provision of the Act that had been lost sight of—Sec. 24—that was clearly intended to prevent evils which he anticipated in the proposed Convocation; he would not be surprised if it were introduced into a debating society; and if in the centre of English civilisation it was considered desirable to put such a drag on the action of the Convocation how much more desirable was it in this country! He believed that a provision such as that proposed by Mr. Arundel would act as a gentle drag.

Mr. Chentsal Rao had no serious objection to the amendment, but he was sure that the members of the Convocation would not discuss matters foreign to the University; he thought that Mr. Grigg attached some political significance to the matter, but that was not at all likely in the discussion of educational matters, and if they did not discuss matters properly and came to wrong conclusions, the Senate had simply to tell them they were wrong; he would strongly oppose the amendment.

Mr. Raghunatha Rau, said that it seemed to him that the amendment was intended to provide against every contingency that might occur; the Convocation would simply submit the result of their deliberations to the Senate, and nothing more, and if that was the full extent of their power no possible harm could arise; moreover, he did not see the utility of hampering a public body with rules according to which they could not say a word unless they were sure of the approval of the Senate and of Government; rather than have a Convocation of that description it would be better to have none at all! The power which it was intended to confer was too small, and if safeguards were needed he would suggest no other than those that had been introduced in the London Convocation. If the amendment was carried, the Convocation would be a nonentity.

Mr. Justice Muthusawmi Iyer was opposed to the amendment on principle; he had heard an observation by a former Vice-Chancellor of the University, who was held in the very highest esteem both in European and native society, to the effect that when we dealt with an honorable man we should show him that we trusted him and he would do his utmost to deserve the trust and not betray it. The remark was made in connection with an objection taken by some gentlemen to the appointment of a native as one of the University examiners; it was then apprehended that the native would place himself in communication with the candidates, and show them the examination papers; but what was the result. Native examiners were after all trusted? and they conducted themselves as honorably as the English examiners. The chief objection was that it suggested to both Government and the Senate that they were to look upon this body, which they were going to constitute under a resolution recorded after a long debate, of three meetings, as a body dangerous to the country! The language was "Take care that this body does not run into extremes." On the last occasion, he (Mr. Justice Muthusawmi Iyer) pointed out many reasons why the Convocation would do its best to merit the approbation of the Senate and Government. It was now objected that the Convocation would consist of a body of raw youths, without any experience, without any knowledge of the world, and of young men, young clerks imported into the Senate from public offices. He would point out that the Convocation would consist not of graduates, who passed out in Mr. Grigg's time or in that of his predecessors, but of members of the University who belonged to different generations, of graduates who were now passing out and who belonged to the third generation, and among them would be found the names of some who would be acknowledged by those who brought forward

and supported the amendment, as having rendered impossible the country, and they would take part in the deliberations of the Convocation. But they were now told that their deliberations were dangerous, and therefore they should be tied hand and foot, and in constituting them into a body they were to hear such language as this "I suspect you, take care that you talk and act just as we tell you and not otherwise." Such was the amendment and it carried its own condemnation. In addressing the graduates as "gentlemen," every year from the platform, in the presence of the Chancellor, did they really consider them to be gentlemen? If not, there was no necessity at all to have the Convocation.

Mr. Justice Innes did not feel the apprehension that appeared to be felt by the mover and supporters of the amendment. At the same time it would be admitted that there were certain subjects which came before the University which were of such a character that they could not be properly discussed by the Convocation; he did not think the amendment implied distrust of the Convocation but merely that it was desirable to point out what subjects ought not to be discussed. Many subjects came before the Senate from time to time which could not confidently be discussed, and the discussion of which might lead to considerable evil. These might very fairly be prohibited from the discussions of the Convocation. And then, the Senate itself was subject to Government. No bye-laws could be passed by the Senate without the sanction of Government; he (Mr. Justice Innes) felt inclined to support the amendment.

Mr. R. Balaji Rau, said that the provision now sought to be made by the amendment had already been made in the proposed rules, and also in the rules passed at the previous meetings; the Convocation of graduates would consist of graduates of not less than five years' standing, and they would be graduates who had passed out since 1858, and persons who held high positions under Government, and in other walks of life, and who had acquired much experience; but it was said that they were raw and inexperienced persons who knew nothing of the management of corporate bodies. There were such corporate bodies in existence in Madras and they were managed by native graduates, and were in a very flourishing condition. Such graduates would really be desirable members of the Convocation; if the amendment was carried it would simply undo what had been done in the last three meetings. It would be better to put an end to the notion of creating a Convocation.

Mr. T. Gopal Rau believed that the bulk of the graduates would be men of experience; it was said that it was found necessary to impose restrictions on the Convocations in England and therefore it must be necessary to restrict the Convocation in this country; the fact was that graduates here had not one-tenth of the spirit that English graduates had; it was well known that ages of tyranny had made the people of India timid in the highest degree. And with regard to the Press, there was no real danger in speaking too freely in the presence of reporters; that would simply have the effect of making their discussions moderate and temperate in tone.

Mr. D. Sinclair agreed with Mr. Justice Innes's remarks; it was proposed that the Convocation should have the power of discussing any matter relating to the University; that was a power the Senate had not; there must be subjects in connection with the University that never came before the Senate at all, and if the Senate had no power to discuss all matters, he did not see how the power could be conferred on the Convocation; the Senate had not power even to make rules or bye-laws without going up

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It would seem that the Convocation were to be able to do that way and to discuss all questions. This was not at all the whole movement appeared to be too premature. He supported the amendment as it was necessary that rules should be laid down as to what subjects should be discussed by the Convocation.

Mr. Duncan was not aware of any restriction on the Senate. All questions relating to the University might come before the Senate, but they should ask themselves why it was that if the Senate had power to discuss all matters it left certain matters in the hands of the Syndicate. The answer was that the Syndicate was composed of picked men; and the Senate therefore left those questions with the Syndicate which it thought should not be discussed in the Senate. In the same way the Senate ought to leave the power of discussing all matters with the Convocation which would no doubt be composed of wise and prudent men who would know, from their nature, those questions that should not be discussed.

The Vice-Chancellor was of opinion that it was for the Senate to provide the machinery for carrying out and exercising the powers to be conferred on the Convocation; he thought that the amendment as it stood might give rise to obscurity; those "rules" referred to, might be merely rules similar to those contemplated in that last proposition (i) or they might mean a great deal more, prescribing the subjects to be discussed, or restricting the Convocation to the discussion of only certain subjects.

It was very desirable that they should take the opinion of the Senate now, as to what subjects might be given to the Convocation for discussion, and submit that opinion to Government, instead of waiting until the question became a question of extreme soreness; he (the Vice-Chancellor) had heard a reason assigned in support of the amendment, that the proposed Convocation would consist of mere quill-driving clerks, but he doubted whether that was actually the present condition of the men.

Mr. Grigg explained that his remark was misunderstood.

The Vice-Chancellor was glad to hear that he had misunderstood Mr. Grigg, as the men who were to be members were the very men to whom the Government wished to entrust municipal matters; the natives were accustomed to caste meetings in their villages from immemorial, and although the methods they adopted in their discussions might differ widely from those of Europeans yet they discussed matters in very business-like way. There were examples also in the native Christian bodies where district and provincial councils were held; at the same time there might be some few unruly men in the Convocation but they would be the exception. As a rule, among natives, more than any other class, age was respected; and then with regard to the Press, he was very happy to know that the proceedings of the Senate were reported. It sometimes, however, happened that the reporters were not very accurate in their report but every allowance should be made for them as they laboured under considerable disadvantage. It would be well also to report the discussions of the Convocation.

Mr. Arundel then made a few remarks, and his amendment being put to the vote was carried, 12 against 9, and became the substantive motion before the House. This was also carried by 13 to 6.

Mr. Justice Muthusawmy Iyer next proposed "(b) that the Syndicate or the Senate may refer to the Convocation of graduates any matter relating to the University, and it shall be the duty of the Convocation to consider such matter and to declare its opinion thereon.

Mr. Grigg seconded the proposition which was carried unanimously.

The meeting then adjourned *sine die*.

The Vice-Chancellor read the following proposition which had become a substantive motion before the House.

"That in the opinion of the Senate, any person possessing the following qualifications hereunder mentioned shall be eligible to be a member of the Convocation provided, he has attained the age of 21 years. (a.) Masters of Arts of the Madras University. (b.) Masters of Law of the Madras University. (c.) Doctors of Medicine of the Madras University. (d.) Bachelors of Law of the Madras University of two years' standing or more. (e.) Bachelors of Medicine of the Madras University of two years' standing or more. (f.) Bachelors of Arts of the Madras University of five years' standing or more. (g.) Bachelors of Civil Engineering of two years' standing or more. (h.) All graduates holding such other Degrees to be hereafter conferred by the said University as shall be recognised from time to time by the Senate as qualifications for admission to Convocation."

The Rev. Milne Rae remarked that he did not understand what was meant by the "qualification hereunder mentioned." He did not think that there was any such English expression. (Laughter). He would suggest that words something like the following be submitted:—That graduates possessing any of the following qualifications be eligible, &c.

The Vice-Chancellor.—We will substitute the word "hereinafter."

This was accordingly agreed to by the House.

The motion was put to the meeting and carried unanimously.

The Vice-Chancellor explained that, with reference to the amendment put forward by Dr. Keess to include Licentiates in Medicine and Surgery as members of Convocation, he, the Vice-Chancellor, had given his negative and casting vote and, at the same time, deferred the further discussion of the subject before a further meeting. The last meeting was a larger one, and several gentlemen who supported that amendment were now absent. The mover therefore proposed to bring the subject before the House on a future date.

Mr. Bashiam Iyengar then moved the following resolution:—"That the officers of the Convocation of graduates shall be a Chairman and a Secretary who shall be elected by the Convocation from among its members." Mr. Bashiam Iyengar referred to the London University Convocation, and to Sections 28 and 29 of the London University Royal Charter, by which the Chairman was appointed by the Convocation itself. Here, when the question was discussed, there was a difference of opinion as to whether the Chairman ought to be elected by the Senate or by the graduates forming the Convocation. He considered that the Convocation ought to elect its Chairman, and that, in their deliberations, they ought to be perfectly independent, and it was not desirable that any restrictions should be placed on the members of the Convocation. The Senate ought to promote their choice in an unrestricted manner. The opinion on this subject was not unanimous, as to whether the appointment ought to be made by the Legislature, the Chancellor, or by the Convocation itself. He simply threw out these ideas in order to elicit further information. He believed that the Secretary or Clerk ought to be elected by the Convocation.

The Hon'ble Mr. Sashia Sastry seconded the motion.

Mr. Grigg remarked that his amendment, brought forward at the last meeting by Mr. Arundel, was, whether or not the creation of such a Convocation were expedient. It was agreed that they should institute a Convocation. Then the question was as to the efficient working of the Convocation. It was not to be expected that this Convocation would come up to the standard of the Western institutions, or work in an equally

One point, and that the chief point, was who should have control of the Convocation? Among the graduates many men of little experience, and it was highly desirable that a man should be appointed by the head of the University, taking consideration the candidates' circumstances and position in life, and who would be a fit member to conduct meetings and deliberations in an orderly manner. If the Chairman was to be appointed by the Convocation it was quite possible that the graduates would be perfectly ignorant of the knowledge and qualifications possessed by him, (the Chairman.) In the interests of this institution, he would move that the Chairman of the Convocation be appointed by the Chancellor of the University, and that it be not left with the graduates.

Mr. Arundel seconded Mr. Grigg. He said that the graduates ought not to have the privilege of electing their own Chairman, and that the best course would be for the Chancellor to appoint him. They would get some two or three hundred candidates, and they must bear in mind that when a Chairman elected for the space of three years, should prove a failure, the Convocation would be made a laughing stock of, and discredit thrown on the institution and the Senate for establishing it. (Hear, hear). He would strongly support Mr. Grigg and leave the appointment of the Chairman in the hands of the Chancellor. The Chairman so appointed would know how to maintain the dignity of the House (hear, hear). The Vice-Chancellor was appointed by the same means. The appointment of the Chairman by the Chancellor would add to the efficiency and dignity of the institution.

The Vice-Chancellor said that the Convocation could not appoint a Chairman unless it held a meeting. The Convocation did not come into existence yet. It was very desirable that some measures should be taken for the appointment of the first Chairman.

Mr. Justice Muthusawmi Iyer said that he would support Mr. Grigg's amendment which would add to the dignity of the institution, as the candidate's services, experience in life, &c. would be considered before the appointment was made.

Mr. Arundel remarked that the Chairman must be one of the members of the Convocation.

Mr. Chentsal Rau was of opinion that, as men of culture, members of Convocation ought to be qualified to vote. They were qualified to vote in elections for Municipal Commissioner and Local Fund Members.

The Rev. Milne Rae said that he was prepared to vote for Mr. Grigg's amendment. For many good reasons it was necessary that the Chairman ought to be appointed by the Chancellor to regulate the business of the Convocation, and that he should be a safe man. The safest measure would therefore be for the Chancellor to appoint him.

The Vice-Chancellor remarked that there appeared to be some difficulty in arriving at a conclusion on this point. The motion was a defective one. He would therefore suggest that it be proposed in the following manner:—"That the officers of the Convocation of graduates shall be a Chairman, who shall be appointed by the Chancellor, and a Secretary, who shall be elected by the Convocation from among its members." He was himself very much opposed to the amendment. The object of the appointment of a Chairman was to regulate the conduct of the debate. He thought that after three years, the Convocation could have its own Chairman. If the Chairman was an official member that circumstance would operate against a free expression of views by the members. He was inclined rather to see a non-official Chairman.

Mr. Bashiam Iyengar remarked that he did not see why the Chairman should not be appointed by the Convocation. The Chancellor of this body was appointed by the Chancellor.

Mr. Grigg said that there was a great distinction. The appointment of the Vice-Chancellor rested with the Governor in Council, and not with the Chancellor, and regarding the Chairmanship of the Convocation, it would rest with the Chancellor as the head of the University. He also thought that the Chairman ought not to belong to the official class.

The proposition as amended by the Vice-Chancellor, was then put to the meeting and carried.

The Hon'ble Mr. Sashia Shastri said that he should like to bring forward an amendment to the effect that the first Chairman be appointed by the Chancellor.

The Vice-Chancellor said that if a motion formed itself into a substantive one an amendment upon it could be brought forward; but that the present motion had not become a substantive one.

Mr. Grigg remarked that Mr. Sashia Shastri's proposed amendment practically amounted to the same thing as the substantive motion.

Mr. Bashiam Iyengar said that to put the matter in a clear light, he would say that the first Chairman be appointed by the Chancellor whose office would be tenable for three years, and that this period was sufficiently long to shape the Convocation and put it into working order, and that if success should ensue, the future Chairman could be elected by the Convocation. It was desirable to give the Convocation the power of selecting its own Chairman and Secretary.

Mr. Rangunadha Row said that he would vote against the amendment.

Mr. Arundel considered that Mr. Grigg's amendment met all purposes. If the Chairman was appointed by the Chancellor they would have a man of more general ability and of larger capacity than one who may be appointed by the graduates themselves.

Mr. Bashiam Iyengar did not see why this question should be raised. If the Convocation worked well, then the graduates could elect their own Chairman.

Mr. Sashia Sastri advocated that the first Chairman should be appointed by the Chancellor, and that after three years, the Convocation should be allowed to pursue its own independent course.

Mr. Sashia Shastri's amendment was put to the meeting and lost.

Mr. Bashiam Iyengar then moved the following resolutions which were carried:—

That the said offices of Chairman and Secretary be tenable for a period of three years, or till a successor is appointed, as aforesaid, and that, if the Chairman shall be absent at any meeting of the Convocation or if there shall be a vacancy in the office by death, resignation or otherwise, then, before proceeding to business, the Members of Convocation then present, or the major part of them, shall elect a Chairman who shall hold office during such meeting.

That a register of the graduates constituting for the time being, the Convocation of the University shall be posted by the Secretary to the Convocation in such manner as the Senate of the University shall from time to time appoint and direct, which register shall be conclusive evidence that any person whose name shall appear thereon at the time of his claiming to vote in Convocation is so entitled to vote, and that any person whose name shall not appear thereon at the time of his claiming to vote in Convocation, is not so entitled to vote.

Shastri suggested that the names of the graduates be in the Port Saint George Gazette.

The Vice-Chancellor held that the register be kept by the Registrar. Mr. Bashiam Iyengar then brought forward the following proposition:

That each member of Convocation shall pay such reasonable annual fees, and at such times, and with such liberty to compound for the same as the Senate of the University shall from time to time direct; and that the Senate may make Bye-laws and Regulations for taking off the name from the register of any such member for non-payment of such fees and for re-instating such name on such terms as they shall by such Bye-laws prescribe in that behalf. Such fees shall be credited to the University General Fee Fund, from which Fund, the expenses of the Convocation of graduates shall be paid subject to the sanction of the Senate of the University, and the said income and expenditure of the Convocation shall be included in the Annual Accounts of the University.

Mr. Bashiam Iyengar alluded to the working of the London, Edinburgh, Oxford, Cambridge and Aberdeen Universities, regarding the payment of fees, and to defaulters being struck off. He, however, did not know the procedure followed. In his opinion, it was not necessary to have a separate fund. They could have a general fund from which the expenses of the Convocation could be paid. In order that the expenses be not extravagant, he would suggest that the same be sanctioned by the Syndicate.

On the motion of one of the Fellows, the word "Senate" was substituted for "Syndicate."

The Vice-Chancellor remarked that, in Oxford, of which University he was a graduate, they paid one or two pounds annually, or rather three pounds, and they were allowed to take part in the future administration of the University, and vote for electors. Mr. Grigg had informed him that in Cambridge, if one paid up his subscriptions, he was allowed to re-enter.

Mr. Bashiam Iyengar's motions having been carried, the meeting adjourned.

Costly apparatus and splendid cabinets have no magical power to make scholars. As a man is in all circumstances, under God, the master of his own fortune, so he is the maker of his own mind. The Creator has so constituted the human intellect, that it can only grow by its own action: it will certainly and necessarily grow. Every man must therefore educate himself. His books and teacher are but helps; the work is his. A man is not educated until he has the ability to summon, in an emergency, his mental powers in vigorous exercise to effect its proposed object. It is not the man who has seen the most, or read the most, who can do this; such a one is in danger of being borne down, like a beast of burden, by an overloaded mass of other men's thoughts.

Nor is it the man who can boast merely of native vigour and capacity. The greatest of all warriors who went to the siege of Troy had not the pre-eminence because nature had given him strength, and he carried the largest bow; but because self-discipline had taught him how to bend it.—Webster.

1883.]

Pure Mathematics.

PURE MATHEMATICS.

Examiner.—A. C. TATE, M.A.

I. Give Euclid's definition of "Proportionals" (Definitions 5 and 6, Book V), and show that the algebraical definition follows from it.

Similar triangles are to one another in the duplicate ratio of their homologous sides.

Hence show that the area of a regular hexagon inscribed in a circle is three-fourths of that circumscribed.

Bisect a triangle by a line parallel to one of its sides.

II. If a side of a triangle be produced, the exterior angle is equal to the two interior and opposite angles, and the three interior angles of every triangle are together equal to the two right angles.

What is the sum of the exterior angles of a rectilinear figure? What is the sum of the interior angles of a quindecagon?

III. Equal triangles which have one angle of one equal to one angle of the other have their sides about the equal angles reciprocally proportional; and conversely.

Bisect a triangle by a line drawn from a point on one of its sides.

Construct a triangle, given the base, vertical angle, and the rectangle contained by the sides.

IV. Prove that the area of a triangle is equal to—

$$\sqrt{s(s-a)(s-b)(s-c)}.$$

V. Solve for x the equation—

$$\{\sqrt{1 + \sin x} - 1\} \{\sqrt{1 - \sin x} + 1\} = \tan \frac{a}{2} \sin x.$$

VI. Show that $\sin \theta > \theta - \frac{\theta^3}{4}$.

Calculate to thirteen places of decimals $\cos 10'$ having given $\pi = 3.141592653589793$.

VII. Prove $e^x = 1 + x + \frac{x^2}{2} + \frac{x^3}{3} + \text{etc.}$

Hence show that—

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

Calculate $\log_e 2$ to three places of decimals.

VIII. Solve—

$$x + y = a.$$

$$x^5 + y^5 = b.$$

IX. Rationalise the equation—

$$\sqrt{10} + \sqrt{x} + \sqrt{y} + \sqrt{z} = 0.$$

Your rational equation must not contain brackets.

114. To prove the truth of the Binomial Theorem for positive exponents, prove it for all exponents.

sum the series—

$$1 + \frac{1}{1.2} + \frac{1}{1.2.3.4} + \text{etc., ad inf.}$$

XII. SY is drawn from the focus S of a parabola perpendicular to the tangent at P any point on the curve. Required the locus of the centre of the circle circumscribing triangle SPY.

XIII. If from an external point O a pair of tangents OQ and OQ' be drawn to an ellipse and CO be joined meeting the chord QQ' in V and the ellipse in P; then—

QQ' will be bisected in V.

The tangent at P will be parallel to QQ'.

CP will be a mean proportional between CV and CO.

XIV. If the line CP, joining the centre C of a hyperbola and P, a point on the curve, be produced to meet the circle of curvature at P, in H; then—

$$CP = 2 CD^2.$$

PURE MATHEMATICS.

I. To bisect a triangle by a line parallel to one of its sides.

Let ABC be the triangle, bisect BC at D and from D, draw DE at right angles to BC and make DE equal to DC and join CE.

Take CF in CB, equal to CE and through F, draw FP, parallel to CA, meeting BA at P and through P, draw PQ parallel to BC meeting CA at Q. PQ bisects the triangle.

Triangle APQ : triangle ABC :: PQ² : BC² :: CF² : BC² :: CE² : BC² :: 2CD² : BC² :: 2CD² : 4CD² :: 1 : 2 ∴ triangle APQ = $\frac{1}{2}$ the triangle ABC.

(i. e.) PQ bisects the triangle ABC.

Q. E. F.

III. To bisect a triangle by a line drawn from a point in one of its sides.

Let ABC be the triangle and P, a point in BC. Bisect BC at D and join AD. Find a fourth proportional to CP, CA, and CD and in CA cut off a part CQ equal to it. Join PQ. PQ is the line required.

Now because CQ is a fourth proportional to CP, CA and CD, the ratio of CP to CA is equal to that of CD to CQ.

It is obvious that the triangles ACD and PCQ, have the angle at C common to them, and they have also the sides about the common angle, reciprocally proportional. Therefore the triangles CAD and PCQ are equal to one another. But the triangle CAD is half of the triangle ABC. Therefore also the triangle CPQ is half of ABC (i. e.) PQ bisects the triangle ABC.

Q. E. F.

1883.]

Pure Mathematics.

To construct a triangle, given the base, the vertex angle, and the rectangle contained by the sides.

On AB, the given base, describe a segment of a circle containing an angle equal to the given angle. Complete the circle and find the centre of it. Let R be the given rectangle. Find a fourth proportional to the diameter of the circle and the sides of the given rectangle, and from the point A, draw AQ at right angles to AB and make it equal to the fourth proportional. Through Q, draw QC, parallel to AB cutting the circle at the points C₁ and C. The triangles AC₁B and ACB satisfy the given conditions.

Join AC and CB. Drop the perpendicular CG on AB. Let COD be a diameter of the circle ACB.

Now by proposition C of Book VI the rectangle GC . CD = the rectangle AC . CB.

But the rectangle CG . CD = the rectangle AQ . CD = the rectangle R. Therefore the rectangle AC . CB is equal to the given rectangle; and the angle ACB = the given angle and AB is the given base.

Q. E. F.

$$V. \left\{ \sqrt{1 + \sin x} - 1 \right\} \left\{ \sqrt{1 - \sin x} + 1 \right\} = \tan \frac{a}{2} \sin x$$

$$\therefore \left(\sin \frac{x}{2} + \cos \frac{x}{2} - 1 \right) \left(\sin \frac{x}{2} - \cos \frac{x}{2} + 1 \right) = \tan \frac{a}{2} \cdot \sin x$$

$$(i. e.) \sin^2 \frac{x}{2} - \cos^2 \frac{x}{2} + 2 \cos \frac{x}{2} - 1 = \tan \frac{a}{2} \cdot \sin x.$$

$$(i. e.) 2 \cos \frac{x}{2} (1 - \cos \frac{x}{2}) = \tan \frac{a}{2} \cdot \sin x.$$

$$\therefore 2 \cos \frac{x}{2} \cdot 2 \sin^2 \frac{x}{4} = \tan \frac{a}{2} \cdot 2 \cos \frac{x}{2} \cdot \sin \frac{x}{2}$$

$$\therefore \cos \frac{x}{2} = 0 \therefore x = 4n\pi + \pi.$$

$$\text{Again, } 2 \sin^2 \frac{x}{4} = 2 \sin \frac{x}{4} \cos \frac{x}{4} \cdot \tan \frac{a}{2}.$$

$$\therefore \tan \frac{x}{4} = \tan \frac{a}{2} \therefore x = 4n\pi + 2a.$$

XII. Let S be the focus, A the vertex, XM the directrix, and PT, a tangent of a parabola.

To prove that the locus of the foot of the perpendicular from S, on PT, a tangent, is a parabola.

Draw PM parallel to the axis, meeting the directrix in M and, join SM cutting PT in the point Y.

Join AY. From the point P, draw PN perpendicular to the axis.

In the two triangles, SPY and MPY, the two sides SY and PY are equal to the two sides MP, PY of the other triangle and the contained angle SPY of the one is also equal to the contained angle MPY of the other, the base SY = the base MP and the angle PYM = the angle SYP.

Therefore by (I. 14) each of the angles SYP and MYP is equal to a right angle.

(i. e.) SY is perpendicular to PT.

It is obvious that TY = PY and AT = AN.

Therefore AY is parallel to PN.

Since SYP is a right angled triangle, the centre of its circumscribing circle, must be the middle point of SP. Let it be Q and join RY.

∴ RQ is the middle point of SP and SYP is a right angle, SR = RY = RP.

Now SR = RP and TY = YP, therefore RY is parallel to the axis and hence perpendicular to AY.

∴ SR = RY, the point R is equally distant from S and AY. But the point S and the straight line AY are fixed.

Therefore the locus of the point R is a parabola whose focus is S, and directrix, AY. It is a parabola similar to the given parabola, having its latus rectum equal to half that of the first one.

DYNAMICS.

See February Record, pages 59, 60.

VI. Vide Parkinson's Mechanics, Arts. 68 and 69.

Problem.

By the question, the numerical value of an acceleration, referred to one foot and one second, is f (i. e.) the space which would be described in one second, with the velocity generated in one second is f feet. Hence the space which would be described in r seconds with the velocity generated in r seconds, is $r \cdot f \cdot r = f \cdot r^2$ feet. But since the unit of space is σ , the numerical value of the acceleration becomes $\frac{f \cdot r^2}{\sigma}$. But ϕ represents this acceleration therefore $\phi = f \cdot \frac{r^2}{\sigma}$.

VII. Vide Parkinson's Mechanics, Arts. 85 and 88.

Problem.

Let β be the inclination of the desk to the horizon, θ the angle of projection and a , the length of an edge of the square desk. By the question $\sin \beta = \frac{\sqrt{3}-1}{9}$ and $v = \frac{1}{9}$. Let ABCD be the square surface of the desk inclined at an angle, say β , to the horizon, the edges AB and CD being horizontal.

2 ag (v = velocity of projection.)

1883.]

Dynamics.

The particle is projected from the point A and C. The path of the projectile on the desk is a parabola.

The accelerating force of gravity along the desk, parallel to the desk, is $g \sin \beta = g \frac{\sqrt{3}-1}{9}$.

Horizontal velocity parallel to AB is $v \cos \theta$ and velocity parallel to AD and perpendicular to AB is $v \sin \theta$.

Let t be the time to reach the point C.

Then $a = v \cos \theta \cdot t$ (1)

and $a = v \sin \theta \cdot t - \frac{1}{2} g \sin \beta \cdot t^2$ (2)

Substituting the value of t in (2)

we get, $a = v \sin \theta \cdot \frac{a}{v \cos \theta} - \frac{1}{2} g \sin \beta \cdot \frac{a^2}{v^2 \cos^2 \theta}$

(i. e.) $a = a \tan \theta - \frac{g}{2} \cdot \frac{\sqrt{3}-1}{9} \cdot \frac{9a^2}{2ag} \cdot (1 + \tan^2 \theta)$

∴ $1 = \tan \theta - \frac{\sqrt{3}-1}{4} (1 + \tan^2 \theta)$

∴ $\frac{\sqrt{3}-1}{4} \cdot \tan^2 \theta - \tan \theta + \frac{\sqrt{3}(\sqrt{3}+1)}{4} = 0$

∴ $\tan \theta = \frac{1 + \sqrt{1 - \frac{\sqrt{3}}{2}}}{\frac{\sqrt{3}-1}{4} \cdot 2} = \frac{1 + \frac{1}{2} - \frac{\sqrt{3}}{2}}{\frac{\sqrt{3}-1}{2}} = \frac{\sqrt{3}(\sqrt{3}-1)}{\sqrt{3}-1} = \sqrt{3}$

∴ $\tan \theta = \tan 60^\circ$ ∴ $\theta = 60^\circ$.

VIII. Vide Parkinson's Mechanics, Arts. 56 and 57.

Problem.

Resolve the velocity u of either ball, parallel and perpendicular to the line of impact PEFQ. Let ABC be an isosceles triangle with base AB, at the extremities of which the balls start, let u be the velocity of the balls before impact and EF, the line joining the centres of the balls when they collide. This line EF is parallel to AB, for AE = BF.

It is plain that the velocity perpendicular to the line of impact is not affected by the impact. Let GE, GF be the directions of motion after impact and v , velocity after impact.

Let v be the velocity after impact of the ball E.

Then $u \cdot \sin AEP = v \cdot \sin PER$

But the angle AEP = 30° and PER = 45° .

∴ $u \cdot \sin 30^\circ = v \cdot \sin 45^\circ$ ∴ $v = \frac{u}{\sqrt{2}}$

Similarly, the velocity of the ball

F, after impact = $\frac{u}{\sqrt{2}}$

modulus of elasticity and X , the momentum gained lost by the other, before the force of restitution if A represent the mass of either ball, we get

$$X = \frac{A^2(u \cos 30^\circ - u \cos BFE)}{2A}$$

$$= \frac{A}{2} \left\{ u \cdot \frac{\sqrt{3}}{2} + u \cdot \frac{\sqrt{3}}{2} \right\} = Au \cdot \frac{\sqrt{3}}{2}$$

and

$$Av \cos QER = Au \cos 30^\circ - (1 + e) X$$

$$(i.e.) A \cdot \frac{u}{\sqrt{2}} (-\cos 45^\circ) = Au \cos 30^\circ - (1 + e) X$$

$$\therefore \frac{Au}{\sqrt{2}} \cdot \frac{1}{\sqrt{2}} + Au \cdot \frac{\sqrt{3}}{2} = (1 + e) Au \cdot \frac{\sqrt{3}}{2}$$

$$\therefore \sqrt{3} + 1 = \sqrt{3} (1 + e)$$

$$\therefore e \sqrt{3} = 1 \therefore e = \frac{1}{\sqrt{3}}$$

That is, the modulus of elasticity is $\frac{1}{\sqrt{3}}$.

IX. Vide Parkinson's Mechanics, Arts. 105 and 106.

Problem.

Let P be the position of the particle after describing 150° round the focus, S , R , the pressure of the curve on the particle at that point, mg , the weight of the particle and $\frac{mv^2}{\rho}$ the centrifugal force at

Take a vertical parabola with focus S , vertex A and directrix MX . Let SL be the latus rectum, L being the point at which the particle is projected, and P , the point on the curve, distant 150° from SL . At the point P draw the ordinate PN , the normal PR and the vertical PM meeting the directrix in M , and let SY be the perpendicular from S on the tangent at P .

P , where v represents the velocity at the point P , and ρ , the radius of curvature at the point P .

The angle $PSN = 60^\circ$ and $SPR = 30^\circ$.

$$SP = PM = XN = 2AS, \quad SN = 2a - SP \cos 60^\circ.$$

$$\therefore 2a = SP(1 + \cos 60^\circ) \therefore SP = \frac{4a}{3}$$

If SY be drawn perpendicular to the tangent at P , we get

$$2\rho : 4SP :: SP : SY.$$

(Vide Drew's Conic Sections.)

$$\text{and } SY^2 = AS \cdot SP = a \cdot \frac{4a}{3}$$

$$\therefore SY = \frac{2a}{\sqrt{3}}$$

$$2\rho = \frac{4SP^2}{SY} = \frac{4 \cdot \frac{16a^2}{9}}{\frac{2a}{\sqrt{3}}} \cdot \sqrt{3} = \frac{32a^2}{3\sqrt{3}}$$

$$\therefore \rho = \frac{16a}{3\sqrt{3}}$$

1883.]

Appointments.

Velocity at L , the point of starting, is that due height $= 4a$.

$$\therefore \text{velocity at } L = \sqrt{8ag}.$$

Velocity at $P = v$.

$$\therefore v^2 = \sqrt{8ag} - 2g \cdot \frac{8P}{2} (SN = \frac{1}{2} SP).$$

$$= 8ag - \frac{4ag}{3} = \frac{20ag}{3}$$

Now resolving the forces at P , parallel to the normal at the point, we get $\frac{mv^2}{\rho} = mg \cos 30^\circ + R$.

$$\therefore R = \frac{mv^2}{\rho} - mg \cdot \frac{\sqrt{3}}{2} = \frac{m \cdot 20ag}{3 \cdot 16a} \cdot 3\sqrt{3} - mg \cdot \frac{\sqrt{3}}{2}$$

$$= mg \left\{ \frac{5\sqrt{3}}{4} - \frac{2\sqrt{3}}{4} \right\} = mg \cdot \frac{3\sqrt{3}}{4}$$

$$= \frac{3\sqrt{3}}{4} \times \text{weight of the particle.}$$

E. SEETHARAMA ROW, B. A.

APPOINTMENTS

Sanctioned by the Director of Public Instruction, during the month of February 1883.

LEAVE.

The Director has been pleased to grant six months leave on half pay to Mr. J. W. Armstrong, Deputy Inspector of Schools, Southern Range, Tanjore Circle, with effect from the 13th November last. This cancels the three months' privilege leave already granted to him.

APPOINTMENTS.

G. Venkatanarayana Chetti, Headmaster, Middle School, Palakonda, to be *Sub pro tem*, Headmaster, Normal School, Narsapur, during the absence of G. Dikshatulu Sastri, on other duty.
Asirvadam David, to be 3rd Assistant, and *Sub pro tem*, 2nd Assistant, Cuddapah High School.

K. V. Kartikeya Pillai, Acting Deputy Inspector of Schools, Chittoor East, to act as Deputy Inspector of Schools, Cuddalore Circle.

P Venkataramayya, Deputy Inspector of Schools, Cuddalore Circle, to act as Deputy Inspector of Schools, Chittoor East.

S. V. Melagiri Rau, 3rd Assistant, to act as 2nd Assistant, Kurnool High School, with effect from the 14th October last.

P. Vardachari, to act as 3rd Assistant, Kurnool High School, during the absence of Melagiri Rau, on other duty, or until further orders.

M. Rangaswami Aiyangar, 7th Assistant, to act as 4th Assistant, Chittoor High School, vice Saundraraja Aiyangar, on other duty, with effect from 22nd January 1883.

A. Subba Rau, B. A., 2nd Assistant, to act as 1st Assistant, Salem College, with effect from 1st February 1883.

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Aiyar, 3rd Assistant, and Acting 1st Assistant, to act as
College, with effect from 1st February 1883.

Au, B. A., 2nd Assistant, Chittoor High School, and Acting Assis-
Mangalore College, to act as 1st Assistant, Cuddapah High School.

Shagiri Rau, B. A., to be *Sub pro tem*, 4th Assistant, Berhampore College,
Subrahmanyam on other duty, or until further orders.

Mr. J. W. Armstrong, Deputy Inspector of Schools, Southern Range, Tanjore,
leave) to be Deputy Inspector of Schools, Northern Range, Tinnevely.

A Subba Rau, B. A., 2nd Assistant and Acting 1st Assistant, Salem College, to
be Deputy Inspector of Schools, Southern Range, Tanjore, 6th Class and to act
as Deputy Inspector of Schools, Northern Range, Tinnevely, 3rd Class, during
Mr. Armstrong's absence on leave, or until further orders, to join immediately.

T. Amaladas Pillai, B. A., Deputy Inspector of Schools, Northern Range, Tin-
nevely, to be 2nd Assistant, Salem College, *vice* A. Subba Rau, to join on being
relieved.

S. Akshayalinga Mudali, B. A., 1st Assistant, High School, Saidapet, to act as
Deputy Inspector of Schools, Eastern Range, Tinnevely, (3rd Class).

R. Chakravarti Aiyangar, B. A., 2nd Assistant, Palghat High School, and
Acting 7th Assistant, Kumbakonam College, to act as 1st Assistant, Salem College,
during the employment of S. Ramadas Aiyar, on other duty, or until further
orders.

K. Dakshnamurti Sastri, Deputy Inspector of Schools, Eastern Range, Coca-
nada Circle, 3rd Class, to be Deputy Inspector of Schools, 2nd Class, *vice*
A. Kachapevarayyar, retired from 9th October 1882.

C. H. Kotayya Chetti, Deputy Inspector of Schools, Ongole Range, 4th Class,
to be Deputy Inspector of Schools, 3rd Class.

P. Venkataramayya, Deputy Inspector of Schools, Cuddalore Circle, 5th Class,
to be Deputy Inspector of Schools, 4th Class.

S. Viraraghava Aiyangar, Deputy Inspector of Schools, Hosur Circle, 6th
Class, to be Deputy Inspector of Schools, 5th Class.

S. Akshayalinga Mudali, 1st Assistant, High School, Saidapet, and Acting
Deputy Inspector of Schools, Tinnevely District, to be Deputy Inspector of
Schools, Guntur Range, but to continue to act as Deputy Inspector of Schools,
Eastern Range, Tinnevely.

R. Chakravarti Aiyangar, B. A., 2nd Assistant, Palghat High School, and
Acting 1st Assistant, Salem College, to be 1st Assistant, Saidapet High School,
but to continue to act at Salem.

Mr. C. W. Burroughs, B. A., LL. D., Headmaster, Cuddapah High School,
to act as Headmaster, Cuddalore College, during Mr. Elliot's employment on other
duty, or until further orders.

S. Ramadas Aiyar, B. A., 1st Assistant, Salem College, and Acting Headmaster
Cuddalore College, to act as Headmaster Cuddapah High School.

T. B. Sripathi Rau, B. A., Headmaster, Middle School, Kulitalai, to be 2nd
Assistant, Palghat High School.

K. E. Krishnama Chari, F. A., 2nd Assistant, Trivelpur Middle School, to be
Headmaster, Kulitalai, Middle School.

M. Chidambara Sastri, 5th Assistant, Madura College, to be 2nd Assistant,
Tiruvalur Middle School, on Rupees 35.

T. J. Venkatachala Aiyar, B. A., 6th Assistant, Mangalore College, and
Acting 2nd Assistant, Palghat High School, to be *Sub pro tem*, 4th Assistant,
Madura College, on Rupees 60 (New Scale).

S. Sabapathi Mudali, 4th Assistant, Madura College, to be *Sub pro tem*, 5th
Assistant in the same College, on Rupees 50.

H. B. GRIGG,

Director of Public Instruction.

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"Gladly would he learn and gladly teach."

THE
Madras Educational Record.

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}

NOTES ON PSYCHOLOGY (WITH SPECIAL REFERENCE
TO BAIN.)

WHAT IS PSYCHOLOGY.—"Psychology is a part of the science of life or biology, which differs from the other branches of that science merely in so far as it deals with the psychical, instead of the physical, phenomena of life. As there is an anatomy of the body, so there is an anatomy of the mind; the psychologist dissects mental phenomena into elementary states of consciousness, as the anatomist resolves limbs into tissues, and tissues into cells. The one traces the development of complex organs from simple rudiments; the other follows the building up of complex conceptions out of simpler constituents of thought. As the physiologist inquires into the way in which the so-called 'functions' of the body are performed, so the psychologist studies the so-called 'faculties' of the mind. Even a cursory attention to the works and ways of the lower animals suggests a comparative anatomy and physiology of the mind; and the doctrine of evolution presses for application as much in one field as the other."—*Huxley*.

Herbert Spencer in his *Principles of Psychology* very clearly puts forth the scope of Psychology. He says that there is a fundamental connection between nervous changes and psychical states, and therefore there naturally arises a confusion between the *phenomena which underlie Psychology* and the *phenomena of Psychology* itself. "So long as we state facts of which all the terms lie within the organism, our facts are morphological or physiological and in no degree psychological. Even though the relation with which we are dealing, is that between a nervous change and a feeling, it is still not a psychological relation so long as the feeling is regarded merely as connected with the nervous change, and not as connected with some existence outside the organism." "For that which distinguishes Psychology from the sciences on which it rests, is, that each of its propositions takes account both of the connected internal phenomena and of the connected external phenomena to which they refer." "A psychological proposition is necessarily compounded of two propositions, of which one concerns the subject and the other concerns the object; and cannot be expressed without the four terms which these two propositions imply. Suppose that A and B are two related manifestations in the environment—say, the colour and taste of a fruit: then so long as we contemplate their relation by itself, or as associated with other external phenomena, we are occupied with a portion of physical science. Now suppose that *a* and *b* are the sensations produced in the organism by this peculiar light

which the fruit reflects, and by the chemical action of its juice on the palate; then so long as we study the action of the light on the retina and optic centres, and consider how the juice sets up in other centres a nervous change known as sweetness, we are occupied with facts belonging to the sciences of Physiology and Aetho-physiology. But we pass into the domain of Psychology the moment we inquire how there comes to exist within the organism a relation between *a* and *b*, that is, some way or other corresponds to the relation between *A* and *B*. Psychology is exclusively concerned with this connection between (*A B*) and (*a b*)—has to investigate its nature, its origin, its meaning, &c.

METHODS OF PSYCHOLOGY.—Psychologists have always followed two methods in this investigation of mental phenomena. One is called the Subjective and the other the Objective method. The Subjective method is also known as the Introspective method. *Introspection* is the turning of the Mind round on itself, so as to recognise its own states. This faculty is no other than Locke's Reflection or Kant's Internal sense. In every mental state there is an introspective element present. But several objections to this method have been raised by Psychologists, who chiefly follow the Objective method. Comte entirely rejected the Introspective method on the ground that mental states are evanescent. The objections are these (*a*). *It is subjective.*—Introspection can only give me my own experience and none others. Out of the facts given me by my own consciousness, I can never construct a comparative Psychology; (*b*). *Introspection is confined only to adults,* and the experiences of savages and children are entirely excluded. The Psychologist is obliged to take for granted that the experiences of a few intelligent adults are not much different from the experiences of others of whose mental states he has no idea whatever; (*c*). *Introspection transforms the very objects which we observe.* A person, who is angry, as soon as he begins to be conscious of it as a fact to be observed, finds that the emotional condition changes immediately to an intellectual state; (*d*). *Our mental states are always changing;* for consciousness after all is only "maintained by reason of a constant change in the elements of mental life." Hamilton brings the difficulties of Psychological observation under seven heads, for which we refer to his *Metaphysics*, Chap. XIX, page 374, Vol. I.

Psychologists, who follow the Objective or as it is called the Biological method look upon mental phenomena as a class of physiological phenomena, though they take care to point out the difference between the two, as the quotation above from Spencer would shew. Mind by them is studied through the organs of the body—brain and nerves. "The Brain," says Bain "is the principal, although not the sole organ of mind; and its leading functions are mental." This method has certainly its advantages—(*a*) we are able to construct a Comparative Psychology; (*b*) Objective facts are far more accurate and comprehensive than Subjective facts. Those who entirely ignore the Objective method, have the following statement to make:—"That the mind, in its lower energies and affections, is immediately dependent on the conditions of the nervous system, and that, in general, the development of the brain in the different species of animals is

* He gives five reasons. See Mental Science, Chapter II.

- (1) The physical pain of excessive mental excitement is localized in the head.
- (2) Injury or disease of the brain affects the mental powers.
- (3) The products of nervous waste are more abundant after mental excitement.
- (4) There is a general connection between size of brain and mental energy.
- (5) Brain and nerves are indispensable to the mental functions.

correspondent to their intelligence,—these are conclusions established upon an induction too extensive and too certain to admit of doubt. But when we attempt to proceed a step farther, and to connect the mind or its faculties with particular parts of the nervous system, we find ourselves at once checked. Observation and experiment seem to fail; they afford only obscure and varying reports; and if, in this uncertainty, we hazard a conclusion, this is only a theory established upon some arbitrary hypothesis in which fictions stand in place of facts. The uncertainty of such conclusions is shown by the unexampled diversity of opinion that has always reigned among those who, discontented with a prudent ignorance, have attempted to explain the phenomena of mind by the phenomena of organisation."

Let it be remembered, however, that the science of Psychology would not have attained its present prominence if only Psychologists ignored any one of these methods. The method which is now followed by them is really double. This method consists "in studying psychological phenomena *subjectively by means of consciousness, memory and reasoning, and also objectively by means of the facts, signs, opinions, and actions which interpret them.*"

(To be continued.)

THE ROORKEE COLLEGE.—Colonel J. G. Medley, R.E., who presided at a recent prize distribution at Roorkee, made the following remarks in the course of his speech to the students:—

With the warm interest that I have ever retained for this College, I must own to having heard with regret of the decision of Government to seriously reduce the number of guaranteed appointments in the P. W. Department to be given annually to this College, and the more recent decision to give a preference to one class of students over others. I regret this, because I fear that an injury may thereby be inadvertently done to the cause of Anglo-Indian education generally, and to the interests of a class which the Government has only lately expressed its anxious desire to befriend. For, as a matter-of-fact, the standard of examination for entrance into the higher class of this College has been virtually the standard to which all the best and most promising pupils of the Anglo-Indian schools have now for some years striven to attain, and which has virtually re-acted with great benefit on those schools themselves. Any falling off therefore in the competition for admission to the higher classes of this College re-acts unfavourably on all the schools which supply those classes. It cannot, however, be expected that Government is bound to find employment for more men than are required to do its work. But I hope the time is coming—nay, that it has already begun—When Roorkee Engineers will no longer have to depend solely on Government for employment, but will find it without difficulty from public companies, municipalities, contractors, or even private individuals. Undoubtedly the claims of native engineer students are entitled to every possible consideration here. The fact of their passing the high tests here laid down in an altogether foreign language is most creditable to those who do pass them. No doubt, by lowering the tests or by diminishing competition, you may increase your numbers. I would only point out that in the interests of the students themselves, it is not desirable to revert to the state of things that obtained 20 years ago, when a Roorkee certificate was comparatively valueless, because it implied a comparatively low qualification.

The best friends of native education in India, have always felt the importance of giving as practical a bent as possible to the training of native

students generally. In this respect this College has always played an important part, for there is no more practical subject than engineering, and though it is difficult to teach more than the theory of the subject at a College, the theoretical teaching here has always been pursued with an eye to what is strictly practical, and that the result has been successful, I think the records of the College will show.

Since its establishment in 1848, more than 1,200 native students have been trained within its walls, while the wants of the country generally in men so trained are only met by a steady out-turn of some 30 men annually. And it is rare to find a passed Roorkee student out of employment. That, I think, is a practical proof that the men as a rule do their work fairly well. I do not say that they are altogether satisfactory. The artizan classes of the population whom the College would prefer to see in its lower classes, are but scantily represented; they have as yet scarcely begun to appreciate the advantages of a technical training in the principles of their own calling or of combining a knowledge of theory with skilful practice, although a beginning has at least been made. Meanwhile the young men who crowd the College classes of the lower subordinate class receive here careful instruction in such practical subjects as surveying, drawing, and estimating, and many of them add to this subsequently a good knowledge of executive work derived from actual experience.

UNIVERSITY OF MADRAS.

ANNUAL MEETING OF THE SENATE.

The annual meeting of the Senate was held in the Senate House, at 5-30 P.M. yesterday, 6th April. Present:—Sir Chas. A. Turner (Vice Chancellor) Dr. D. Duncan (Registrar), Mr. Justice Muthusawmi Iyer, the Rt. Rev. J. Colgan, Mr. N. Pogson, the Rev. E. Sell, Mr. D. Sinclair, the Rev. Dr. J. Hay, Mr. P. Vijayaranga Mudaliyar, the Rev. C. E. Kennett, the Rev. W. T. Sathianadhan, the Rev. G. Milne Rae, the Rev. C. Cooper, Mr. J. T. Fowler, Dr. W. H. Wilson, Mr. R. Balajee Rao, Mr. P. Chentsal Rao, Mr. P. Ranganatha Mudaliyar, Rai Bahadur T. Gopala Rau, Dewan Bahadur R. Raghunatha Rau, Mr. M. Seshagiri Sastrulu, Mr. V. Bashyam Iyengar, Mr. V. Krishnamachariar, Mir Ansaruddin Sahib Bahadur, Mr. C. Michio Smith, Dr. J. Keess, Dr. T. K. Rogers, Dr. W. Macrae, Dr. A. Porter, and the Hon. T. Rama Rau. It was proposed by the Right Rev. J. Colgan, and seconded by Mr. R. Balajee Rao, and carried unanimously, that the report of the Syndicate for 1882-83, be adopted. The following is a summary of the report:—

Matriculation Examination.—Four thousand six hundred and eighty-six candidates were registered for this examination, and four thousand six hundred and thirty-four were examined, of whom one thousand six hundred and thirty-four passed—Two hundred and eight in the first class, and one thousand four hundred and twenty-six in the second.

First Examination in Arts.—Seven hundred and ninety-seven candidates were registered for this examination, and seven hundred and eighty-three were examined, of whom two hundred and seventy-nine passed—Thirty-one in the first class, and two hundred and forty-eight in the second.

B. A. Degree Examination.—Two hundred and twenty-seven candidates were registered for this examination, and two hundred and twenty-one were examined, of whom one hundred and twenty passed—Four in the first class, forty-six in the second, and seventy in the third.

M. A. Degree Examination.—Seven candidates were registered for this examination, and five were examined, of whom two passed—Both in the third class.

B. L. Degree Examination.—Sixty-eight candidates were registered and examined for this examination, of whom eight passed—One in the first class, and seven in the third.

Medicine L. M. S. Examination.—Six candidates were registered for this examination, and five were examined, of whom two passed in the second class.

Second L. M. S. Examination.—Nine candidates were registered and examined for this examination, of whom four passed in the second class.

Preliminary Scientific Examination.—Eight candidates were registered and examined for this examination, of whom seven passed.

First M. B. & C. M. Examination.—Five candidates were registered and examined for this examination, of whom four passed.

M. D. Degree Examination.—One candidate was registered, and appeared for this examination, but failed to pass.

Civil Engineering B. C. E. Degree Examination.—Two candidates were registered, for this examination, one was examined, and failed.

It was next proposed, seconded, and carried unanimously, that the following gentlemen comprise the Faculty of Arts, viz., Mr. H. B. Grigg (President), Mr. J. T. Fowler, the Right Rev. R. Caldwell, the Hon. D. F. Carmichael, H. H. the Maharaja of Travancore, the Right Rev. Dr. F. Gell, Mr. E. Thompson, Raja Sir T. Madhava Rau, Mr. N. R. Pogson, Mr. W. A. Porter, the Rev. W. Leeming, Rai Bahadur T. Gopala Rau, the Rev. W. Miller, Mr. Basil Lovery, Mr. J. Grose, the Hon. V. Rama Iyengar, the Hon. A. Seshayya Sastryar, the Hon. G. N. Gajapathi Rau, G. L. Narsing Rau, P. Ranganatha Moodelliar, the Ven. Archdeacon Warlow, V. Krishnama Chariar, Mr. W. S. Foster, the Rev. T. Foulkes, Mr. H. Wigram, Mr. Gustav Oppert, the Rev. E. Sell, the Hon. Mir Humayun Jah Bahadur, Mr. H. E. Stokes, Mr. Jolin Bradshaw, Mr. D. Sinclair, Mr. P. Chentsal Row, Dr. H. King, Dr. D. Duncan, the Rev. H. Bower, the Rev. G. M. Rae, Mr. Justice Muthusawmy Iyer, P. Srinivasa Row, Colonel J. H. M. Shaw-Stewart, the Hon. Sir C. A. Turner, the Rt. Rev. E. Sargent, Mr. J. Cook, Y. Venkataramaya Sastryar, A. Sankara Iyer, Mr. E. P. Metcalfe, Dr. W. H. Wilson, V. Bashyam Iyengar, Dr. W. R. Cornish, Dr. G. Bidie, Mr. P. Macfadyen, Col. the Hon. R. H. Sanky, the Rt. Rev. J. Colgan, Mr. W. Logan, the Rev. A. Jean, Mr. C. D. Maclean, Mr. H. H. Shephard, Dr. W. Macrae, Dr. T. K. Rogers, M. Seshagiri Sastrulu, Mr. R. F. Chisholm, Mr. J. W. Handley, Mr. R. B. Michell, Lieut. H. D. Love, H. E. Sir F. S. Roberts, Mana Vikrama Maharaja Bahadur, the Zamorin of Calicut, A. Gajapati Row, Maharaja of Vizianagram, Abdul Ghari Khan Bahadur, the Rev. C. Cooper, Mr. H. W. Bliss, Mr. A. T. Arundel, the Rev. C. E. Kennett, Mr. P. Viziaranga Moodelliar, Dewan Bahadur R. Raghunatha Row, Mr. W. P. Robertson, V. K. Tampuran Kerala Varma of Travancore, Mr. G. K. Winter, the Rev. W. T. Sathianadhan, Dr. A. Porter, the Rev. John Hay, Mr. C. Michio Smith, the Rt. Rev. J. H. Speechley, Mr. John Ross, and Mr. A. F. Sealy.

Proposed, seconded, and carried unanimously, that the following gentlemen comprise the Faculty of Law, viz., Mr. Justice Muthusawmi Iyer, (President), Mr. W. A. Porter, Mr. Justice Kernan, Mr. Sadasiva Pillay, the Hon. T. Rama Row, P. Srinivasa Row, Mr. Justice Kindersley, the Hon. P. O'Sullivan, R. Balajee Rau, Sir C. A. Turner, Mr. Michael Gould, A. L. Venkataramana Pant, V. Bashyam Iyengar, Mr. J. W. Handley, Mr. H. H. Shephard, Mr. R. B. Michell, Mr. H. B. Grigg, Mir Ansaruddin Sahib Bahadur, Mr. H. W. Bliss, Dewan Bahadur and R. Raghunatha Rau.

Proposed, seconded, and carried unanimously, that the following gentlemen comprise the Faculty of Medicine, viz., Dr. W. R. Cornish (President,) Dr. M. C. Furnell, Dr. J. Shortt, Mohidin Sheriff Khan Bahadur, Dr. W. E. Dhanakoti Raju, Dr. H. King, Dr. G. Bidie, Dr. W. Macrae, Dr. T. K. Rogers, Mr. H. B. Grigg, Dr. J. Keess and Dr. W. A. Porter.

Proposed, seconded, and carried unanimously, that the following gentlemen comprise the Faculty of Engineering, viz., the Hon. Colonel R. H. Sankey (President), Mr. W. A. Porter, Mr. R. F. Chisholm, Mr. N. R. Pogson, Col. J. Mullins, Col. J. H. M. Shaw-Stewart, Lieut. H. D. Love, Mr. H. B. Grigg, Mr. W. R. Robertson, Col. J. O. Hasted, and Mr. C. Michie Smith.

The following gentlemen were elected as Syndics in Arts, Law, Medicine, and Engineering, viz.:

In Arts.—Dr. D. Duncan, the Rev. W. Miller, Mr. Justice Muthusawmy Iyer, Mr. H. B. Grigg, and Mr. D. Sinclair.

In Law.—V. Bashyam Iyengar.

In Medicine.—Dr. J. Keess.

In Civil Engineering.—Lieut. H. D. Love.

Dr. Wilson next proposed that "the Syndicate recommend that a Committee be appointed to frame rules of procedure and debate for the conduct of business at the meetings of the Senate." He said that this matter had been pending for some time, and it was notorious that of late the debates of the Senate were not what they ought to be; it was necessary that some definite rules were laid down to control discussions. Matters were discussed lately, he said, which ought not to have been discussed, and if they had rules to guide them, those matters would not have been discussed at all.

Mr. Justice Muthusawmy Iyer seconded the proposition, which was carried unanimously. It was resolved that the following gentlemen constitute the Committee:—The Vice-Chancellor Dr. D. Duncan, Mr. R. B. Michell, R. Ragunatha Rau Dewan Bahadur, V. Bashyam Iyengar, R. Balajee Rau, Mr. A. T. Arundel, Dr. W. Macrae, Lieut. H. D. Love, P. Ranganatha Moodelly, the Rev. G. M. Rae, and Dr. W. H. Wilson.—*Madras Mail.*

CORRESPONDENCE.

TO THE EDITOR.

Madras Educational Record.

SIR,—As the Examination period will soon be coming round again, will you allow me to call the attention of those who set the papers to the danger there is of making the questions too general in their character.

I noticed last year—especially in the Matriculation papers—that some parts of the English Text had been absolutely ignored. This is not fair on the plodding boys who have worked well at their Text, but who have not the ready wit to grasp and turn to account ideas somewhat wide of their study.

I have just been talking to a student whose general knowledge of English is moderately good: he tells me that he did not take the trouble to get either the English or Tamil Texts, and yet he passed.

So long as we do have Texts appointed (though it might be well to abandon them) the papers set ought to be to the point, and not general English or general knowledge.

I am, Sir,

Yours, &c.,

A TEACHER.

TO THE EDITOR,

Madras Educational Record.

SIR,—In almost all the best English Grammars that I have read, the authors, in defining the three kinds of sentences, seem to me to lay down rules so arbitrarily that you will not, I hope, object to insert this unavoidably long and entirely technical letter in an early number of your widely-read Journal. They profess to draw their rules from logical analysis, and yet they make more distinction between logical and grammatical analysis than is absolutely necessary. I purpose to point out in this letter to what extent this distinction may be avoided in order to bring grammatical analysis more in harmony with sense.

Every one of the authors I refer to, in substance recognises the following plain rules of logic:—

A sentence is an assemblage of at least two words conveying a complete thought or sense.

A simple sentence is one which conveys a single complete thought.

A complex sentence is one which conveys, as a whole, one single complete thought, but which may very roughly be defined as containing only one principal thought, and at least one subordinate thought expressed by what is called a dependent sentence or clause.

A compound sentence is one which contains at least two principal thoughts, co-ordinate with each other. A compound sentence may contain one or more complex sentences.

Now with regard to the subject of a sentence, I have to mention that though Professor Bain (see his Higher English Grammar, Edition of 1879, p. 281) does not absolutely lay down the rule that two nominatives connected by the conjunction "and" do not form one single subject of a simple sentence, still he maintains that such sentences as

Hannibal and Cæsar were great Generals, (Bain, pp. 100 and 280), John and William are eleven years old,

He is master of the English, French and German languages, are contracted compound sentences, i. e., that there is no compound subject made up of two nominatives connected by the conjunction "and." Now, theoretically I have no doubt Professor Bain is right, but I maintain, with Mr. C. P. Mason (see his very excellent Grammar, 22nd Edition, note on p. 150,) that we have no right to change the phraseology of a given predication in order to reconcile a logical theory, however correct. Why, for example, should we say that the first sentence is compound, because it is equal to

"Hannibal was a great General"

and "Cæsar was a great General" ?

Simply, one predication is made of two persons taken together, just as though the expression were

These two persons were great Generals.

Nobody thinks of calling the last sentence compound, because it is equal to

This person was a great General,

and the other person was a great General.

Bain correctly says that such sentences as,

They are husband and wife, (p. 100)

cannot be resolved into two affirmations, and that therefore they are simple sentences. Similarly

Put it under lock and key, (p. 100)

They stand between you and me, (p. 100)

Two and two is four, (p. 100)

he regards as simple sentences. But if Professor Bain is a little arbitrary in calling

Hannibal and Cæsar were great Generals, a compound sentence, Mr. Mason, is not much less so when he affirms uncompromisingly, that two substantives connected by the conjunction "and" always form one compound subject of a simple sentence. Now this view is clearly arbitrary, and hardly calls for any other refutation beyond that in his own grammar, in that part of it which treats of contracted sentences. (See p. 164).

Again we are told that a simple sentence contains, besides the subject, one finite verb. But in such sentences as

He corrected and struck out altogether 28 passages,
Three hundred men in all were killed and wounded,
no grammarian that I am acquainted with, appears to take notice of what becomes of the rule that a simple sentence contains one finite verb? It would be nonsense to call them compound, and to resolve them into

He corrected 28 passages
and he struck out 28 passages.
300 men were killed
and 300 men were wounded.

Professor Bain says:—

A complex sentence, while containing one principal subject and one principal predicate, has two or more finite verbs, (p. 263).

Later on he repeats himself in almost the same words.

A complex sentence, while consisting of one principal subject and predicate, contains two or more finite verbs, (p. 274).

Morell (analysis of sentences, Edition of 1873) says almost the same thing.

A sentence is termed complex when, with only one principal subject and predicate, it contains two or more finite verbs.

Now, if by the expressions,

while containing—Predication

while consisting—Predication

with only—Predication

be meant, what I hope they do not mean, "in addition to," it follows, according to Bain and Morell, that there must in every complex sentence be at least two finite verbs. But a good many examples they give consist of two finite verbs. The very best answers they cite to illustrate the definitions contain two finite verbs.

The event happened as it was foretold (B).

I saw that something was wrong (B).

No one can say how the thing happened (B).

If you go, I shall soon follow (Mo).

He drove the horse which I bought yesterday (Mo).

I am willing, indeed anxious, to believe that the meaning of the definition given by Bain and Morell is not "in addition to," for in practice Morell everywhere, and Bain almost everywhere, implies that a complex sentence contains at least two finite verbs. Mr. Mason means the same thing exactly, but his definition leaves no doubt of his meaning. He says:—A complex sentence is one which, besides a principal subject and predicate, contains one or more subordinate clauses which have subjects and predicates of their own (p. 154). This may very roughly be paraphrased, or rather improved, into

A complex sentence contains only one principal thought and at least one subordinate thought.

But rough definition although this is, it is, I venture to think, a safer guide than to be told that "a complex sentence contains only one principal clause and one or more subordinate clauses." For the last definition has led almost every one to imagine that such sentences as

We were told that the messenger had arrived, and had seen the General

are complex, because the principal clause is only one, and (as allowed) the subordinate clause more than one, Mason must admit that they are complex. But Professor Bain unconsciously says what is right, namely, "that the one quoted, which he discusses, is compound. The essential thing to see is, not how many principal and subordinate clauses are there, but how many principal and subordinate thoughts. It is evident that there is not "only one" principal thought, but two, and so the sentence is compound. Now if this correct reasoning be employed, as it is exceedingly likely that it will be employed, by a European Examiner who knows his logic, but has forgotten his school grammars, I can well imagine his wonder at the uniformly wrong answers which the candidates have written, because they had long been taught to reason on wrong premises, or to speak more mildly, on premises which the Examiner in effect does not himself employ. For if

"He is industrious and clever"

be a compound sentence.

'We were told that the messenger had arrived, and had seen the General.' (Bain, p. 274).

'He heard that his brother had lost three bank notes, and had informed the Police to that effect' are also each a compound sentence. Each of the two sentences contains two principal thoughts, as much as the first does. Only, the first is made up of two simple sentences, while the others are each made up of two complex sentences. But that, surely, is no reason why each of the two sentences is not compound. In the beginning of this letter we have distinctly said that a compound sentence may contain one or more complex sentences, a fact which all grammarians acknowledge.

In the points I have raised in the above letter, you will see that I have generally been able to adhere to rules of logic, offering a sort of compromise between grammatical and logical analysis. It is of course impossible in every case to explain the former by the rules of the latter.

I wanted to very briefly touch upon two or three more points dealing with the same subject—grammatical analysis as connected with logical,—but I find that I have already trespassed very much upon your space.

RATANJI NAVROJI

SURAT, April 15th, 1883.

MADRAS CHRISTIAN COLLEGE.

DISTRIBUTION OF PRIZES.

The Hon. H. S. Thomas distributed the prizes to the students of the above Institution, 11th April. Among those present were Sir Chas. A. Turner, Dr. D. Duncan, Mr. Justice Muthusawmy Iyer, Mr. J. T. Fowler, Mr. C. A. Ainslie, Dr. W. Macrae, Mr. P. Chentsal Rau, Mr. Vijjarunga Moodelliar, Mr. D. Sinclair, the Rev. W. A. Liston, the Rev. Dr. Jewett, the Rev. Mr. Andrews, Mrs. Andrews, Miss Keely, Mr. Soudon, Mr. C. M. Barrow, and the Rev. Mr. Rajahgopal. Proceedings commenced by the Rev. Mr. Liston offering a prayer. The Rev. Mr. Rae (Acting Principal) then read the report:—

In giving some account of the history of this College for the past year, perhaps the first thing that calls for notice is the satisfactory close of a long controversy with Government concerning grants-in-aid. The grants withdrawn at the instance of the late Director of Public Instruction in 1879 have been more than restored and the Council is thankful to be so largely relieved from the financial embarrassment which the withdrawal of the grants unfortunately caused. For several years previous to 1879 the College received aid at the rate of Rs. 10,047 a year; subsequent to 1879 the annual grant amounted to Rs. 7,200; now it amounts to Rs. 12,740. Including arrears from 1st October 1881, the College received from Government last year in all Rs. 13,663-5-4 in the form of grants-in-aid, for which the Council desires to record its thanks. The grant received from Government might be larger if the full aid according to the rules were bestowed; but the Council, in making application for the issue of fresh grants, after the arbitrary restrictions were removed, professed their willingness to forego the amount obtainable for the school, provided the full amount according to the Code was sanctioned for the College department; thus showing in a practical manner their appreciation of the claims of other institutions and of other kinds of education and their readiness to rely on public funds only so far as this help is absolutely indispensable. The amount of self-help which this College was able to realize last year in the form of school-fees was Rs. 28,137-12-0, being an increase of Rs. 2,364-2-0, compared with the previous year's collections. In other words the amount of fees was about 48 per cent. of the ordinary expense for the year; and, if we add to this, the Government grant, viz. 22 per cent., there will still remain about 30 per cent. to be made up by the managers. As the demand for education is constantly increasing and the numbers seeking admission to the College are year by year increasing likewise, the amount of self-help realized will also doubtless increase. Of course there is a limit to the extent to which the increase of our numbers can be carried. The attendance is practically limited by the capacity of our buildings, a limit which the numbers on our rolls are fast approaching, if indeed, as we may be constrained at a later stage of this report to admit, they have not already actually exceeded it. The average number on the roll last year was 985 in the school and 348 in the College, in all 1,333, which shows an increase of more than 100. Considering the steady increase in the attendance at this College and that this is of a piece with what is taking place elsewhere in this part of the country, we think that the Director of Public Instruction has wisely raised the question whether there should not now be some increase made to the school-fees, such an increase would not unduly check the numbers in attendance and would help to make education more

self-supporting. More important than the mere numbers is the regularity of attendance. Of those on the rolls there will always be a not inconsiderable portion who are absent on account of sickness or other necessary causes—and sometimes from causes not so necessary—and it requires great vigilance to reduce this number to a minimum. Of the 1,333 on the rolls, 1,225 were present on the daily average or about 92 per cent., and towards the end of the year there is commonly an improvement of about 1 per cent., compared with the general average. There has been no important change in the course of instruction compared with that so fully detailed in our report three years ago, and the changes recently made in the University Curriculum hardly call for remark at the present stage, as they only partially affect our class work as yet. The Council is now, however, in a position to make physical training a part of the regular work of the College. Government sanctioned a portion of the Esplanade as a site for a gymnasium, the apparatus is almost ready and the pupils of the College and the High and Middle Schools will receive training at the hands of a qualified instructor. It is hoped that this new departure may have a beneficial effect both on the bodies and minds of our pupils and not least that it may serve as some offset to the high pressure which these days of multitudinous examinations are so apt to generate. At the public examinations the College has on the whole acquitted itself in a highly creditable manner. The Cator Examination in Scripture having been held in January instead of September or October as formerly, the results are not yet all obtainable. In the Higher Grade one of our students won the second prize and five more have received certificates of merit. The results of the Lower Grade have not yet been made known. The Middle School Examination has, as we again gladly testify, been very satisfactory and conducted in such a manner as to reflect great credit on all parties connected with its management. Of the 112 that passed, 19 were placed in the first class, 42 in the second, 51 in the third.

In the Matriculation Examination 58 passed, of whom no fewer than 14 were placed in the first class. Thus the number that passed on the whole was just a slight increase on the number that passed in each of the three preceding years; but the fact of so many as 14 appearing in the first class is rather an unusual phenomenon and must be explained, we fear, not by a larger proportion of first rate material among our boys of this year but rather by the presence of some variable factor in the Examination itself.

The first Examination in Arts has been for several years more variable in its standard or more fluctuating in its results than either of the two University Examinations which we have here to consider. The recent Examination was considerably more severe than its predecessor; so that, instead of the 63 we reported as having passed last year, our number fell to 44, two being in the first class. Nevertheless in this Examination the Christian College was, with respect to the number passing from it, well in advance of any other College in Southern India. In the Examination for the Degree of Bachelor of Arts as many as 43 passed, one being in the first class, 12 in the second and 30 in the third. Of these 22 had Physical Science for their optional subject and 21 had Logic and Morals. In this Examination also the College has passed more than any other College in Southern India. To be first among the affiliated Colleges in the two higher Examinations for the University Degree, even once in its history, is a distinction which this College may well note with some measure of satisfaction, though it would at the same time not forget that this is not the high object for which it exists. The development of mind and the formation of character; the preparing of our students for being good citizens and good

members of society by awakening or encouraging in their hearts right thoughts of God, of duty, and of the future—these are aims to which success in Examinations must always be subordinate; though in this subordinate place we are not insensible to its value. A few years ago we showed in our report what became of those men who obtained University Degrees in connection with this College. It was then shown that every one could be satisfactorily accounted for, that every one was well employed and that the popular belief about the supply of graduates being greatly in excess of the demand was without solid foundation. The same sort of inquiry hardly suggests itself in connection with the lower Examinations; but it may be interesting to consider what proportion of those who pass these lower Examinations carry their studies to a higher stage. Now, of the 58 who passed the Matriculation Examination 35 or about 60 per cent. have joined the first College Class to study for the First Examination in Arts; and of the 44 who passed the First in Arts Examination 35 or about 75 per cent. have joined the Third College Class to study for the Bachelor of Arts Examination. Nearly a third of the one class and nearly a half of the other thus consist of students who have had most of their earlier training within these walls and who may be expected to give the tone to the new class. It is also of interest to observe that the influx of students from Mission Schools and Colleges to the classes in question raises the proportion of men who have been brought up with a knowledge of Scripture and under Christian influence to two-thirds of the whole. The remaining third, who come from Government and other secular Schools and Colleges, readily adapt themselves to the Scripture instruction and easily catch the prevailing tone. They catch it sometimes in a very remarkable degree, for it is perhaps rather the rule than the exception that some of the students from non-Christian Schools are the most interested of all in the religious studies and amongst the foremost in the Scripture Examinations. The staff of the College underwent a few changes towards the end of the year. Mr. Smith returned from furlough in November; Mr. Alexander was, in accordance with a special arrangement between the Free Church Mission and the College Council, appointed to act for a time as Secretary of the Mission. Mr. Miller left for Calcutta to resume his labours on the Education Commission; and during Mr. Miller's absence we receive help from Mr. Alexander in the College. To the Assistants, Masters, Munshis and Pundits the Council would here express their thanks for the manner in which they did their work throughout the year. The Council would also specially thank those gentlemen who, though unconnected with the College officially, were good enough to help in conducting written Examinations. Before concluding this report, the Council desire to call attention to the crowded state of the Institution as a whole and more particularly to that of the College Department. It contains at this date more than 1,440 pupils and is probably the largest Institution in India. The numbers in the school indeed might be very much larger if only we had more room. This year it has been necessary to send away an unusually large number of applicants for admission to the classes of the school from sheer want of space. No doubt, by disbanding some of the primary classes of the school, accommodation might be made for more pupils in the highest classes of that department. But the greatest difficulty lies in finding even moderately comfortable accommodation for the College Classes. Since 1871 our buildings have not had any important addition. Then they underwent an extensive repair, being renovated and enlarged and, though not originally intended for a school, made tolerable suitable for their present purpose. But in those days the College Department contained only 60 students whereas at this date it contains nearly 420. With classes

thus averaging upwards of a hundred students there are special difficulties of internal administration to contend with and it is particularly unfortunate that these difficulties should be aggravated by the insufficiency of our buildings. To conduct written examinations in such classes, with that degree of isolation among the examinees which is so indispensable, is at present rendered all but impossible by reason of the want of a hall of sufficient dimensions. The buildings, which the Council contemplate must therefore include a hall that shall be available for examinations, lectures, prize-givings and the like.

After distributing the prizes the Chairman said:—

MR. PRINCIPAL, LADIES AND GENTLEMEN, MASTERS AND SCHOLARS,—I would ask you all to allow me to say a word in turn to each of you. When the Reverend Principal did me the honor of inviting me to preside on this occasion, I had no idea what a pleasant task he had in store for me. You have heard the report read, so there is nothing left for me to do this evening except on behalf of you all, ladies and gentlemen and myself to be the mouth-piece of unqualified congratulations to all in any way connected with the Madras Christian College. The gentlemen of the Council have to be congratulated on the satisfactory conclusion of their labours, long and arduous, which have terminated in their getting a measure of justice in the matter of Government grants-in-aid. It is after all only 22 per cent. against 78 per cent. that the institution does for itself; still that is an addition to its means of usefulness. I think the other members of the Council will join me in attributing a prominence in these your joint labours to two absent names, men who would probably blush if they were present, Mr. Miller and Mr. Stevenson. Turning to the report, the amount of self-help attained by the College has arisen considerably; the attendance roll shows an increase of more than 100, and regularity of attendance stands high; these are all decided, unmistakable indications of vigorous life and growth, and not only in quantity but also in quality there is the same evidence of advance. In the two higher examinations for the University degree this College stands first in the Presidency; it is indeed a distinction of which both masters and students may well be proud; the bare fact is a speaking testimony to the sufficiency of the institution. You seem to have taken *Excelsior* for your motto, and mentally you have gained the heights; but there is a higher height yet, and I am very pleased to see the terms in which the report recognizes it. You must allow me to re-read those terms as the words are worth recording:—"The development of mind and the formation of character, the preparing of our students for being good citizens and good members of society, by awakening or encouraging in their hearts right thoughts of God, of duty, and of the future, these are aims," the report says, "to which success in examinations must always be subordinate," and these are matters, I will add, not to be tested by examinations. Boys, they are to be tested only by your lives; the object of this institution is, that after you have left its walls, you shall live useful lives, and whether you do so or not must depend in a large measure in your taking to heart, making your own and being habitually guided by, the principles inculcated in this College. How they may have been presented to your minds I know not, but the summing of them up in a pithy saying may perhaps enable you to make them dwell forcibly in your minds. I will therefore repeat to you what a worthy master of mine used to tell us. It is true that I have mentioned these words once before in another institution in this city, but the worthy master repeated them every prize day; so one repetition at my hands may well be excused. In every prize that he gave he invariably wrote with his own hand "*Ora et labora—Age quod agis*," these two brief sentences

were given to us to carry away as *memoria technica*. I received them written in more than one prize and have remembered them from that day to this, and if I can get you to remember them, it may possibly bear useful fruit in some of your lives. *Ora et labora*—Pray and labour. Pray, it has been said, as if the whole issue depended on prayer and nothing else, and that done, then go and labour as if the issue depended on labour alone. *Age quod agis*. What you do—do thoroughly, or, as the wisest of men, the man whom you Mahomedans recognise as the great Suliman has said, "Whatsoever thine hand findeth to do, do it with all thy might" the same precept is recognised in the English proverb "If a thing is worth doing at all, it is worth doing well" and in the Tamil "*Seyvana tirunda sey*." These two sayings I leave with you in memory of this day's prize giving. I see from the report that the classes in the College are very large; students, you know what that means. It means that it is impossible for the masters daily to examine each boy orally; it means also that undergraduates of the Madras University are not expected to be shirkers like little children (applause). You are thrown upon your honor and common sense to do justice to the College and your opportunities for learning. But you seem to have recognised this in the past year in which you have done so well; keep equally in view the future. With these few remarks, I wish you all a pleasant holiday. (Applause). The Rev. Mr. Cooper, proposed a vote of thanks to the Chairman, which was cordially adopted. The Rev. Mr. Andrews closed the proceedings by pronouncing the benediction.

A MODEL TIME-TABLE.

By FRÄULEIN HEERWART.

The principles upon which the following Time-table is based are these:—

1. To make the children's early life happy; to treat them kindly in a motherly manner.
2. To train all their senses; and the powers of attention, observation, and comparison are wanted to make use of their self-activity, or spontaneity; to begin with the easy, the tangible and concrete, and proceed gradually to the more difficult; to introduce children to the study of nature; to prepare them for the next higher class in school, i. e., reading, writing, and arithmetic.
3. To establish good habits in the children; to cultivate their moral and religious feelings; to treat them as future useful members of society, and as heirs of the kingdom of God.

The School Programme should be so drawn up as to show that there is opportunity for the carrying-out of the above Principles, as well as for the comfort and health of the children. To secure the latter, the rooms should be large and well ventilated, the furniture suited to the age and size of the children; the length of the school-hours should be suited to little children's physical powers; and frequent changes of lessons should take place.

The lessons are graduated according to the ages and classes of children. The early morning lessons are the more important, because they are the more difficult; they appeal to the thinking powers of the child. The later lessons are easier in that respect, and the afternoon lessons are easier still. Children, unlike older persons, are unable to raise their energies again in the afternoon or evening, unless under special excitement.

FOR CHILDREN OF THREE TO FOUR YEARS OF AGE.

	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.
9-30	Opening of the School, is early enough for these little ones.—Names called.				
10	Singing of a simple, child like Hymn, quietly and softly sung, children standing with folded hands.				
10-30	Hymn repeated and explained.	Simple Poetry.	Story of a Simple Kind.	Hymn explained and repeated.	Simple Poetry.
11	Building with Cubes.	Stick-laying and Counting.	Wooden or Card-board Tablets.	Building with Cubes.	Stick-laying and Counting.
11-30	K. G. Games.	K. G. Games.	Games.	Gift III. Games.	Games.
	K. G. Sewing.	Mat-plaiting.	Beads or Straw.	K. G. Sewing.	Mat-plaiting.
2	Modelling with Clay.	Play with Sand.	Modelling.	Modelling with Clay.	Play with Sand.
2-45	Gift I.	Gift II.	Finger Games.	Gift I.	Gift II.

The Morning would be sufficient for these young Children; but if School is better than Home, the Afternoon should be more play-like than the Morning.

FOR CHILDREN OF FOUR TO FIVE YEARS OF AGE.

	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.
9-30	Same as in the younger Class.				
10	Hymn repeated and explained.	Poetry learnt in connection with the subject of the Games.	Story told.	Hymn.	Poetry.
10-30	Building, Counting, with Gift IV.	Stick-laying, more advanced and varied.	Wood or Card-board Tablets, Triangles.	Building, with Gift IV.	Stick-laying, more advanced.
11	Marching and Games throughout the week.	Mat-plaiting.	Making woollen balls.	K. G. Sewing.	Mat-plaiting.
11-30	K. G. Sewing.				
2	Modelling.	Paper-folding.	Modelling.	Modelling with Clay.	Paper-folding.
2-45	Ball Games.	Gift II.	Finger Games.	Ball Games.	Gift II.

Afternoon.

FOR CHILDREN OF FIVE TO SIX YEARS OF AGE.				
	Monday.	Tuesday.	Wednesday.	Thursday.
9	Opening of the School.—Names called. Scripture Story.	Learning a Hymn. Plaiting Sticks. Singing.	Repeat Scripture Story. Building with Gift V. Singing.	New Scripture Story. Drawing. Singing.
10 10-30	Drawing. Singing.	Plaiting Sticks. Singing.	Gymn. Exercises. Pricking.	Gymn. Exercises. Paper-folding.
11	Gymnastic Exercises. Paper-folding, &c.	Gymn. Exercises. Paper-cutting.		Gymn. Exercises. Paper-cutting.
11-45	Prepare for the close of the School.—Children help to collect materials.			
Afternoon.				
2	Lesson on an Animal. Drawing, or Strokes for Letters and Figures.	Modelling. Story in connection with the Class Lessons.	Lesson on an Animal. Drawing, or Strokes for Letters and Figures.	
2-45	K. G. Games.		K. G. Games.	K. G. Games.
FOR CHILDREN OF SIX TO SEVEN YEARS OF AGE.—First Reading Class.				
9	Opening of the School.—Names called. Scripture Story. Reading.	Scripture Verses. Reading. Writing.	Hymns. Reading. Writing.	Scripture Story. Reading. Writing.
10 10-30	Exercises. Singing.	Exercises. Singing.	Exercises. Singing.	Exercises. Singing.
11 11-30	Number Lesson and Figures.	Number Lesson and Figures.	Number Lesson and Figures.	Number Lesson and Figures.
Afternoon.				
2	Drawing. Geometrical Paper-folding.	Paper-cutting. Pea-work, or Lesson on Flowers.	Pricking. Lesson on Animals.	Drawing. Geometrical Paper-folding.
2-45				Paper-cutting. Pea-work, or Lesson on Flowers.

School closes in all Classes with a Hymn at 12 and 3-30.

WEEKLY LECTURES ON PSYCHOLOGY, METHOD AND SCHOOL MANAGEMENT AND HISTORY OF EDUCATION.

NOTIFICATION.

The Director of Public Instruction publishes for the information of the Public, the instructions issued regarding the series of weekly lectures on Psychology, Method and School Management and History of Education, to be delivered at the Government Normal School, Madras, from 31st March 1883.

Read G. O., dated 24th January 1883, No. 31, Educational.

Read also Dr. D. DUNCAN'S Syllabus of Lectures on Psychology with special reference to the work of teachers.

The two courses will together consist of about twenty lectures.

It will begin with a brief survey of the physiological conditions of Mind, embracing a general view of the skeleton, and of the muscular system and locomotive apparatus, with a more detailed account of the nervous system and the sense organs. The connexion between bodily states and mental processes will next be taken up, with special reference to the correlations of Mind and Brain. Attention will be called to the more important consequences—physiological and psychological of this connexion.

The various modes of mental activity will be next considered in order, beginning with the muscular feelings and sensations. The relative importance in education of the different senses will be pointed out, and what is meant by the training of the senses will be explained.

The Appetites will be cursorily considered; and the instinctive aptitudes will be more fully dealt with, for the purpose of showing the materials which the teacher has to work upon.

The Intellectual Faculties will be treated under such time-honored names as Perception, Observation, Attention, Memory, Abstraction, Imagination, Conception, Judgment, Reasoning. It will then be considered whether these so-called faculties are not really various manifestations of a few fundamental functions. The Law of Relativity will be dwelt upon at length on the bodily and mental sides, and its important bearings on the work of teaching will be carefully looked into. The physiological basis of Retentiveness will receive a similar treatment.

The Laws of Association will be expounded in detail. Contiguity will be exemplified in connexion with the formation of habits of thinking, feeling and acting; and in the growth of acquirements in all the great departments of human activity—in Literature, Science and Art, both industrial and æsthetic. Special stress will be laid on the importance of the so-called secondary laws—the circumstances that govern the rate of acquisition, on the indispensableness to the teacher of a study of the individual character of his pupils with reference to the nature and strength of the power of acquisition, and on the necessity of husbanding to the utmost, the resources of the retentive faculty.

- X. *The English Language and Grammar*.—First steps, words phrases, sentences, subject-matter to be understood, idioms Black-board, illustration and vernacular to be freely used. Translation and retranslation, specimen lessons.

THE REV. A. ALEXANDER'S COURSE OF LECTURES ON THE
HISTORY OF EDUCATION.

Will begin with a survey of the field, indicating the sources of the history, the most instructive parts, and the necessary divisions of the subjects (theoretical advances and practical improvements). After some discussion of the earliest forms of Education, the leading theories of Greece will be expounded, especially those of Plato and Aristotle. Roman Education before and after the conquest of Greece will then fall to be considered, and some account will be given of the educational activities of Athens and Alexandria.

The confluence of Pagan and Christian culture will be noted and the rise of Christian schools. The state of Education under the Christian Roman Empire and the break up of the Imperial system in its effects on Education must also be sketched.

2. The life and culture of the Middle Ages will fall to be considered next. The Monastic and the Knightly ideals in Education will be described and contrasted, while some account will be attempted of the practical labors of such mediæval educationists as the Brethren of the Common Life. The rise of the Universities and the mediæval idea of a liberal education as exhibited in the course of studies also fall under this head.

3. The Revival of Letters and the Revival of Christianity (Reformation) within and without the Roman Catholic Church had immense effects upon Education. Among these must be placed the Protestant Latin Schools, the labors of Sturm and Ratke, the school systems of Geneva, Scotland, &c., and the establishments of the Jesuits.

4. From this point the course will deal largely with individual reformers and theorists, who may be grouped thus:—
Commenius, Milton and Locke.

French Educationists—Port Royal, Montaigne and Rousseau.

German Educationists—(1) Theories and (2) Practical improvements—Pestalozzi and Froebel.

English Reformers—Bell and Lancaster.

The course will conclude with a brief account of the leading national systems, especially the Prussian, the English and the Scotch.

THE DIRECTOR approves the sketch of the lectures to be delivered by the above gentlemen in the subjects severally allotted to them, and they are requested to arrange for the delivery of the first course of lectures as follows:—

Psychology and History—Saturday, 31st March, and each succeeding Saturday, to the 19th May.

Method and School Management—Tuesday, the 3rd April, and each succeeding Tuesday, until the 22nd May.

The hour for the delivery of each course of lectures will be fixed by the lecturers in communication with the Principal, Normal School, and duly notified.

The second course of lectures should begin on the second Saturday in August, and be continued on successive Tuesday and Saturdays, until the middle or end of November.

2. The lecturers are requested to hold a short examination at the close of the spring session and final examination at the beginning of December, on date to be notified hereafter. At the final examination, two papers should be set in each subject—one to qualify, one for honors.

3. All students of the Government Normal School will be required to attend the lectures, but only students who have passed the F. A. and B. A. Examinations will be compelled to appear for the examinations.

4. The lectures will be open to all *bona fide* teachers residing in or out of Madras who have passed the General Education Test for First, Second and Third Grade Masters, or the First Grade for Mistresses, but as in the case of Normal students, appearance for examination will be compulsory in the case of First and Second Grade Masters only.

5. Graduates not employed as teachers may, by special permission of each lecturer and subject to the approval of the Director of Public Instruction, be permitted to attend lectures, and to appear for the final examination.

6. The Principal of the Normal School is requested to arrange for maintenance of an attendance register for each lecturer. Continued irregularity in attendance or misconduct will involve dismissal.

7. A Pass Certificate will qualify for an Ordinary Certificate under Article 20 of the Grant-in-Aid Code on fulfilment of conditions 2 and 3 specified in the same section. An Honor Certificate will, in the case of teachers of 5 years' standing on the date of the examination, be held, subject to the sanction of Government, to exempt a teacher from Normal training who fulfils conditions 3 and 4 of Section 19 of the Grant-in-Aid Code.

8. The fees (to be paid in advance) for the entire course of these lectures will be as follows:—

	RS.
Teachers whose salaries exceed Rs. 100..	20
Teachers drawing salaries from „ 75 to 100 ..	15
Do. do. „ 50 „ 75 ..	10
Do. do. „ 25 „ 50 ..	5
Do. do. less than Rs. 25 and all Normal students—free.	0

Any graduate not being a teacher, will be required to pay a fee of Rs. 25, if his salary exceeds Rs. 50, or a fee of Rs. 12-8-0, if it fall short of that amount.

9. Applications for admission to the lectures, countersigned by the head of school in the case of teachers, should reach the Principal, Government Normal School, not later than the 28th March.

H. B. GRIGG,

Director of Public Instruction.

OFFICE OF THE DIRECTOR OF
PUBLIC INSTRUCTION,
MADRAS, 20th March 1883.

THE SAIDAPET HIGH SCHOOL.

The annual distribution of prizes to the students attending the Saidapet High School took place on Saturday evening. The Hon'ble Sir Charles Turner, Chief Justice, arrived on the grounds at an early hour and took much interest in the sports. The programme we published on Saturday was gone through. Mr. George Duncan and Mr. C. Benson acted as Judges. There was a large attendance, among whom were Mr. H. B. Grigg, Director of Public Instruction, Mr. Percy Sinnett, ex-Editor of the *Pioneer*, Mr. C. M. Barrow, Mr. Bullivant, Dr. J. Bradshaw, Mr. G. Duncan, Rev. and Mrs. Browne, Mr. Price, and Mr. Bashiam Iyengar.

After the sports, the students assembled in open air, and the Head Master read his report, from which we take the following:—

Transfer of 2nd Class.—The great increase of the Upper 4th and Lower 4th Classes at the beginning of 1882 necessitated the breaking up of each into 2 divisions, and to provide for the accommodation of the new classes thus formed, the 2nd Class containing 64 pupils with their Teacher were transferred to the Local Fund School in June last.

Changes in staff.—S. Atchyalinga Mudaliar, B. A., 1st Assistant was sent in February last to act as Deputy Inspector of Schools at Tinnevely, while C. Muthusawmy Naik, the Tamil Pundit, was appointed in the same month to succeed the late Madriassa Pundit. S. Panchannada Mudaliar, F.A., the 5th Assistant is undergoing training at the Normal School, Madras. The substitution of a Telugu graduate when an opportunity offers for the removal of the Telugu Pundit, and the appointment of an extra Assistant to help in teaching the new divisions referred to will leave nothing more for the new organization scheme to effect.

Strength and attendance.—On the 31st March 1882 the number of pupils was 266 and on this date 218, or leaving the 2nd Class out of consideration there has been an increase of 14. No less than 11 boys not promoted have been admitted into a higher class in other schools. The average number on the rolls is 204 and the attendance 95 p. c.

Examination Results.—In Government Schools there is no such thing as recommending the best boys to appear for an Examination. All the pupils of a class are to appear or leave school. This ruling, all will admit, is the best way to test the teaching and must necessarily in the end conduce to good classification.

6th or Matriculation Class.—Strength 24. 9 boys passed, 3 being placed in the 1st Class. The first of these is entitled to a free scholarship, which will enable him to prosecute his studies for the higher Examination.

5th Class.—Strength 28. Two of these were absent during the oral part of the Examination, so that the strength might be taken as 27. 10 passed, one failing in the 1st Class.

The Upper 4th Class appeared for the Middle School Examination. Strength 50. Of the 37 who passed 6 were in the 1st Class.

Lower 4th Class.—Strength 50. 39 passed the Comparative Examination. One of the 5 in the 1st Class heads the list in the 3rd Division.

3rd Class.—Strength 46. 30 boys promoted. This is the only class whose Examination was not of a public nature. The percentages gained by Division A are:—54 in *History and Geography*, 42 in *English* and 48 in *Arithmetic* while those for Division B are:—47 in *History and Geography*, 48 in *English*, and 57 in *Arithmetic*.

Physical Exercise.—It is not surprising that no pupils were recipients of prizes given to the People's Park by the Field Games' Association and Park Committee in December and January last. A few of our pupils appeared in spite of the distance, but when they saw they had to contend with English boys bigger, older and more robust than themselves and most of them gymnasts from their youths, their hearts failed them. With the appointment of a Hindu Gymnastic Teacher holding a higher certificate than the Mahomedan Instructor, better results must follow. It gives me pleasure to here refer to the great assistance given me at the Gymnasium by Assistant Master Pichu Iyer, who holds a 1st Class Certificate from the Madras Field Games' Association.

Discipline.—The general behaviour has been very satisfactory. One boy, however, during the year was expelled for having copied at the Comparative Examination.

Conclusion.—The Assistant Masters have cordially co-operated with me both in and out of school.

Extract from Inspector's Report.—The results of the Inspection which was held on the 20th November and 20th December was on the whole very fair. The Inspector says: "The thanks of the Department are due to the Collector (Mr. Price) for prizes to the value of Rs. 50 for handwriting, to the Saidapet Literary Society for two prizes for translation in the Matriculation Class; to some Muhammadan Gentlemen for prizes for translation to be awarded to Mussulman boys, and to those who have subscribed for the Athletic games and sports to be held on the prize day on the 17th instant at which the Chief Justice will preside."

Local Fund Primary School.—This is the feeder of the High School and placed under the supervision of the Head Master of the High School. On the 31st March 1882, the strength was 105 and on this date (17th March 1883) 176, thus distributed:—2nd Class 40, 1st Class 52, Preparatory 84.

The average number on the rolls for 1882-83 is 163, and the average daily attendance 89 per cent.

Several valuable prizes, consisting of money, books, clocks, time-pieces, pens, &c., were then distributed.

Sir Charles Turner then delivered an address. He thought that all present ought to congratulate Mr. Messinier, the Head Master, on what they seen in the shape of sports and feats of skill and strength. The presence of a number of gentlemen showed that the interest evinced by them in the cause of education had not lagged in any way. Mr. Grigg, the Director of Public Instruction, honored the meeting with his presence, and he had joyed of the introduction of Physical education. There were also present

Mr. George Duncan and Doctor Bradshaw, both gentlemen who always took much interest in education, and others were also gratified at the success. Moreover, the outside testimony went to show that the institution was doing good work, Mr. Price's testimony showed how well the work was done; and being so well satisfied he had contributed fifty Rupees for handwriting. The Saidapet Literary Society, and certain Mahomedan gentlemen had also showed their appreciation by conferring prizes. There was also a special gratifying feature, and that was the interest taken in the education of Mahomedans. The Mahomedan boys, the Honorable Chairman remarked, were doing well. The results of the examination were excellent. The Head Master must also be congratulated on his efforts to improve the body as well as the mind. Physical education was certainly a thing to be encouraged, and from what the young gymnasts had shown the public, it must be admitted that the result of Physical education as being a part of study in this institution was one of cheering success. Talking of education, Sir Charles Turner said that the Madras educational system was considerably in advance of that pursued in the North-West Provinces. The difficulty here in Madras was to encounter the three Vernaculars, Tamil, Telugu, and Hindustanee. Regarding the Athletic sports it was stated that no pupils were recipients of prizes given at the People's Park and the Field Games' Association and Park Committee in December and January last. It was also stated that a few of the pupils appeared in spite of the distance, but when they saw they had to contend with English boys, bigger, older and more robust than themselves, and most of them Gymnasts from their youth, their hearts failed them. It was also stated that, with the appointment of a Hindu Gymnastic Teacher, holding a higher certificate than the Mahomedan Instructor, better success would follow. The Hon'ble Chairman hoped that next year the boys of this school, despite the robustness of the English boys, would compete for the Athletic sports at the People's Park. From what Sir Charles had seen, one little boy named Ragoovaloo had distinguished himself as a vaulter; the Chairman did not think that the prize given him was a good and sufficient reward, and hoped that Ragoovaloo would go on progressing, and also that Ragoovaloo would be imitated by the other boys (cheers.) Hindu boys were not as powerful as English boys, and it was therefore impossible to expect them to come up to the standard of success the latter attained. For their better culture and improvement he would propose that some special prizes be given, say, in the name of Mr. Grigg, the popular Director of Public Instruction, at the next sports to be held at the People's Park, and that he, the Chairman, would give the prizes himself (applause.) Mr. Grigg thanked the Chairman warmly for the kind expression of opinion made regarding himself and the pupils of the institution. With reference to the institution of special prizes, which would add to the benefit and dignity of the work done in all its branches, more especially in Physical education which was intended for muscular development, he was glad of the suggestions of the Honorable Chairman, and he would ask the boys to give him, Sir Charles, three hearty cheers, and after that three times three. The boys then cheered most lustily, and the proceedings came to a close.

UNIVERSITY OF MADRAS.

B. A. DEGREE EXAMINATION, 1883.

HYDROSTATICS AND PNEUMATICS.

Examiner—RAI BAHADUR T. GOPALA RAU, B. A.

I. Define a fluid, and deduce from the definition the law of equal transmission of pressure.

II. Explain how density is measured.

What unit of mass is assumed in the equation $M = \rho V$? What unit of weight in $W = Mg$? If 10 oz. be the unit of weight, what must be the equation connecting W and Mg ?

III. Two liquids that do not mix together meet in a bent tube: prove that the heights of their upper surfaces above their common surface are inversely proportional to their densities.

A thin semi-circular tube is half filled with equal volumes of two fluids whose densities are as 3 : 1. Show that the line joining their free surfaces is inclined at an angle $\tan^{-1} \frac{1}{2} (\sqrt{2}-1)$ to the horizon.

IV. Find the whole pressure on an immersed surface.

Given that the ratio of the pressure on the curved surface to that on the circular base of a hollow hemisphere filled with fluid is one of equality when the base is horizontal and 2 : 1 when it is vertical. Find the area and the position of the centre of gravity of the curved surface.

V. A hollow cone containing a weight W of fluid is held vertex upwards with its axis inclined at an angle $\cos^{-1} \frac{1}{3}$ to the vertical.

Show that the resultant pressure on its curved surface is $\frac{2}{\sqrt{3}} W$ in a direction making an angle $\cos^{-1} \frac{1}{\sqrt{3}}$ with the vertical.

VI. State the conditions of equilibrium of a floating body.

A lamina of specific gravity ρ in the form of an isosceles triangle, (vertical angle 2α), floats in a fluid of specific gravity ρ' , with its plane vertical, its base totally out of the fluid, and its axis inclined at an angle β to the vertical. Show that

$$\frac{\rho}{\rho'} = \frac{\cos^2 \alpha}{\cos^2 \beta} (\cos^2 \alpha - \sin^2 \beta).$$

What will be the position of the lamina when the right hand member of the above equation reduces to $\cos 2\alpha$?

VII. Define the centre of pressure of a plane area.

A rectangle is immersed with two of its sides vertical to a depth equal to its altitude: find the centre of pressure.

VIII. Show how to find the specific gravity of a solid lighter than water by means of the Hydrostatic Balance.

IX. Describe the Fire Engine, and explain the use of the air-vessel.

X. Explain the construction and action of Smeaton's Air-Pump.

If after 5 ascents of the piston the mercury in the Barometer Gauge stand at an altitude of $29\frac{1}{8}$ inches, the height of the Barometer being 30 inches, compare the volumes of the receiver and the barrel.

SOLUTIONS.

I. *Vide* Besant's Hydrostatics, Arts. 2-6.

II. *Vide* Phear's Hydrostatics, Art. 10.

$$M = V\rho$$

The meaning of the equation $M = V\rho$, is that the mass of a body of volume V and density $\rho = V\rho$ times the unit mass.

$$\text{Put } V = 1 \text{ and } \rho = 1.$$

Then the mass of an unit volume of a body whose density is one, is equal to the unit mass.

(i. e.) The unit mass assumed in the equation $M = V\rho$, is that of a unit volume of the standard substance. $W = Mg = V\rho g$.

From the above equation, it is obvious that the weight of a body of volume V and density ρ , is equal to $V\rho g$ times the unit of weight. Put $V = 1$ and $\rho = 1$.

Then the weight of an unit volume of a body whose density is one, is equal to g times the unit of weight.

(i. e.) The unit of weight assumed in the equation $W = V\rho g$, is $\frac{1}{g}$ th part of the weight of an unit volume of the standard substance.

Vide Besant's Hydrostatics, Art. 22.

III. *Vide* Besant's Hydrostatics, Art. 43.

Problem.

Let O be the centre of the semi-circular tube A and B , the free surfaces of the heavier and lighter fluids respectively, P , the common surface of the two fluids, AC and BD , vertical lines through A and B , meeting the horizontal through P , at the points C and D and OR , the vertical through O , meeting AB , the line joining the free surfaces of the fluids, at the point R .

Let the angle $ORB = \theta$

By the question $AP = PB \therefore \angle AOP = \angle BOP = 45^\circ$

$$\therefore \angle OPB = \angle OBP = 90 - 22\frac{1}{2}^\circ$$

$$\text{But } \angle OPD = 180^\circ - \angle ABD = 180^\circ - \theta$$

$$\therefore \angle BPD = 180 - \theta - \angle OPB = 180^\circ - \theta - 90^\circ + 22\frac{1}{2}^\circ \\ = 180^\circ - (\theta + 67\frac{1}{2}^\circ)$$

$$\text{Similarly } \angle APC = \theta - 67\frac{1}{2}^\circ$$

$$\therefore BD = BP \cdot \sin BPD = BP \cdot \sin (\theta + 67\frac{1}{2}^\circ)$$

$$\text{and } AC = AP \cdot \sin (\theta - 67\frac{1}{2}^\circ).$$

If 3ρ and ρ , be the densities of the fluids, then

$$g \cdot 3\rho \cdot AC = g \cdot \rho \cdot BD.$$

$$(i. e.) 3 \cdot AC = BD.$$

$$\therefore 3AP \cdot \sin (\theta - 67\frac{1}{2}^\circ) = BP \cdot \sin (\theta + 67\frac{1}{2}^\circ)$$

$$\therefore \frac{\sin (\theta - 67\frac{1}{2}^\circ)}{\sin (\theta + 67\frac{1}{2}^\circ)} = 3 \therefore \frac{3 + 1}{3 - 1} = \tan \theta \cdot \cot \frac{135^\circ}{2}$$

$$\therefore \cot \theta = \frac{\cot \frac{135^\circ}{2}}{2} = \frac{1}{2 \cdot \tan \frac{135^\circ}{2}} = \frac{1}{2(\sqrt{2} + 1)} = \frac{\sqrt{2} - 1}{2}$$

(i. e.) the line of free surfaces is inclined at an angle, $\tan^{-1} \frac{1}{2}(\sqrt{2} - 1)$, to the horizon.

IV. *Vide* Besant's Hydrostatics, Arts. 47 and 48.

Problem.

Let A be the area of the curved surface of the hemisphere and let x be the distance of its centre of gravity from the centre.

It is obvious that the centre of gravity must lie in the line drawn perpendicular to the circular base of the hemisphere, from its centre.

Let ρ represent the density of the fluid in the hemisphere.

Then, when the circular base is horizontal,

$$g\rho \cdot A(r - x) = g\rho \cdot \pi r^2 r, \text{ where } r \text{ is the radius of the hemisphere.}$$

$$\therefore A(r - x) = \pi \cdot r^3. \quad (1)$$

When the base is vertical, $g\rho \cdot Ar = g\rho \cdot \pi \cdot r^2 r \cdot 2$

$$\therefore A = 2\pi r^2 \quad (2)$$

$$\text{Substituting (2) in (1), we get, } r - x = \frac{\pi r^3}{2\pi r^2} = \frac{r}{2}$$

$$\therefore x = \frac{r}{2} \text{ (i.e.) the centre of gravity is in the axis of the}$$

hemisphere at a distance from its centre, equal to half its radius.

V. *Problem.*

Let ρ be the density of the fluid, h , the height of the cone, r , the radius of its base and θ , the angle of inclination of its axis, to the vertical. By the question $\cos \theta = \frac{1}{2}$ and $\frac{1}{2}g\rho\pi r^2 h = W$.

$$\text{Whole pressure on the base} = g\rho\pi \cdot r^2 h \cos \theta = 3W \cdot \frac{1}{2} = W.$$

$\therefore$ Horizontal pressure on the curved surface = horizontal pressure on the base = $W \sin \theta$.

Again the resultant vertical pressure on the cone = weight of the fluid = W . But the vertical pressure on the base alone = $W \cos \theta$.

$$\therefore \text{Vertical pressure on the curved surface} = W - W \cos \theta.$$

$$\text{But the horizontal pressure on the curved surface} = W \sin \theta.$$

∴ Resultant pressure on the curved surface

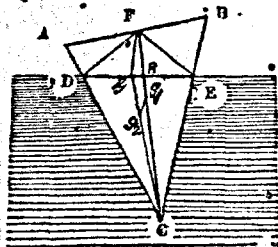
$$= \sqrt{(W - W \cos \theta)^2 + W^2 \sin^2 \theta} = W \sqrt{\frac{4}{3}} = \frac{2W}{\sqrt{3}}$$

And the inclination of the resultant to the vertical, is given by the equation, $\tan \phi = \frac{\sin \theta}{1 - \cos \theta} = \sqrt{2}$

$$\therefore \sec^2 \phi = 3 \therefore \cos \phi = \frac{1}{\sqrt{3}} \therefore \phi = \cos^{-1} \frac{1}{\sqrt{3}}$$

VI. *Vide* Besant's Hydrostatics, Arts. 55 and 56.

Problem.



Let ACB be an isosceles triangular lamina having its vertical angle C equal to $2a$, DE, the line of flotation meeting the equal sides AC, CB in D and E, respectively, FG, the vertical line passing through the centres of the lines AB and DE, and β the angle of inclination of the axis CF to the vertical.

It is obvious that the line FG must be vertical, because it is parallel to the line joining the centres of gravity of the whole triangle and of the part immersed in the fluid. Join FD and EF. Let CF cut DE in R and let $CD = x$ and $CE = y$.

∴ $DG = GE$, and FG is perpendicular to DE, it follows that $DF = FE$.

$$DF^2 = x^2 + h^2 - 2xh \cos a = FE^2 = y^2 + h^2 - 2yh \cos a.$$

$$\therefore x^2 - y^2 = 2h \cos a (x - y) \therefore x + y = 2h \cos a.$$

By the question

$$\angle GFC = \beta.$$

$$\angle ERC = 90^\circ - \beta = a + \angle EDC \therefore \angle EDC = 90 - a - \beta$$

$$\text{and } \angle DEC = 90 - a + \beta.$$

$$\therefore \frac{x}{y} = \frac{\sin(90 - a + \beta)}{\sin(90 - a - \beta)} = \frac{\cos(a - \beta)}{\cos(a + \beta)}$$

$$\therefore \frac{x - y}{x + y} = \tan a \cdot \tan \beta \therefore x - y = 2h \cos a \cdot \tan a \tan \beta.$$

$$x - y = 2h \cdot \sin a \cdot \tan \beta.$$

$$y + x = 2h \cdot \cos a.$$

$$\therefore y = h \cos a - h \sin a \cdot \tan \beta = \frac{h \cdot \cos(a + \beta)}{\cos \beta}$$

$$\text{and } x = \frac{h \cdot \cos(a - \beta)}{\cos \beta}.$$

∴ Area of the triangle immersed = $\frac{1}{2} xy \cdot \sin 2a$

$$= \sin a \cdot \cos a \cdot \frac{h^2}{\cos^2 \beta} \cdot \cos(a + \beta) \cdot \cos(a - \beta)$$

$$= h^2 \cdot \sin a \cdot \cos a \cdot \frac{\cos^2 a' - \sin^2 \beta}{\cos^2 \beta}.$$

Area of the triangle ABC = $h^2 \cdot \tan a$.

Now the condition of equilibrium is that the weight of the triangle = weight of the displaced fluid.

$$\therefore \rho \cdot h^2 \cdot \tan a = \rho^1 \cdot h^2 \cdot \sin a \cdot \cos a \cdot \frac{\cos^2 a - \sin^2 \beta}{\cos^2 \beta}.$$

$$\therefore \frac{\rho}{\rho^1} = \frac{\cos^2 a}{\cos^2 \beta} (\cos^2 a - \sin^2 \beta).$$

Q. E. D.

$$\text{If } \frac{\cos^2 a}{\cos^2 \beta} (\cos^2 a - \sin^2 \beta) = \cos^2 a = \cos^2 a - \sin^2 a$$

$$\text{then } \frac{\cos^2 a}{\cos^2 \beta} = \frac{\cos^2 a - \sin^2 a}{\cos^2 a - \sin^2 \beta} = \frac{\sin^2 a}{1 - \cos^2 a} = 1$$

$$\therefore \cos a = \cos \beta. \therefore a = \beta.$$

Therefore the angle of inclination of the axis to the vertical, is equal to the semi-vertical angle of the isosceles triangular lamina.

In this case BC, one of the equal sides of the triangle is vertical and hence the triangle floats with one of the ends of its base just on the surface of the fluid.

Problem.

VII. Produce the rectangle to the surface of the fluid. Let h represent the height of the rectangle and, a , the horizontal side.

Let x = depth of the centre of pressure of the lower rectangle below the surface. The depths of the centres of pressure of the whole rectangle and of the upper one, are respectively, $\frac{4h}{3}$ and $\frac{2h}{3}$.

(*Vide* Besant's Hydrostatics, Art. 49.)

$$\text{Whole pressure on upper rectangle} = g\rho \cdot ah \cdot \frac{h}{2}.$$

$$\text{Whole pressure on the whole rectangle} = g\rho \cdot 2ah \cdot h.$$

$$\text{Whole pressure on the lower rectangle} = g\rho ah \cdot \frac{3h}{2}.$$

Take moments about the surface of the fluid.

$$\therefore g\rho \cdot 2ah \cdot h \cdot \frac{4h}{3} = g\rho ah \cdot \frac{h}{2} \cdot \frac{2h}{3} + g\rho ah \cdot \frac{3h}{2} \cdot x.$$

$$\therefore \frac{8h^2}{3} = \frac{h^2}{3} + \frac{3hx}{2} \therefore \frac{3x}{2} = \frac{7h}{3} \therefore x = \frac{14}{9} \cdot h.$$

Centre of Pressure.

When any surface is submitted to fluid pressures, the point in it, where the direction of the resultant of these pressures would meet it, is called, the *centre of pressure*. If the pressures are such that they have no single resultant, there is no centre of pressure. (Phear's Hydrostatics, Art. 64.)

*Problem.**Another method.*

Let the area be divided by horizontal lines into a number of very small portions and let a_1 be the area of one of these portions and z_1 , its depth below the surface. Then the pressure upon it $= g\rho z_1 a_1$

$\therefore$ Depth of the centre of pressure of the plane area

$$= \frac{g\rho z_1 a_1 z_1 + g\rho z_2 a_2 z_2 + g\rho z_3 a_3 z_3 + \dots}{g\rho z_1 a_1 + g\rho z_2 a_2 + g\rho z_3 a_3 + \dots}$$

$$= \frac{z_1^2 + z_2^2 + z_3^2 + \dots}{z_1 + z_2 + z_3 + \dots} \quad (\text{for } a_1 = a_2 = a_3 \dots)$$

$$= \frac{z_1^2 + z_2^2 + z_3^2 + \dots}{z_1 + z_2 + z_3 + \dots}$$

$$z_r = h + \frac{r h}{n}$$

$$\text{Put } r = 1, 2, 3 \dots \text{ up to } n$$

$$\therefore \text{Depth} = \frac{\sum \left(h + \frac{r h}{n} \right)^2}{\sum \left(h + \frac{r h}{n} \right)} = \frac{n h^2 + \frac{2 h^2}{n} \sum r + \frac{h^2}{n^2} \sum r^2}{n h + \frac{h}{n} \sum r} \cdot \frac{1}{n}$$

$$= \frac{h^2 + \frac{2 h^2}{n^2} \cdot \frac{n(n+1)}{2} + \frac{h^2 n(n+1)(2n+1)}{6 \cdot n^3}}{h + \frac{h}{n} \cdot \frac{n(n+1)}{n \cdot 2}}$$

$$= \frac{h^2 + h^2 \cdot \frac{n+1}{n} + \frac{h^2}{6} \cdot \frac{n+1}{n} \cdot \frac{2n+1}{n}}{h + \frac{h}{2} \cdot \frac{n+1}{n}}$$

$$= h \cdot \left\{ \frac{1 + 1 + \frac{1}{n} + \frac{1}{6} \left(1 + \frac{1}{n} \right) \left(2 + \frac{1}{n} \right)}{1 + \frac{1}{2} \left(1 + \frac{1}{n} \right)} \right\}$$

$$= h \cdot \left\{ \frac{2 + \frac{1}{3}}{1 + \frac{1}{2}} \right\} \text{ when, } n \text{ is made very large}$$

$$= h \cdot \frac{7}{3} \cdot \frac{2}{3}$$

$$= \frac{14}{9} h$$

VIII. *Vide* Besant's Hydrostatics, Art. 125.

IX. *Vide* Besant's Hydrostatics, Art. 104.

X. *Vide* Besant's Hydrostatics, Art. 108.

Problem.

Let A and B, be the volumes of the receiver and cylinder respectively, ρ_5 , the density of the air in the receiver after 5 ascents of the piston, and ρ , the density of the ordinary atmospheric air.

$$\therefore \rho_5 (A + B)^5 = \rho \cdot A^5 \quad (1)$$

By the question the Barometer Gauge stands at an altitude $= 29 \frac{1}{8}$ inches.

$$\text{Now } g\rho_n \cdot 30 = g\rho \cdot (30 - 29 \frac{1}{8})$$

$$\therefore \rho = 32 \rho_5 = 2^5 \cdot \rho_5 \quad (2)$$

$$\text{Substituting in (1) we get } \left(\frac{A + B}{A} \right)^5 = \frac{\rho}{\rho_5} = 2^5$$

$$\therefore A + B = 2A \quad \therefore A = B.$$

(i. e.) The volumes of the receiver and cylinder are equal.

E. SEETHARAMA ROW, B. A.

GOVERNMENT COLLEGE, MANGALORE.—The distribution of prizes at the Government College, Mangalore, was held on Thursday, Mr. J. W. Best, the District Judge, presiding. The proceedings commenced by Mr. J. Moss, the Headmaster reading the report, which gave a brief account of the strength of the College and its staff during the past year, and of the progress it has since made. Of the 22 boys sent up for the last F. A. Examination, 13 passed, 2 in the First Class; one heading the list of successful candidates. 67 boys appeared for the Matriculation, and 35 passed, 4 in the First Class. Similar successes attended the boys of the lower department in their respective annual examinations. The attendance was very good, though the boys were smarting under the "disturbing influences of sickness and religious ceremonies which go a long way to impede their attendance in the school. The recent increase in the fees has resulted in the decrease of boys in the collegiate department; but this has been made up by a proportionate influx in the high school department. The number of boys on the rolls on the 31st March was 198. After distributing the prizes to the successful candidates, the Chairman congratulated the head-master and his assistants on the brilliant success achieved during the past year. He then proceeded to give a short history of the institution, how after earnest solicitations on the part of the people the school was raised to its present standard and how, in spite of rival schools, the College continues to maintain its high prominence under the able management of Mr. Moss. He severely criticised the present practice prevailing among the boys of discontinuing their studies as soon as they wriggle through the matriculation, so as to enrol themselves as copyists, or to thrust their heads into any department; and this practice, he said, would stand in their way of future prospects when the proposal, now under the consideration of Government, of throwing open higher appointments to competent graduates, becomes a rule.

CHANGES IN THE GRANT-IN-AID CODE.

NOTIFICATION.

The Director of Public Instruction notifies, for the information of the Public, that His Excellency the Governor in Council has been pleased to sanction the following changes in the Grant-in-Aid Code with effect from 1st April next:—

Rule 3.—Add words, “Managers may, with the approval of the Director of Public Instruction, appoint the Head Master of the school or other person their local agent to transact the current business of the school on their behalf, with the Education Department.”

Rule 4.—After the words “a declaration that the applicant or applicants” insert “will be responsible for the provision of a suitable teaching staff, for the conduct of the school, for its maintenance in efficiency, and for the provision of all needful furniture, registers, apparatus and books, and that they”

Rule 5.—After “training teachers” insert “of Practising Schools thereto attached.”

Rule 8.—Add words, “In the case of Heads of large Colleges or Schools, such time, not being less than one-hour daily, as may seem necessary for the well-being of the school, may be accepted.”

Rule 12.—After “six months” insert “or twelve months, if taken in Europe after four years’ continuous service in the country.”

Rule 18.—Add words, “Masters and Mistresses, whose continuous service as teachers is not less than six years on the 31st March 1883, shall be considered eligible for the favorable rates sanctioned in Government Notification, dated 16th February 1880, so long as they continue to perform efficiently the duties of their calling.”

Rule 19.—Insert “which shall ordinarily comprise two continuous half-yearly Sessions” instead of “for a period of twelve months.”

Rule 22.—Add words, “Honoraria, amounting to Rs. 60, 120, and 240, will be given to the wife or widow of Hindu and Muhammadan Masters on passing for an ordinary certificate of the third, second, or first grade, respectively, provided the husband or guardian is a teacher by profession, and the wife or widow, in the case of the third grade, has been continuously engaged in school-teaching for one year, and in the case of the second and first grades for two years.”

Rule 23.—Fifth grade, add words, “Or a third class in the Middle School Examination.”

Proviso (b).—“Certificates may be withdrawn by the Director for misconduct or continued inefficiency.”

Rule 25.—After the words “The Commissioners of National Education in Ireland,” insert “or other public educational body recognised by Government.”

Rule 27.—Add words, “And in the case of teachers of other grades, with the sanction of the Director of Public Instruction.”

Rule 30.—Add words, “In remote and backward parts of the country, the proportion may be raised to one-half.”

Rule 39.—Add words, “A half-salary grant will be given to a fully qualified teacher of gymnastics, and a one-third grant to a Drill-master or Mistress who possesses also an elementary knowledge of gymnastics.”

Rule 40.—Third grade, add words, “Or a third class in the Middle School Examination.”

Proviso (b).—“Certificates may be withdrawn by the Director for misconduct or continued inefficiency.”

Rule 44.—Add words, “In the case of teachers of other grades, with the sanction of the Director of Public Instruction.”

Rule 46.—Add the following clauses:—

(c.) “A monthly grant of one anna will be given in aid of the salaries of Conductresses employed in girls’ schools for each girl not residing on the school premises who is certified by the Manager to have made fifteen full daily attendances in the month. During authorised vacations grant may be drawn according to the average grant of the two preceding months.”

(d.) “When it is proved to the satisfaction of the Director of Public Instruction that a qualified Mistress cannot be obtained for a girls’ school, he may sanction a grant of one-half salary to a Master holding a Normal Certificate, and of one-third salary to a Master holding an Ordinary Certificate. Such grant shall in no case be given for a period exceeding two years, but the sanction may be renewed for good and sufficient reasons.”

(e.) “The Director of Public Instruction may grant an honorarium, equal to two months’ salary, to a Mistress who qualifies in a second or third language of the test of the grade in which she holds a Normal Certificate, provided such language or language be South Indian vernaculars and not the vernacular of the Mistress. Grants at half the above rates may be given to a Mistress holding an Ordinary Certificate who has been employed as a teacher for two years preceding the examination. Grants equal to three months’ scholarship will be given to a female Normal Student passing in a second language in the test for which she appears.”

Rule 49.—Add words, “Any change in the management during the year may be accepted by the Inspector of the Division, subject to the veto of the sanctioning authority.”

Rule 50.—Add words, “No school will be included in this statement which has not, if a school for boys, an average daily attendance, during the three months preceding the date of application, of eight pupils; if a school for girls, of four pupils. In schools in Municipalities, the average attendance must not be less than sixteen and eight respectively.”

Rule 58.—Substitute the following for the present rule:—

“Amongst schools otherwise equally eligible, a preference will be given to those—

(a) in which school fees are levied and trustworthy returns of such fees are submitted;

(b) which are provided with a fairly sufficient teaching staff;

(c) which have fair accommodation and are otherwise well organized;

(d) which have been continuously maintained;

(e) in which certificated teachers are employed.

In the case of schools, whose maintenance is guaranteed for a given time, aid shall not be wholly withdrawn without due and sufficient notice, which shall not be less than six months.”

Rule 77.—Add words, “And for Muhammadans, 25 per cent. higher.”

Rule 78.—Add words, “No reduction or alteration shall be made in the scale of grants after the list for the year has been published.”

Rule 84.—After the words, “Well organized Normal Schools,” add words, “Such scholarships may be granted to Managers of Schools on behalf of teachers or persons agreeing to become teachers sent by them for training to any Government, Local Fund, or Municipal Normal School, or to any private Normal School recognised by Government, provided the Manager of the Normal School concerned certifies his consent to admit the student.”

Rule 85.—Add words, “In the case of students sent to Madras for training from the Ganjam, Vizagapatam, Godavari, Kistna, Cuddapah, Bellary, Kurapool, Anantapur, Malabar, and South Canara Districts, the grants will be allowed at rates 25 per cent. higher than those given above.”

Rule 91.—After “school servants,” add words “Excepting Matrons in Boarding or Industrial Schools, or Conductresses in Girls’ Schools;”

Omit the word “once.”

Appendix A.—Add the following foot-note:—

(d) “A candidate who has obtained a certificate may appear at a subsequent examination for needle-work in order to qualify as a First-grade Schoolmistress.”

Appendix C.—Add the following foot-note:—

(d) “A candidate who has obtained a certificate may appear at a subsequent examination for needle-work in order to qualify as a Third-grade Schoolmistress.”

Appendix E, Form of Application.—Open column after Column 2, headed "How long established;" after Column 6, "Average attendance of pupils during the last three months;" after Column 8, "How far complying with the requisitions of Section 58."

Substitute the following declaration for the present one: "I, the responsible Manager of the above school, promise to comply with all the provisions of the Grant-in-Aid Code relating to the system of payment for results for year if my application be accepted."

H. B. GRIGG,

Director of Public Instruction.

OFFICE OF THE DIRECTOR OF PUBLIC INSTRUCTION,
MADRAS, 20TH MARCH 1883.

EDUCATIONAL DEPARTMENT.

APPOINTMENTS.

No. 6.—Kerala Varma, Valiya Koil Tampuran, of Travancore.

Colonel J. O. Hasted, R.E.

Mr. G. K. Winter, Engineer in charge, Telegraph Department.

The Rev. W. T. Sathianathan.

Surgeon-Major A. Porter, M.D., F.R.C.S.L., M.R.I.A.

The Rev. John Hay, D.D., M.A.

Mr. C. Michie Smith, B. Sc., F.R.S.E.

The Right Rev. J. H. Speechley, D.D., Bishop of the Church of England in Travancore and Cochin.

Mr. John Ross, M.A., Edinburgh, Principal of the Maharaja's College, Trivandrum.

Mr. A. F. Sealy, M.A. (Cantab), Director of Education, Cochin—to be Fellows of the Madras University.

No. 5.—From the 1st April 1883 the Right Honorable the Governor in Council resolves to prescribe the following rules for the regulation of the examinations to be passed by Europeans and Eurasians serving in the Educational Department of the classes hereinafter defined.

2. The officers concerned are divided into two classes:—

I. Officers of the graded list, the Inspectress of Girls' Schools, the Principal of the Normal School for Masters and the Superintendent of the Normal School for Mistresses, Madras, and all officers holding gazetted appointments.

II. Masters, not being gazetted officers, of Second-grade Colleges and High Schools and Deputy Inspectors of Schools.

3. The Examinations prescribed are as follow:—

(a) A compulsory test in the Vernacular of the District, or the chief Vernacular of the Division in which the officer is serving.

(b) A High Proficiency Test in the Vernaculars in Sanscrit and in Persian.

(c) An Honor Test in the same languages.

4. Test (a) shall be as follows:—

(i) Ability to translate, in writing and *visd voce*, into English passages selected from the prescribed Second and Third Readers in the Vernacular which has been selected, and to answer questions of moderate difficulty on points of idiom or grammar.

(ii) Ability to translate in writing and *visd voce* from English into the Vernacular selected a moderately easy passage from a standard English author in simple narrative style.

(iii) Ability to converse in the Vernacular selected with a native unacquainted with English on a subject of ordinary difficulty.

(iv) Ability to give a lesson to a class of native pupils either in the first four rules of Arithmetic, or in Geography, or in History, such lesson being conducted entirely through the medium of the Vernacular.

f. An officer may present himself for examination in one or more Vernaculars,* provided that he shall not appear in more than two languages at the same examination.

6. Any officer who may have passed any examination in the Madras University in a Vernacular shall be exempted from the written portion of the examination in such Vernacular, but must appear for the *visd voce* examination and the test in teaching.

7. No pecuniary award is given for passing this compulsory test, but an officer is entitled to examination leave and travelling allowances under the Rules of the Financial Code.

8. This test shall be conducted under the orders of the Director of Public Instruction, who shall furnish the necessary papers. He shall appoint a Committee, ordinarily of three members, to superintend the examination.

9. The examination shall ordinarily be held in the months of July and January on such dates as the Director of Public Instruction may fix.

10. Officers of both the classes above mentioned, who entered the department on or after the 1st January 1880, and all officers, who are, under Rule I of the Notification of the 24th March 1883, required to pass in the Vernacular of their district or division, and have not as yet so qualified, must qualify under Test (a) to entitle them to promotion on increased pay, provided that officers not hitherto required to pass such test in a Vernacular shall not be affected by this restriction until the beginning of 1885. Any officer, not serving under special covenant, failing to pass this examination within two years from the date of his first appointment to an office in either class, shall be required to leave the department, unless the period be extended by special Order of Government, and any officer serving under special covenant shall be dealt with under the conditions of his covenant.

11. The High Proficiency Test shall be as follows:—

A.B.—In this examination Sanscrit or Persian may be brought up.

(I) Construing with readiness and accuracy from the undermentioned books:—

Tamil	..	{ 1. The 4th and 5th parts of the Panchatantra. 2. Virataparvam (Section of the Mahabharata in Prose). 3. The Tamil Minor Poets, from page 19 to page 43.
Telugu	..	{ 1. The Vemana. As in the new Edition. 2. Vikramarka. 3. The 4th and 5th parts of the Panchatantra.
Canarese	..	{ 1. Panchatantra, Bangalore Edition. 2. Kathasangraha, Prose, Part III, pages 131 to 314 inclusive. 3. Prakkavya Malika, or large Canarese Anthology, Bangalore Edition, stanzas 1 to 70, 283 to 303, 663 to 683.
Malayalam	..	{ 1. Vétala Charitram. 2. Keralaparama. 3. Keralotpatti, first half.
Uriya	..	{ 1. Hitopadesa. 2. Batrish Simhasana. 3. Ramayana Bichitra (three Cantos).
Hindustani	..	{ 1. Ikwan-us-Safa. 2. Nasar-i-Be-Nazar. 3. Araish-i-Mahfil.
Persian	..	{ 1. Gulistan. 2. Bostan. 3. Anwari Sohaili.

(II) Translating into English with accuracy a passage in narrative style, not taken from the text-books.

(III) Translating with accuracy of idiom and neatness of expression into the language in which the examination is held, an English paper in narrative style.

(IV) Translating in like manner a paper of English sentences.

- (V) Conversing (in the Vernacular language) with accuracy and fluency.
 (VI) A considerable knowledge of Grammar.

The following is the test in Sanscrit:—

- (I) Reading with prosodical correctness and construing with accuracy passages selected by the Examiners from the undermentioned books:—
 (1) Hitopadésa.
 (2) The Raghuvamsa (the first nine cantos) expurgated edition of Pandit Iswara Chandra Vidyásagar.
 (II) Translating into English as now with accuracy of a passage in narrative style not taken from the text-books.
 (III) Translating into Sanscrit with accuracy of idiom and neatness of expression an English paper in narrative style.
 (IV) Answering with general correctness a paper of questions on the elements of Sanscrit Grammar according to European Grammarians.

12. An officer may not appear for the High Proficiency Examination until he has passed the compulsory test in at least one Vernacular, nor may he appear in the language in which he has passed for the B.A. Degree in the Madras University.

13. No officer will be permitted to appear for this Examination, if he have been educated in Europe, after the expiration of seven years counted from the date of his first arrival in India, or, if he have been educated in this country, after the expiration of five years from his first appointment to the Department. No exception will be made to this rule on account of leave or other causes.

14. The Examination will be held half yearly at Madras in July and January, or at such time as the Board of Examiners, by whom the Examination will be conducted, may direct.

15. Donations will be given to successful candidates at the following rates:—
 Officers in Class I, Rupees 1,000 for each language.
 Officers in Class II, Rupees 600.

16. An officer of the graded list, who has passed for High Proficiency in a language or languages, may appear for Honors in the same language or languages excepting Uriya, provided he appears within three years from the date of his passing the High Proficiency Examination in the language concerned.

17. The examination shall be as follows:—

- (I) Construing with readiness and accuracy from the undermentioned books:—
- | | |
|------------|--|
| Tamil | 1. Sabhā Parvam (Section of the Mahābhārata in Prose).
2. The first 100 Stanzas of Krishnan Tūdu.
3. The first 24 Chapters of the Kural. |
| Telugu | 1. Nīticandrika (Mītrabhēdam).
2. Kāsiyātra.
3. Sabhā Parvam of Mahābhārata.
4. Aranya Kādam of Rāmāyanam by Bhāskara. |
| Canarese | 1. Kathā Sangraha, Bangalore Edition.
2. The Bhagavadgita.
3. Prakāvya Malika, or large Canarese Anthology, Stanzas 51 to 100, 790 to 851, 1,302 to 1,410. |
| Malayalam | 1. Nalācharitram.
2. Chānakya Sūtram.
3. Kēralotpatti (the whole). |
| Hindustani | 1. Nasar-i-Be-Nazar.
2. Fisanah-i-Ajaib.
3. Dewan-i-Atash (1st half).
4. Kuliyat-i-Saudā (Extracts from the Bengal College Edition). |
| Persian | 1. Akhalaq-i-Jalali.
2. Insha-i-Abulfuzl.
3. Sikandar Namah.
4. Dewani Hafiz. |
- (II) Translating into English with accuracy two passages, one in prose and the other in poetry, selected from some difficult work not being a text-book.

- (III) Translating a difficult passage from English with accuracy, elegance and neatness of expression, and perfect correctness of spelling and Grammar.

- (IV) Conversing (in the Vernacular language) with accuracy and fluency.

- (V) A knowledge of Grammar to a much larger extent than is required in the examination for High Proficiency.

The following is the test in Sanscrit:—

- (I) Reading with prosodical correctness and construing with accuracy passages selected by the Examiners from the undermentioned books:—
 (1) The first and second Adhyāyas of the first Ashtaka of the Rig-vēda Samhita; Edition about to be published.

- (2) The Kirātārjuniya (Cantos I to VI and XI to XVIII inclusive) expurgated edition, by Pandit Iswara Chandra Vidyāsagar.

3. The drama of "Sakuntalā."

- (II) Translating into English with accuracy a passage in poetry, or partly prose and partly poetry, selected from some difficult work not being a text-book.

- (III) Translating into Sanscrit with accuracy, elegance, neatness of expression, and perfect correctness of spelling and grammar a difficult passage from English.

- (IV) Answering with general correctness a paper of questions on Sanscrit Grammar according to European Grammarians.

The Honors Examination will be of a searching nature, and the exercises, both oral and written, must be performed with such excellence as distinctly to establish a claim to eminent proficiency.

18. The reward for passing such examination shall be Rupees 1,500 for a Vernacular language and Rupees 2,000 for Sanscrit or Persian, and the successful candidate shall be entitled to receive a diploma signed by the Head of the Government of his Presidency.

APPOINTMENTS

Sanctioned by the Director of Public Instruction, during the month of March 1883.

D. Jaganatha Row, B.A., to be *Sub pro tem*, 6th Assistant, Berhampore College, on Rs. 40.

D. Raghavendra Rau, B.A., to be *Sub pro tem*, Head Master, Government Middle School, Amalapuram, on Rs. 40.

Mr. R. S. Bower, B.A., 2nd Assistant, Saidapet High School, to act as 1st Assistant, vice R. Chakravarti Aiyangar, on other duty, or until further orders.

Miss S. Rajagopal, to be Assistant Superintendent, Government Female Normal School, Madras.

Miss Bernard, to be Head Mistress, Practising School.

Miss Uhlemann, to be Drawing Mistress.

Miss A. Shanmukham, to be Head Mistress of the Government Girls' School, Kumbakonam.

R. Chakravarti Aiyangar, B.A., 1st Assistant, Saidapet High School, and acting 1st Assistant Salem College, to act as 6th Assistant, Kumbakonam College, during Ramachandrayya's absence on leave, or until further orders.

T. V. Subbarama Aiyar, B.A., 3rd Assistant, Salem College, to act as 1st Assistant, temporarily during Chakravarti Aiyangar's absence on other duty.

N. Venkoba Rau, B.A., 4th Assistant, Salem College, to act as 2nd Assistant; T. V. Subbarama Aiyar, on other duty.

S. T. Kallapiran Pillai, B.A., 6th Assistant and Acting 5th Assistant, to act as 3rd Assistant.

P. Ramakrishna, to be *Sub pro tem*, 5th Assistant, Mangalore College.

M. R. By. R. V. Srinivasa Aiyar, B.A., 3rd Assistant, to act as 2nd Assistant, Kumbakonam College.

Do. N. Vaidyanatha Aiyar, M.A., 5th Assistant, to act as 3rd Assistant.

Do. K. Sundararama Aiyar, M.A., 6th Assistant, to act as 4th Assistant.

Do. P. Narayana Chariyar, M.A., to act as 5th Assistant.

Do. K. R. Duraswami Aiyar, B.A., to act as 6th Assistant, during Mr. Ramachandra Aiyar's absence on leave, or until further orders.

Do. Chakravarti Aiyangar, B.A., 1st Assistant, Saidapet High School, to act as 7th Assist., Kumbakonam College, until further orders.

Do. N. Raghunatha Chariyar, B.A., 1st Assistant Master, Bellary College, to be Head Master, High School, Tellicherry, but to continue to act as Head Master, Madura College.

Do. K. S. Rama Rau, B.A., 1st Assistant, Mangalore College, to be 1st Assistant, Bellary College, but to continue to act at Kurnool.

Do. S. Mangesha Rau, B.A., 2nd Assistant, Mangalore College, to be 1st Assistant.

Do. N. Krishnayya, B.A., 3rd Assistant, to be 2nd Assistant, Mangalore College.

N. Raghavendra Rau, B.A., 4th Assistant, to be 3rd Assistant, Mangalore College, but to continue to act at Bellary.

K. Visvesvara Rau, B.A., 5th Assistant, to be 4th Asst., Mangalore College.

T. J. Venkatachala Aiyar, B.A., 6th Assistant, to be 5th Assistant, Mangalore College, but to continue to act at Madura.

S. Selvanayagam, Assistant Master, Government College, Calicut, to be Probationary Deputy Inspector of Schools, Central Range, Coimbatore, on Rs. 75.

Mr. C. H. Tambu Pillai, B.A., (trained) 1st Assistant, Madura College, to act as Superintendent, Vernacular Studies, Government Normal School, Madras.

M. R. By. K. P. Guruswami Aiyar, B.A., Deputy Inspector of Schools, Kavali Range, Nellore, to act as 1st Assistant, Madura College, vice Tambu Pillai.

(These appointments will take effect from the closing of the Madura College, for the summer vacation. Mr. A. M. Winfred will on being relieved revert to Chittoor.)

V. Krishnamurti Pantulu, B.A., to be *Sub pro tem*, 4th Assistant, Berhampore College, vice C. N. Subrahmanyam, on other duty, or until further orders.

B. Koneti Aiyar, B.A., Writing Master, Clerk and Librarian and Acting 6th Assistant, to act as 4th Assistant, Salem College, vice Venkoba Rau, on other duty.

D. Venkatachala Aiyar, B.A., late 4th Assistant, Walajahpet School, to act as 5th Assistant, Salem College.

S. Shanmukha Mudali, B.A., to act as 6th Assistant, Salem College.

V. Raghunatha Aiyar, B.A., (trained) Head Master, Middle School, Hosur, to be *Sub pro tem*, 7th Assistant, Salem College.

T. Janakiramayya, B.A., (trained) 6th Assistant, High School, Chittoor, to act as 2nd Assistant, High School, Saidapet, vice Mr. Bower, on other duty.

P. Guruswami Aiyar, 1st Assistant Master, Muhammadan School, Vellore, to act as 4th Assistant, High School, Chittoor, vice Soundraraja Aiyangar, on other duty.

S. Venkata Subbayya, B.A., to be *Sub pro tem*, Head Master, Middle School, Arcot, vice S. Swaminatha Aiyar, under training.

LEAVE.

T. Amalados Pillai, 2nd Assistant, Salem College, Privilege leave for 2 months from the 27th February 1883.

C. Elaiyatambi Pillai, 5th Assistant, Salem College, an extension of sick leave for 6 months.

R. Swaminatha Aiyar, Deputy Inspector of Schools, Eastern Range, Tinnevely, leave on forfeiture of full pay for one year with effect from the 5th February 1883.

J. T. FOWLER,

Acting Director of Public Instruction.

EDUCATIONAL NOTIFICATIONS.

TESTS IN NEEDLE-WORK.

The Director of Public Instruction notifies for the information of the public that His Excellency the Governor in Council has been pleased to sanction the following Tests in Needle-work for the Fourth, Fifth, Sixth, and Seventh Standards, and also the revised Tests in Needle-work for the three Grades of Schoolmistresses, with effect from 1st April 1883.

FOURTH STANDARD.

Cutting out and making a European chemise showing gathering, back-stitching, felling, button-hole, and band,
Fine darning on old cloth or stocking web,

or
Cutting out and making a native woman's jacket and petticoat showing gathering, back-stitching, felling, button-hole, and band,
Fine darning on old cloth.

Rate Rs. 3-0-0

FIFTH STANDARD.

Plain.

Cutting out and making finely, on fine cloth, a European night-dress showing same kinds of work as in Standard Four,
Neat patching of old cloth,

or
Cutting out and working finely, on fine cloth, a native boy's cap and jacket showing back-stitching, felling, button-hole, and band.
Neat patching of old cloth.

Rate Rs. 3-0-0

Fancy.

Ability to work a simple pattern in any one kind of fancy work,
Ability to mark the English or Vernacular letters on canvas or cloth.

Rate Rs. 1-8-0

SIXTH STANDARD.

Plain.

Cutting out and making finely, on fine cloth, a European child's frock showing same kinds of work as in Standard Four with the addition of tucks,
Neat patching and fine darning on old cloth,

or
Cutting out and making finely, on fine cloth, a native man's short jacket showing work of the kinds mentioned in Standard Five.
Neat patching and fine darning on old cloth.

Rate Rs. 3-8-0

Fancy.

Ability to work two or more patterns in one or two kinds of fancy work,
and
Ability to mark letters very finely on fine cloth.
Rate Rs. 1-12-0

SEVENTH STANDARD.

Plain.

Cutting out and making very finely, on fine cloth, a European shirt showing
superior work of the kinds mentioned in Standard Four,
Mending neatly an old garment,

or
Cutting out and fitting neatly together all the garments specified for the Fourth,
Fifth, and Sixth Standards. Working enough of one garment to show superior
work of the kinds mentioned in Standard Four.
Mending neatly an old garment.
Rate Rs. 4-0-0

Fancy.

Ability to make finely and neatly, of fancy work, a finished article, such as a
bag, sock, scarf,

and
Ability in marking as in the previous standard.
Rate Rs. 2-0-0

Proviso.—No grant will be paid for fancy work to a pupil who has failed to get
half marks for plain work.

SPECIAL UPPER PRIMARY EXAMINATION.

Cutting out and working, on fine cloth, a finely-made European night-dress,
including superior gathering, back-stitching, and button-holes,
Neat patching and darning,

or
Cutting out and working, on fine cloth, a native man's short jacket, finely-made,
including superior back-stitching and button-holes.
Neat patching and darning.

MIDDLE SCHOOL EXAMINATION.

Cutting out and making, on fine cloth, a finely-made European shirt,
including superior back-stitching, gathering, and button-holes,
Neat patching and fine darning,

or
Cutting out and neatly fitting together a native woman's jacket and petticoat,
and

A native boy's cap and jacket,

and
A native man's short jacket. Working enough to show superior hemming
back-stitching, and button-holes.
Neat patching and fine darning.

HIGHER EXAMINATION FOR WOMEN.

Cutting out and making a European women's dress in miniature, accurately cut
and finely-made,

or
Cutting out and making a native man's under-jacket and long coat, accurately
cut and finely-made.

H. B. GRIGG,

Director of Public Instruction.

"Gladly would he learn and gladly teach."

THE
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New Series.

ESSAY ON POETRY.

CHAPTER I.

DEFINITION AND GENERAL CHARACTERISTIC.

Poetry, or Poesy, (which latter word, as more musical, and nearer to the original, deserves to have the preference,) derives its name from the Greek noun *ποιησις*, formed from a verb signifying to make, to image, or to create; and indeed imagery and invention are the grand characteristics of poetry.

Poetry is generally defined to be *the art of composing, so as to delight, in VERSE.*

This definition seems to agree with the form, the matter, the means, and the end; and it will apply to good poetry of every kind. There is however one strong objection to it; as some works of transcendent excellence of invention and imagination, are *not poetry* according to this definition.

Aristotle makes the essence of poetry consist in imitation: at the beginning of his *Poetics*, he describes music, dancing, and poetry, as imitative arts. Horace requires the poet to make his language a copy of life: *respicere exemplare vite*.

Among modern critics, Vossius defines poetry to be the art of representing actions in metre; Batteaux, in his *Belles Lettres*, calls poetry the imitation of elegant nature; and Trapp, in his *Lectures on Poetry*, gives, upon the same principle, this laboured definition: "Poetry is the art of imitating, or illustrating, in metrical numbers, every being in nature, and every object of the imagination, for the delight and improvement of mankind." Without dwelling upon the obvious objection to this definition, that the term *imitation* is improperly used to express the description of objects by arbitrary signs, which exhibit no copy of nature; if the definition be admitted, it must evidently comprehend all verbal delineations of nature, whether in verse or prose. A prose-comedy is at least as perfect an imitation of nature, as a tragedy in verse; and a well written novel is as accurate a copy of nature, as an epic poem.

Other critics have chosen to derive their definition of poetry from its *end*; though they have by no means agreed, whether that end be principally

to instruct or to please. Racine, and others, have held, that the primary object of poetry is instruction; and in support of this opinion they have remarked, that, in ancient times, poetry was employed as an auxiliary to promote the influence of religion and virtue. Dr. Hurd, a critic of great refinement and classical taste, has, on the contrary, taken much pains to prove that the first object of poetry is to please, and that this is the only kind of literary composition in which use is subordinate to pleasure; and he has hence deduced a definition of poetry, considered as an art, describing it to be "such a way, or method, of treating a subject, as is found most pleasing and delightful to us."

A definition of poetry, similar to that of Bishop Hurd, is given by Johnson. "Poetry is the art of uniting pleasure with truth, by calling imagination to the help of reason." "The true poet," he adds, "enables you to feel what you remember to have felt before, and to feel it with a great increase of sensibility: you recognize a familiar image, but meet it again amplified and expanded, embellished with beauty, and enlarged with majesty."

Those writers have perhaps approached nearest to a true definition of poetry, who have understood it to be the immediate offspring of a vigorous imagination and quick sensibility, and have called it the language of fancy and passion. This appears to have been the idea entertained of poetry by Plato, and to have furnished the chief ground of his exclusion of poets from his ideal republic. Cicero formed the same notion of poetry; and said, that "while all other accomplishments must be acquired by instruction and precept, the poet derives sufficient resources from himself, from the native vigour of his mind, and a certain divine impulse." His sentiment is adopted, among the moderns, by Dr. Blair. From this conception of poetry arise the terms *poetic enthusiasm*, and *poetic inspiration*. In the state of nature, before the art of versifications was known, men must have felt strong passions, and expressed them strongly: Their language would be bold and figurative; it would be vehement and abrupt: sometimes, under the impulse of the gentle and tender, or the gay and joyous passions, it would flow and in a kind of wild and unfettered melody; for, under such feelings, melody is natural to man. These first expressions of passion and sentiment would be poetry, but they would not assume the regular form of verse. So artificial invention must have been the result of innumerable efforts, and could not attain any high degree of perfection but in a period of great refinement. "No one can doubt," says Quintilian, "that poetry, at first, flowed without art; and that it was reduced to metre after the ear had discovered, by frequent observation, the regular intervals of melodious sounds."

If the several excellences of poetry be distinctly examined, it will be found that, except measured harmony, none of these are excluded from prose.

The character of poetry, which may seem most to require that it be limited to verse, is its appropriate diction. It will be admitted, that metaphorical language, being more impressive than general terms, is best suited to poetry. That excited state of mind, which poetry supposes, naturally prompts a figurative style. But the language of fancy, sentiment, and passion, is not peculiar to verse. Whatever is the natural and proper expression of conception of feeling in metre, or rhyme, is its natural and proper expression in prose. All beyond this is a departure from the true principles of taste. If the artificial diction of modern poetry would be improper, on similar occasions, in prose, it is equally improper in verse. In support of this opinion, an appeal may be made, not only to the general

sense of propriety, but to those most perfect models of fine writing, the Greek poets. The language of these great masters is always so consonant to nature, that, if thrown out of rhythm (or metre), it would become the proper expression of the same sentiment in prose. If modern poetry will seldom bear to be brought to such a test, it is because the taste of the moderns has been refined to a degree of fastidiousness, which leads them to prefer the unsolid ornaments of art, to the genuine simplicity of nature.

Horace gives the honourable appellation of poet, not to the mere versifier, but to the man who possesses the divine inspiration of genius, and can command a suitable grandeur of expression:—

Ingenuum cui sit, cui mens divinior, atque os

Magna sonaturum, des nominis hujus honorem.

And to prevent misapprehension, he gives an example of a passage from Ennius, in which, when the verse is broken up (that is, when the passage becomes prose), the reader still finds the limbs of the disjointed poet: *disiecti membra poetæ*.

In limiting the name of poet to the composer of verses, it has not been sufficiently perceived, that all the essential and most valuable powers of poetry may be found in a writer who does not understand, or is unwilling to submit to the mental fatigue of practising, the art of versification. It is not my design to depreciate this art. Though it may not, in these degenerate times, be able to perform all the wonders recorded of Orpheus's lyre, it can still add an irresistible charm to the works of fancy. Verse is certainly the fairest dress of poetry; and when true genius and correct taste employ it to embellish their labours, the finished piece is deservedly placed in the first class of human productions. But let not the honour due to that divine enchantress, Poesy, whose sublime conceptions fill the imagination and delight the heart, be bestowed upon the handmaid whose humble office consists alone in melodious arrangement. This would be as if the mechanical hand that prepares and mixes the painter's colours, were to carry off the praise due to the creative mind which formed and executed the design. Nor let those whose literary compositions are dictated by a ready invention, a glowing fancy, and a feeling soul, and chastised by a sound judgment, be refused an honourable station among poets, merely because their works are not cast in the mould of verse. The exclusive homage which has hitherto been paid to the former class of writers, should be dismissed with other superstitions; and the merit of every literary performance should be fairly estimated, not by the comparatively trivial circumstance of having been written in prose or verse, but by its share of those far superior qualities before mentioned.

It obviously follows, from the point thus established, that the terms *poetry* and *prose* are incorrectly opposed to each other. Verse alone is properly considered, the contrary of *prose*; and because poetry speaks the language of fancy, passion, and sentiment, and philosophy speaks the language of reason, writing should be divided, not into poetry and prose, but into *poetry* and *philosophy*: a division which might answer a useful purpose, by occasionally reminding both poets and philosophers of the necessity of keeping within their respective provinces. Poets might learn that their proper office is to amuse rather than to instruct the world, in which latter attempt they have hitherto had little success; and (which is more important) philosophers might learn, in instructing mankind, to abandon the idle project of amusing them at the same time with poetical fancies and fictions.

(To be continued.)

The following brief sketch of the history and form of the sonnet adapted from Professor Morell's "English Literature," may be useful to students preparing for the several Local Examinations.

The word "sonnet" is derived from the Italian *sonnetto* and means a short song or poem. Its invention has been ascribed to Guido of Arezzo, in 1024, but it was Petrarch (1304—1374), who first used it largely and developed its many hidden powers to the highest possible degree. It has always been a favourite form with the Italian poets. The Earl of Surrey who was an ardent student of Dante and Petrarch introduced the form into England, but it was Milton who gave the sonnet a firm place among the forms of English verse. Writing of the sonnet, Wordsworth finely says, that in Milton's hand,

The thing became a trumpet, whence he blew
Soul-animating strains, alas! too few.

Shakespeare has written several hundred sonnets, but they scarcely deserve the name in a metrical sense, their construction being so inartificial. They are only three quatrains of iambic pentameters alternately rhymed, closing with an ordinary couplet and the only point in which they resemble the Italian sonnet is that they consist of fourteen lines. Milton's sonnets are all, without exception, framed in strict accordance with the severe Italian model. He wrote only seventeen in all, and Dr. Johnson thought but little of them. "Three of them are not bad," he said; and he accounted to Hannah More, who too docilely took Dr. Johnson's judgment as final, for the amazing badness of the rest, by saying, "Why, Madam, Milton's was a genius that could hew a Colossus out of a rock, but could not carve heads on cherry-stones." In later times, the two writers who have contributed most largely, and with the highest excellence to our comparatively small stock of English sonnets are Wordsworth and Mrs. Browning. The sonnet consists of two parts, an *octave* and a *sextant*. The octave (or eight lines) consists of two quatrains, and the sextant (or remaining six lines) of two tercets. The subject is supposed to be stated in the first quatrain, illustrated in the second, applied in the first tercet, and the whole summed up or concluded in the second. In the octave there must be only two rhymes, and in the sextant there may be two or three. The rhymes in the two quatrains, should be "extreme and mean" (that is, two outside rhymes and two inside), thus:—*a b b a | a b b a*. The rhyme in the sextant may be either, *a b c | a b c*, or *a b a b | a b a c c*. The first of these is the most usual.

The following sonnets from Shakespeare and Milton will illustrate what has been said above as regards their metrical composition.

A CONSOLATION.

When in disgrace with fortune and men's eyes
I all alone beweepe my outcast state,
And trouble deaf heaven with my bootless cries,
And look upon myself and curse my fate;

Wishing me like to one more rich in hope,
Featur'd like him, like him with friends possess'd,
Desiring this man's art, and that man's scope,
With what I most enjoy contented least;

Yet in these thoughts myself almost despising,
Haply I think on thee; and then my state,
Like to the lark at break of day arising
From sullen earth sings hymns at heaven's gate;
For thy sweet love remember'd such wealth brings
That then I scorn to change my state with kings.

SHAKESPEARE.

ON HIS BLINDNESS.

When I consider how my light is spent,
Ere half my days, in this dark world and wide
And that one talent which is death to hide
Lodg'd with me useless, though my soul more bent
To serve therewith my Maker, and present
My true account, lest He returning chide;
Doth God exact day-labour, light deny'd
I fondly ask; but Patience to prevent
That murmur, soon replies, God doth not need
Either man's work or his own gifts; who best
Bear His mild yoke, they serve Him best: His state
Is kingly; thousands at His bidding speed
And post o'er land and ocean without rest;
They also serve who only stand and wait.

MILTON.

EDUCATION IN INDIA.

At the last meeting of the Statistical Society, held in the theatre of the Royal School of Mines in Jermyn-street, the President, Mr. Robert Giffen in the chair, the Rev. James Johnston read a paper on "Education in India and the Indian Commission on Education."

Mr. Johnston called attention to the interest excited in, and the stimulus given to education, by the Education Commission appointed by the Viceroy in February of last year. The Commission, which was the largest and most fully representative of all classes and each province that ever sat in India, had for its great object to enquire into the working of the education despatch of 1854, and to find out the best means for carrying out the provisions of that great charter of education in India. The grand design of that despatch was shown to be the education of the masses; encouragement of voluntary effort; the system of grants-in-aid; and the establishment and temporary maintenance of Colleges when needful by Government, until the people were able to conduct themselves when they were to be handed over to local management, with liberal grants from Government. The Universities which were to be set up in the three Presidencies on the model of the London University, being entrusted with the permanent maintenance of the character and standard of the higher education; special encouragement to be given to technical and normal Schools and Colleges. He then showed what had been accomplished under this system in the last 28 years during which the Act had been in operation. It appeared that there are now in all India 16,649 institutions, with 26,074 pupils on the roll, directly under Government management; 50,207 institutions, with 1,111,343 pupils on the rolls, under the grants-in-aid

system; and 15,705 institutions, with 314,697 pupils unaided, but less or more under the influence or inspection of the Education Department; given a total of 2,195,614 on the roll, and an average daily attendance of little more than 1,500,000 for the whole of India. After an account of the indigenous schools, which have existed in India from time immemorial, but have for many years been decreasing in number and efficiency, and though still numerous, may for practical purposes of education be disregarded, except as the basis for starting on new lines, for which they may to a large extent be taken advantage of, it was shown that there are still in India upwards of 30,000,000 of children who were unprovided with the means of education worthy of the name—that there was little more than one boy in 10 of school age on the roll of our schools, “Government” “aided,” and “unaided” and not one girl in 100 of school age, there being only 133,000 in school of any kind in all India. The entire sum expended on education in India by last return was £1,615,000, of this £670,000 is derived from the “Government grant,” about £3,000,000 from “local rates” and “municipal grants,” £317,800 from “fees and fines,” £140,000 from “subscriptions” and “endowments,” and the remainder from “other sources” and “revenues of Native States.” Of the £670,000 of the Government grant for education in all its departments in all India, it appeared that upwards of £101,000 was expended on the College department, more than £174,000 on the higher and middle schools, and only £118,315 on the department of primary education. To make up for the insufficiency of this sum for the £1,893,000 in primary schools, the “local tax” or “cess” and “municipal grants” were imposed on the poor ryots and municipalities, from which chiefly the Government revenue was derived, out of which so large a proportion had been diverted to the higher education, contrary to both the spirit and letter of the education despatch of 1854. The three Universities had in 25 years passed 30,111 out of 79,523 candidates for admission to the Colleges, of which there are 88 in all India, about 50 of them being arts Colleges, and the remainder professional or technical. Of these 27,588 became candidates for degrees of all kinds, and 11,514 passed. The cost of students in Government Colleges is found to be very large, and out of all proportion, to what it is in “aided” Colleges. One of the Directors of Public Instruction calling the attention of the Government to the fact that it was paying as much as £720 for the education of each student who obtained a degree in their Colleges, while in the aided Colleges alongside it “the same article” was produced for £76. It appears that, of these costly “articles,” comparatively few are found fit for Government employment in places of trust, and a large number pass off disappointed and discontented with inferior positions, and not a few become disloyal members of Society, where they employ the education they have received against the interests of the Government which gave it. While advocating the maintenance of the higher education in Schools and Colleges, it is of great importance to teach the people of India that if they wish to enjoy the honors and emoluments which can be obtained by it they must learn to contribute liberally towards its support, as they were in the habit of doing before the English Government took that burden upon itself; and the only way to secure this end is for Government to retire from the direct control and support of high Schools and Colleges, and trust them to the local management of the natives of India, with the help of liberal grants from public funds. It is found that notwithstanding the large sums expended in the support of Government Colleges, there are very few of the higher class of the natives who send their sons to School or College, and the former rulers of India, the Mahomedans, are

practically excluded from getting Government appointments of any importance, because they cannot or will not send their children to our Government Colleges, and consequently neither of these important classes of the community can take their proper place in the Government or administration of the country. The classes who are now most largely getting into the highest appointments under Government are the sons of Brahmins of the poorer class, many of them the sons of “begging Brahmins.” This fact, and other considerations which have been too long overlooked, show that there is a want of adaptation in our present system to the needs and feelings of the people, and, in view of the great demand for an extension of education among the poor, formed a sufficient ground for the Indian Government appointing the important commission which is now engaged in drawing up its report, after a very careful and thorough inquiry into the past and present working of the education despatch of 1854.—*Madras Mail*.

HARRIS SCHOOL, ROYAPETTAH.

DISTRIBUTION OF PRIZES.

Sir Chas. A. Turner distributed the prizes to the pupils of the above school at 5-30 P. M. yesterday. Among those present were Mr. J. T. Fowler, the Rev. G. Billing, Rev. J. Cooling, Miss Green, Miss Waley, Mr. C. M. Barrow, the Rev. Mr. Halsey, Mr. D. Sinclair, Mr. J. H. Bullivant, the Rev. W. T. Sathianadhan, the Rev. A. Alexander, the Rev. Mr. Patterson, Mahommed Abdul Wasia Khan Bahadur, Muhammad Hussan Ali Khan Bahadur, Muhammad Azam Hussan Khan Bahadur, Mahommed Nazeruddin Khan Bahadur, Haji Mulvi Zahuruddin Ahmed Khan Bahadur, and Ahmed Ali Khan Bahadur. The proceedings commenced by the Rev. Mr. Sell offering a prayer and then reading the report, which latter showed that there were 163 boys on the roll, “the highest number yet reached and as many as the school could accommodate.” The founders of the school twenty seven years ago gave them the present school room, but it then seemed that so large a number of Mahomedan boys “would never attend a mission school, and the correctness of that view was certainly borne out by the early history of the school, but now Mahomedans, like men of other creeds, find that they must go with the times, and that a scornful isolation injures themselves more than it does any one else.” From an educational point of view it had not been so successful a year as some of its predecessors—only one boy passed in matriculation. In the Middle School Examination two boys passed in the first and three in the second class, ten passed in the Upper Primary and nineteen in the Lower Primary Examination. Lady Turner gave Rs 120 for scholarships, and Lord Harris, who visited the school in December last, gave Rs. 250 for scholarships. The Rev. J. B. Meyer, Professor, King's College, also gave a scholarship. The Bible was taught without reserve in the school. Mr. Sell also read the report in the Persian language to the Mahomedan gentlemen who were present, after which Sir Charles Turner distributed the prizes, and delivered an address. He regretted his inability to address those before him either in the language of Hindostan or in the still more cultivated language of Persia; but it was his good fortune, when he came to the country seventeen years ago, to find occupation in the North-West Provinces, and there he saw those magnificent buildings which spoke to the architectural taste and the magnificence of the Mahomedan rulers of India, and he was therefore not disappointed to find amongst the present representatives of the race men with whom he was

glad to make friends, men whose conversation was not only pleasant and agreeable but also intelligent; they had even assisted him greatly in discharging the duties entailed upon him. There were some Mahomedan gentlemen from India pursuing their education in London, and the speaker hoped that when he next went to London he would have the pleasure of seeing some representatives of the Mahomedan community from this part of India also pursuing their education in London. They could not in the present century afford to be isolated; it was owing to their keeping aloof in a great measure from the study of the English language that the Mahomedan community had not taken so high a position in Government service; they were otherwise far superior to Hindus. In the North-West Provinces, however, many high positions in the service of Government were creditably occupied by Mahomedans, but no race should look principally to Government service; there were other professions too for which one might qualify oneself. The speaker was glad to notice that the school had already done good work; moreover it was carried on by men who had their hearts in it, and the presence of so many Mahomedan gentlemen on this occasion showed that the work was much appreciated. He concluded by asking all to join him in wishing success to Harris school.

The Rev. M. G. Goldsmith then proposed a vote of thanks to the Chairman, which was unanimously adopted. The pupils then engaged in athletic sports, which terminated the proceedings.—*Madras Mail*.

LA MARTINIÈRE COLLEGE, LUCKNOW.

TEST EXAMINATION—ROORKEE CLASS.

ENGLISH.

1. (a) In *sooth* I know not why I am so sad;
It wearies me; you say *it* wearies you.
- (b) My wind cooling my broth,
Would *blow me to an ague*, when I thought
What harm a wind too great might do at sea.
- (c) Tell me where is *fancy* bred,
Or in the heart or in the head,
.....
Let us ring my fancy's knell.
- (d) Towards whose hearts are all as false
as *slayers* of band.
I will not *jump* with common spirits
To excuse the *current* of thy cruelty.
Every *offence* is not a hate at first.
- (e) Bid the *main flood* bate his usual height,
And *for thy life* let justice be accused.
You stand within his *danger*, do you not?
The quality of mercy is not *strained*.....
.....it is twice *blessed*.

Give the meaning of the words and expressions in italics in (a), (b), (c), (d), (e), adding explanatory notes where necessary; also explain fully passages (b) and (e) in relation to the context.

2. (a) Hail, Holy Light! offspring of heaven *first born*.
Or of the eternal *co-eternal* beam,
May I express thee *unblamed*? Since God is light,
And never but in unapproached light
Dwelt from eternity, dwelt then in thee,
Bright *effluence* of bright *essence increate*,
Or hear'st thou rather pure ethereal stream,
Whose *fountain* who shall tell?
- (b) Meanwhile upon the firm opacous globe,
Of this round *world*, whose first *convex*
Divides the luminous *inferior* orbs, inclosed
From chaos and the world of Darkness *Old*;
Satan alighted, walks.
- (c) And oft, though wisdom wake, suspicion sleeps
At wisdom's gate, and to simplicity
Resigns her charge.
- (d) O thou that with surpassing glory crowned,
Look'st from thy *sole* dominion like the God of this
new *world*.
- (e) The eternal, to prevent such horrid fray,
Hung forth in heaven his golden scales, yet seen,
Betwixt Astrea and the scorpion sign.
Wherein all things created first he weighed,
The pendulous round earth with balanced air,
In counterpoise, now ponders all events,
Battles and realms, in these he put two weights,
The sequel each of parting and of fight,
The latter quick upflew and kicked the beam.

Explain passages (a), (b), (c), (d), (e), with special reference to the words in italics.

3. What were Milton's views on the doctrines of election and predestination? Give the sense of passages in Book III of *Paradise Lost* bearing on these doctrines.

4. "Nature without art, and art without nature, had reached similar but not identical results in style."

Explain this sentence.

5. What is the *Instauratio Magna* of Lord Bacon? What effect had Bacon's works on the progress of science?

6. Name the chief works of Milton, describing very briefly the character of each.

7. What are the most important points to be attended to in securing the retention of facts once impressed on the imagination?

8. How does Plato characterize a lie? What three besetting sins principally induce young men to act social lies? Illustrate your answer.

ENGLISH AND INDIAN HISTORY.

I. Alfred and Canute are each called "The Great," and William I is styled "The Conqueror." State their claims to these titles.

II. State the causes and results of the quarrels between (1) Henry II and Thomas A Becket, (2) King John and the Pope, (3) King Henry VIII and the Pope.

III. Give a brief account of the history of Ireland at the following periods: (1) Reign of Henry II., (2) Reign of Elizabeth, (3) during the Commonwealth, (4) At the Revolution.

IV. State the causes which led Edward III to begin the war with France and *enumerate* in chronological order the leading events of that war from 1336 to 1451.

V. Give a brief history of the Civil War in England between the king and the Parliament (1640-1660).

VI. Explain the following: Statute of Labourers, Habeas Corpus, Declaration of Indulgence, Act of Settlement, Free Trade, Catholic Emancipation, Reform Bill.

VII. Give the History of (1) The Duke of Marlborough, (2) The Duke of Wellington.

VIII. Tell all you know about the following:—(1) Buddha, (2) Chundra Gupta, (3) Muhammad Ghor.

IX. Give a brief account of the rise of the Moghul power till the accession of Akbar.

X. State the extent of the Moghul Empire at the death of Aurungzeb, and briefly indicate the different forces which led to its downfall.

XI. Narrate briefly the history of the following:—(1) Tipu Sultan, (2) Baji Rao, (3) Ranjit Singh.

XII. State the causes of the Sepoy Mutiny in 1857 and give the history of its suppression.

PHYSICAL SCIENCE.

1. Explain fully the causes of the south-west and north-east monsoons.

2. Mention the four chief classes of rocks, stating as clearly as you can, the manner of their formation.

3. What analogy does a glacier bear to a river? Explain why a glacier behaves to some extent like a liquid.

How do you account for the existence of boulder clay containing large blocks of stone called boulders?

4. How is it that large rivers do not dry up during a long period of drought?

5. Explain the principle of the action of a syphon.

6. A pound of ice at 0°C . is mixed with two pounds of water at 100°C .—What is the resulting temperature when thermal equilibrium is regained? If instead of water, two lbs. of steam at 100°C . be used, how much of the steam would be condensed?

7. In what different manners does Vibratory Motion manifest itself to the senses? Point out the analogies and differences between a vibrating string, a hot substance, and a ray of light.

8. A thin elongated body is placed before a plane mirror (1) parallel to the mirror, (2) in any position. Draw the rays by means of which the extremities of the body are seen in each case.

9. Describe the construction of a Leyden Jar, and explain its action as an electric accumulator.

10. Represent by an equation the production of Hydrogen from Zinc and Sulphuric Acid, and find how much Sulphuric Acid must be used to get 50 lbs. of Hydrogen.

11. Describe the arrangement of an apparatus used for determining the composition of water by weight.

12. Explain fully the bleaching action of Chlorine.

ARITHMETIC.

1. At an upper school, divided into 4 classes, $\frac{1}{4}$ of the boys are in the first class, $\frac{1}{4}$ in the second class, $\frac{1}{4}$ in the third, and in the fourth 6 boys more than half the number of the first three. Find the whole number.

2. Extract the square root of 191810.713444, and find to three places of decimals the value of—

$$2\sqrt{3} - \frac{1}{2}\sqrt{12} + 4\sqrt{27}.$$

3. A space 440 yards long and 20 yards wide is to be covered with wooden blocks 9 inches long, 4 inches wide, and 6 inches deep; the blocks are to be placed lengthways in rows across, with a space of 1 inch between; find the number of blocks required, and the cost at Rs. $1\frac{1}{2}$ per cub. foot of wood.

$$4. \text{ Simplify } \frac{\frac{1}{2}}{(\frac{1}{2}-\frac{1}{4}) \times (\frac{1}{2}-\frac{1}{4})} + \frac{\frac{1}{3}}{(\frac{1}{3}-\frac{1}{6}) (\frac{1}{3}-\frac{1}{6})} + \frac{\frac{1}{6}}{(\frac{1}{6}-\frac{1}{12}) \times (\frac{1}{6}-\frac{1}{12})}$$

5. An article of commerce passes successively through the hands of three dealers, each of whom, in selling, adds as his profit 10 per cent. of the price at which he bought it; if, under these circumstances, goods are sold by the third dealer for Rs. 332-14-0, what did the first dealer pay for them?

6. By how much does the compound interest on £1200 for $1\frac{1}{2}$ years, at 10 per cent. paid half-yearly, exceed the simple interest on the same sum for the same time?

7. I give Rs. 52 $\frac{1}{2}$ for two dozen of wine at different rates per dozen, and by selling the cheaper kind at a profit of 20 per cent., and the dearer at a loss of 10 per cent. I obtain a uniform price for both. What does each dozen cost me?

8. Find, by Practice, the value of 2 roods, 19 poles, 12 yards of land at £80 13s. 4d. per acre.

9. The first, second, and third class fares on a railway are 3 pies, 2 pies, and 1 pie per mile respectively; find the distance travelled by two men, one of whom travels first class one quarter of the distance and the remainder second class, and pays 8 annas 9 pies more than the other man, who travels third class all the way.

10. How many men working at the rate of $5\frac{1}{2}$ as. per hour for 9 hours on each of 23 days can earn the same wages as 22 men working at the rate of $5\frac{1}{2}$ as. per hour for $3\frac{1}{2}$ hours on each of 18 days.

11. A piece of work can be done by 40 men, working 10 hours a day for 17 days. How long will 17 men, 17 women, and 17 children take to do it, each child working 4 hours a day, and its working power being equal to one-third of a man's, each woman working 6 hours a day, and her working power being equivalent to two-thirds of a man's; each man working 8 hours a day?

12. Any number of men can dig 20 feet (in length) of trench for the foundation of a wall, or build 9 feet (in length) of the wall, or fill up 85 feet of the trench after the wall is built, in a day of 10 hours. Find how many out of 1058 men must be employed day by day, in building the wall, so that the remaining men may be just sufficient each day to dig for the next day's building, and to fill up, after the preceding day's building, the same length of trench.

ALGEBRA.

1. (a) Shew that if $p^2 - y^2 = (x - a)^2$, $q^2 - y^2 = (x - b)^2$, $r^2 - y^2 = (x - c)^2$, and a, b, c are all different, then—

$$p^2(b-c) + q^2(c-a) + r^2(a-b) + (b-c)(c-a)(a-b) = 0.$$

(b) If the letters all denote positive quantities, prove that—

$$\frac{(a+b)xy}{ay+bx} \text{ is never } > \frac{ax+by}{a+b}.$$

2. Simplify—

$$(1) \frac{1}{ea} + \frac{1}{ab} - \frac{1}{bc} + \frac{1}{ab} + \frac{1}{bc} - \frac{1}{ac} + \frac{1}{bc} + \frac{1}{ac} - \frac{1}{ab}$$

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

$$(2) \frac{(a+p)(a+q)}{(a-b)(a-c)(a+x)} + \frac{(b+p)(b+q)}{(b-c)(b-a)(b+x)} + \frac{(c+p)(c+q)}{(c-a)(c-b)(c+x)}$$

3. Solve the equations:—

$$(a) (c+a-2b)x^2 + (a+b-2c)x + (b+c-2a) = 0.$$

$$(b) ax + yz = ay + xz = az + xy = b^2.$$

4. At a certain Regatta, the number of races on each day varied jointly as the number of days from the beginning and end of the Regatta up to and including the day in question. On three successive

days there were respectively 6, 5 and 3 races. Which days were these? and how many days did the Regatta last?

5. Prove that $x^4 + px^3 + qx^2 + rx + s$ is a complete square if

$$p^2s = r^2, \text{ and } q = \frac{p^2}{4} + \frac{3}{2}rs.$$

6. Sum the series:—

$$(1) (x+a) + (x^2+2a) + (x^3+3a) + \dots \text{ to } n \text{ terms.}$$

$$(2) 1^2 + 2^2 + 3^2 + \dots + n^2.$$

If the m^{th} term of an A. P. be n , and the n^{th} term m , of how many terms will the sum be $\frac{1}{2}(m+n)(m+n-1)$, and what will be the last of them?

If n geometrical means be found between two quantities a and c , their product will be $(ac)^{\frac{n}{n+1}}$.

7. Assuming the truth of the Binomial Theorem for a positive integer, prove its truth generally.

Write down the sum of

$$(1) 1 + \frac{1}{4} + \frac{1 \cdot 3}{4 \cdot 8} + \frac{1 \cdot 3 \cdot 5}{4 \cdot 8 \cdot 12} + \dots \text{ ad. inf.}$$

$$(2) 1 + 2x + 3x^2 + 4x^3 + \dots \text{ ad. inf.}$$

TRIGONOMETRY.

1. Find a general expression in terms of a for all the angles whose cosecants are equal to cosec a .

Find all the solutions of $\sin 3d - \cos d = 0$

Which of them will satisfy the equation

$$1 + \sin^2 d = 3 \sin d \cos d?$$

2. Prove that $\cos(A-B) = \cos A \cos B + \sin A \sin B$ for all values of A & B between 0° and 90° .

If $A+B+C=90^\circ$, prove that

$$\text{Cosec } A \text{ cosec } B \text{ cosec } C - \cot B \tan C - \cot C \tan B - \cot C \tan A - \cot A \tan C - \cot A \tan B - \cot B \tan A = 2.$$

3. Prove that the sides of a triangle are proportional to the sines of the opposite angles.

Shew that if the squares of the sides of a triangle are in arithmetical progression, the tangents of the angles are in harmonical progression.

4. Prove geometrically—

$$\sin A + \sin B = 2 \sin \frac{A+B}{2} \cos \frac{A-B}{2}$$

$$\text{prove (1) } 4 \sin(d-a) \sin(md-a) \cos(d-md) = 1 + \cos(2d-2md) - \cos(2d-2a) - \cos(2md-2a).$$

$$(2) \text{ if } A+B+C=\pi$$

$$\cos \frac{A}{2} + \cos \frac{B}{2} + \cos \frac{C}{2} = 4 \cos \frac{\pi-A}{4} \cos \frac{\pi-B}{4} \cos \frac{\pi-C}{4}$$

5. A, B, C are telegraph posts at equal intervals by the side of a railroad, t , t' are the tangents of the angles which AB and BC subtend at any point P; shew that $\frac{2}{T} = \frac{1}{t} - \frac{1}{t'}$, where T is the tangent of the angle which the road makes with BP.

6. If two sides and the included angle are given, shew how to solve the triangle.

The two sides of a triangle are 876 feet and 348 feet, and the included angle $53^\circ 20'$, find the remaining angles, given

$$\log. 1.224 = .0877814, \quad L \tan 63^\circ 20' = 10.2991070$$

$$\log. 5.28 = .7226339, \quad L \tan 40^\circ 39' = 9.9338003$$

$$L \tan 40^\circ 40' = 9.9340559.$$

7. A tower stands upon an inclined plane, meeting it at a point A; at a point C in the plane the tower is observed to subtend an angle α ; on proceeding to a point D in the straight line AC, such that $CD = AC$, the tower is observed to subtend an angle δ ; if c be the angle between the tower and AC, shew that

$$\cot c = 2 \cot \alpha - \cot \delta.$$

8. Prove, *ab initio*, that the area of a triangle is given by the formula $\sqrt{s(s-a)(s-b)(s-c)}$. The perpendiculars from the angular points of the triangle ABC, on the opposite sides meet at P; Prove that $PA = 2R \cos A$, where R is the radius of the circumscribing circle. Hence, find the angles of the triangle formed by PA, PB, PC.

MENSURATION.

1. A ladder is placed against a wall in two positions, the distances of the foot of the ladder from the wall are 9 feet and 14 feet respectively, the distance between the two positions of the top of the ladder is 4 feet. Find the length of the ladder.

2. The two parallel sides of a trapezium are 5 feet and 9 feet respectively; three straight lines are drawn parallel to these sides, dividing the other sides into 4 equal parts: find the lengths of these straight lines.

3. State and prove the rule for finding the diameter of a circle, being given the height of any arc, and the chord of half the arc. How would you proceed if, instead of the height of the arc, the chord of the arc were given?

4. n coins of equal thickness, $\frac{1}{4}$ inch, are placed one over the other, so that their centres are in a vertical line; the diameters are 1, 2, 3, ..., n inches respectively; find the volume occupied by the coins.

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

Hence, by making the number of coins infinite, and decreasing the

thickness without limit, shew that the volume of a cone of height h and rad. of base r is $\frac{1}{3} \pi r^2 h$.

5. Find the area of an octagonal field, the length of each side being 5 chains, and reduce to acres, roods and poles.

6. A number of equal conical shells, whose thickness is one inch, are placed one over another. The internal diameter of the base is 1 foot, and the height of each shell is $\sqrt{3}$ feet.

Find (1) the distance between the bases of two consecutive cones.

(2) the volume occupied by n cones.

7. A drinking vessel is partly cylindrical and partly conical, the upper part being conical. The diameter of the cylinder is 4 inches, and that of the mouth is 6 inches. The height of the vessel is 10 inches. Find the height of each portion, being given that their capacities are equal.

EUCLID.

1. Explain the following restrictions in Euclid:—

Of an unlimited length (I.12).

Unlimited towards E (I.22).

Of the two sides DE, DF, let DE be not greater (I.24).

2. I. 27.

3. Three points, A, B, C, are taken inside a triangle PQR; prove that the perimeter of the triangle ABC is less than that of the triangle PQR.

4. II. 10.

5. The angle at the centre of a circle is double of the angle at the circumference on the same base, that is, on the same part of the circumference.

Deduce from this proposition that the angle in a semi-circle is a right angle.

6. III. 36.

ABC is a right angled triangle, from any point D in the hypotenuse BC, a straight line is drawn at right angles to BC, meeting CA at E and BA produced at F; shew that the square on DE is equal to the difference of the rectangles BD, DC, and AE, EC, and that the square on DF is equal to sum of rectx. BD, DC, and AF, FB.

7. IV. 10.

Prove that the circle drawn through the middle points of the sides of this triangle will intercept portions of the equal sides, such that a regular pentagon can be inscribed in the circle having these portions as two of its sides.

8. VI. 4.

The side BC of a triangle ABC is produced to D, so that the triangles ABD, ACD are similar. Prove that AD touches the circle described about the triangle ABC.

9. XI. 5.

FREE CHURCH MISSION INSTITUTION.

INDIAN HISTORY.

I.

I. Give the broad geographical divisions of Aryan India, as clearly as you can. What is the derivation of the word Dakhar?

II. What do you know of (1) the Upanishads, (2) the Puranas, (3) Ayodhya, (4) Hastinapura, (5) Indraprasta and (6) Svayamvara?

III. Who was the greatest of the Bhuddist sovereigns of India. State the myth that is connected with the decline of Bhuddism. What new religion arose out of its ruins?

IV. Give an account of the struggles between the Rajputs and the Mahomedans from 1186 to 1206.

V. Sketch the history of the short dynasty that broke the continuity of the Moghul Empire (1540—1555).

VI. What policy did Akbar adopt to strengthen his empire? Give an account of the chief improvements of his reign.

VII. Give a brief account of Aurangzeb's doings from 1683 to his death.

II.

I. Give an account of the dealings of Aurangzeb with the Rajputs, and point out the difference between his policy and that of his great-grand-father. What were the different results in each case?

II. Describe briefly the wars of Aurangzeb in Deccan, paying special attention to the grave blunders that he committed.

III. "During the reign of Balaji Bhaji Ran, the Mahratta power attained its greatest height, and received its most crushing blow."

Give an account of his reign, so as to bring out fully the truth of the above statement.

IV. Give the date, the occasion, the parties, and the conditions of each of the treaties of: (1) Surat; (2) Salbai; (3) Bassein, and (4) Serji Ajengam.

V. Give the dates, the parties, the occasions and the results of the battles of (1) Serhind; (2) Assai; (3) Lasmar; (4) Arni, and (5) Ambur.

VI. Give a short account of the decline of the French Empire in India under Lally.

VII. Sketch briefly the history of Bengal from the accession of Siraj-Danta to the battle of Plassey.

ARITHMETIC.

I.

I. Find the greatest number which will divide 478 and 401, leaving the remainders 13 and 11 respectively, and the least number which when divided by 6, 7, 12 and 15 gives in each case a remainder 5.

II. Find the value of 428571 of $£1.05 + .38$ of $1.5s$ and express the result as the decimal of $£43.2.6$.

III. Six men working 18 hours a day, take 4 days to pave a road 320 yards long and 60 feet broad; how many days will 8 men, four of whom work 10 hours, and four 8 hours a day, take to pave a road 1575 yards long, and 70 feet broad?

IV. A man contracts to perform a piece of work in 80 days, and immediately employs upon it 40 men; at the end of 48 days the work is only half done; required the additional number of men necessary to fulfil the contract.

V. How many paving stones each $1\frac{1}{2}$ feet by $\frac{3}{4}$ foot, will be required to pave a road of uniform breadth of 4 yards extending round a rectangular piece of ground, the length of which is 100 yards, and the breadth 80 yards? And what will be the cost of paving it at 2s a yard?

VI. What will be the cost of painting the four walls of a room 50 yards long, 25 feet broad and 10 feet high, at 4s 6d a square yard?

VII. Simplify—

$$\frac{4\frac{1}{2} \text{ of } 3 - 3\frac{1}{2} \text{ of } 3\frac{1}{2}}{4\frac{1}{2} - 3\frac{1}{2}} \div \left\{ \frac{6\frac{1}{2} \text{ of } \frac{1}{1\frac{1}{2}} + \frac{1}{2\frac{1}{2}}}{\frac{3\frac{1}{2}}{3\frac{1}{2}} - 2\frac{1}{2}} \right\}$$

VIII. On a certain railway, the second and third class fares are 7 pices and 3 pices per mile respectively. A man who travels 100 miles and possesses Rs. 2-6-6, spends it in going part of the distance second class and the remainder third class. How far did he travel second class?

II.

I. Simplify—

$$\frac{7\frac{4}{11} + 5\frac{1}{2} - \frac{3}{2}}{\frac{7}{2} + \frac{3}{2}} + \frac{5\frac{1}{2} - \frac{3}{2}}{\frac{7}{2} + \frac{3}{2}} - \frac{\frac{7}{2} \text{ of } \frac{9}{11} \text{ of } 3\frac{1}{2}}{\frac{1}{11} \text{ of } \frac{9}{2} \text{ of } 7}$$

II. The communication by electric telegraph between Madras and Bombay occupies 16.3 minutes: how many miles an hour is this quicker than the mail train which takes 35 hours, the distance between the two places being 794 miles? (Answer to 5 places of decimals).

III. Find, by practice, the weight of 10,000 sovereigns each 5 dwts, $3\frac{3}{4}$ grains, troy.

IV. A garrison of 4,500 men has provisions for two months at the rate of 30 oz. to each man per day; but it is reinforced by 1,000 men and cannot be relieved till the end of the third month: how much must each man be allowed per day to make the provisions last that time?

V. A clerk who is in receipt of Rs. 50 a month wishes to purchase a house worth Rs. 1,000: how much of his salary may he spend weekly after laying out Rs. 60 per annum for rent and Rs. 28 for other expenses, in order to do this in 5 years?

VI. A rectangular garden measuring 60 yards long and 45 yards broad contains in the centre a bungalow of 40 feet square. There are four entrances from the middle of the garden walls to the four sides of the bungalow connected by passages of 10 feet in width. The

garden, also, has a side walk of the same width 20 feet inside of the walls. Find the unoccupied area of the garden.

VII. The cost of building and fitting up a Church to hold 1,500 persons was Rs. 18,000; $\frac{1}{3}$ of the seats are let at Rs. 5 each, $\frac{1}{3}$ at Rs. 4 each, $\frac{1}{3}$ at Rs. 3 each, and the remainder are set aside for the poor. Now if 5 per cent. is paid for the interest of the outlay and Rs. 2,000 for maintenance and other annual expenses, find the remainder left to the credit of the Church Fund.

VIII. Purchased an estate for £9,000 payable as follows: £3,000 presently, £3,000 at the end of 3 years and £3,000 at the end of 6 years: but the seller being in want of money, offers to take instead £8,000 ready-money. What will be his loss by this transaction, compound interest, at 4 per cent. *per annum*?

IX. The receipts of a certain Local Fund Circle consisted of 60 per cent. from Land Cess, 15 per cent. from Tolls, 10 per cent. from General Revenues and the balance from Miscellaneous sources, and the outlay amounted to 85 per cent. of the income. Supposing the balance left to be Rs. 10,000 less, than what would have been the case, had the expenditure been only 80 per cent., find the total income and the receipts from each head of Revenue.

III.

1. What is the difference between the sum and difference of

$\frac{2}{3}$ of $\frac{1}{11}$ of 201 $\frac{2}{3}$ and $\frac{3}{15}$ of $\frac{4}{7}$ of 96 $\frac{1}{2}$?

2. Sound travels at the rate of 1142 feet in a second, and if I hear the report of a gun 12 seconds after seeing the flash, at what distance am I from the gun?

3. A merchant bought 27 $\frac{1}{2}$ cwt. of coffee at £4-19-8 per cwt.; and after paying the duty at 4d. per lb., he sold it so as to gain £16 upon the whole: for how much was a cwt. sold, supposing the expenses attending the transaction amounted to £3-4-6?

4. A contractor engages to execute a work in 60 days, and for that purpose employs 90 men working 11 hours a day; after 40 days, he finds that only $\frac{1}{4}$ of the work has been done: how many additional men must he employ to finish the work within the stipulated time, the additional men working 12 hours a day?

5. How much do I gain or lose and how much per cent. by remitting Rs. 30,000 to England at 1s. 7 $\frac{1}{2}$ d. and drawing upon India for the value when the exchange is at 1s. 7 $\frac{1}{2}$ d. and commission $\frac{1}{4}$ per cent.?

6. A rectangular cistern is 4 $\frac{1}{2}$ feet long, 2 $\frac{1}{2}$ feet broad and 2 $\frac{1}{4}$ feet deep; how many gallons of water will it contain, and how many times must it be filled in a week to serve a family of 12 persons, allowing to each 5 gallons per day? (gallon = 277.2738 cubic inches.)

7. (a) State the rule for computing simple interest for a given number of days.

(b) Find the interest on Rs. 12,250 for 5 years at 4 $\frac{1}{2}$ per cent. *per annum*, simple interest.

8. On the 1st April 1882, A deposits Rs. 5,000 in the Government Savings' Bank which allows him interest at 3 $\frac{1}{2}$ per cent. *per annum*, compound interest. Find the amount due to him on the 31st March 1885.

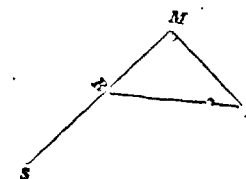
9. If two persons start at the same time from two places, distant from each other 280 miles: when will they meet on the road, if the one travels at the rate of 9 miles and the other at the rate of 11 miles an hour?

GEOMETRY.

- I. Every equiangular triangle is also equilateral.
- II. State and prove the converse of the following:—
If two sides of a triangle be equal, the angles which are opposite to these sides are equal.
- III. Give the construction only of the 22nd Proposition.
- IV. All the angles of a triangle are together equal to two right angles.
- V. Any side of a triangle is less than the sum of the other two sides.

VI. Prove that the angle L. R. S. is greater than the angle L. M. R.

VII. To bisect a given finite straight line.



ALGEBRA.

1. Express $(a + b - c)(3a - 5b + 7c)$ as the difference of two squares.

2. Show that $(a + 2b)(a + b)(a + 3b)(a + 4b) + b^4$ is a perfect square.

3. $\{(A-a) + (A-b)\}^3 = (A-a)^3 + (A-b)^3 + 3(A-a)(A-b)^2$
when $A = \frac{a+b+c}{2}$.

4. If $p + q = pA$, $q + r = qB$, $r + p = rC$
 $(A-1)(B-1)(C-1) = 1$.

5. When n is any positive integer

$$\frac{A^n - 1}{A - 1} - \frac{B^n - 1}{B - 1} \text{ is divisible by } (A - B).$$

6. Resolve into two factors $3a^2 - ab + 2ac - 6b^2 + 17bc - 12c^2$.

7. Find the G. C. M. of $a^4 - 115a + 24$ & $24a^4 - 115a^3 + 1$.

8. Simplify (a) $3 + \frac{p}{n-p} + \frac{q}{n-q} + \frac{r}{n-r}$

$$- \frac{1}{n-p} + \frac{1}{n-q} + \frac{1}{n-r}$$

$$(b) \frac{p^3}{(p-q)(p-r)} + \frac{q^3}{(q-r)(q-p)} + \frac{r^3}{(r-p)(r-q)}$$

MAHARAJAH'S COLLEGE, PUDUKOTA.

SCOTT'S LAY OF THE LAST MINSTREL, CANTOS I—III.

[N. B.—Be concise in your answers and attempt any six (not more) of the first twelve questions.]

- I. a. Mention the incidents in the life of Scott referred to by the following passages from Carlyle:—
 1. The *Minstrelsy of the Scottish Border* proved to be a well, from which flowed one of the broadest rivers—the great river of Metrical Romances.
 2. Let the Metrical Romance become a prose one; shake off its rhyme-fetters and try a wider sweep.
 3. Walter Scott became Sir Walter Scott on whom fortune seemed to pour her whole cornucopia of wealth, honor and worldly good.
 4. One day, the Constable mountain which seemed to stand strong like other mountains, gave suddenly as the icebergs do, a loud-sounding crack; suddenly with huge clangor, shivered itself into ice-dust; and sank carrying much along with it.
 5. The noble war-horse that once laughed at the shaking of the spear, how is he deemed to toil himself dead, dragging ignoble wheels!
- b. Why has Scott been called 'the Great Unknown'?
- c. Ariosto, an Italian poet, has been styled by Byron 'the Southern Scott.' Explain why.
- II. "Every Scotchman" says Scott in his Autobiography "has a pedigree." Trace then the descent of the poet from the Walter Scott of the Lay.
- III. "The accomplished person, who had recommended to me the subject for the Lay of the Last Minstrel and to whom I proposed to inscribe what I already suspected might be the close of my poetical labors, was unexpectedly removed from the world which she seemed only to have visited for purposes of kindness and benevolence." *Introduction to the Lord of the Isles.*

- a. Who is the person alluded to here by Scott? Hutton, in his *Life of Scott* (English Men of Letters) says that both the poorest and the best parts of the Lay were in a special manner due to her. Examine his remark.
 - b. To whom was the Lay inscribed? Why?
 - IV. "The Goblin Page is, in our opinion, the capital deformity of the poem. He is not a 'tricksy spirit' like Ariel, with whom the imagination is irresistibly enamoured, nor a tiny monarch like Oberon, disposing of the destinies of mortals; he rather appears to us to be an awkward sort of a mongrel between Puck and Caliban, of a servile and brutal nature and limited in his powers to the indulgence of petty malignity and the infliction of despicable injuries. Besides this objection to his character, his existence has no support from any general or established superstition. We entreat Mr. Scott, therefore, for purging the Lay of this ungraceful intruder." JEFFREY.—*Edinburgh Review*.
 - a. Support the statement in the second sentence by sketching the part played by the Goblin Page.
 - b. Explain the third sentence by a reference to the prototype of the Goblin Page.
 - c. Give the substance of Scott's reply to the entreaty contained in the last sentence.
 - V. a. Define the word 'Minstrel.' What do you know of the status of minstrels in the Middle Ages?
 - b. Pitt remarked on the lines describing the old harper's embarrassment when asked to play, "This is a sort of thing which I might have expected in painting, but could never have fancied capable of being given in poetry." Criticise the criticism.
 - VI. "There are not so many splendid passages for quotation in the Lay of the Lake as in the two former poems (The Lay and Mar-mion)." MACINTOSH.
- Refer at length to all the passages in the three cantos which you think are excellent.
- VII. "Sir Walter Scott" says Taine "has the richest supply of costumes and the most inexhaustible talent for scenic effect." Illustrate the remark by quotations from the Lay.
 - VIII. "The chief excellence of the Lay consists in the accurate picture of customs and manners among the Scottish Borderers at the time it refers to."—*Annual Review*, 1804.
 - a. Determine by internal evidence the time to which the tale refers.
 - b. What do you know of the manners and customs of the Borders of those times?
 - c. Who freed the Border from the freebooters who infested it? How?
 - IX. Explain clearly the allusions in the following extract from Byron:—

"While mountain spirits prate to river sprites,
That dames may listen to the sound at nights,
And goblin brats of Gilpin Horner's brood,
Decoy young border-nobles through the wood,
And skip at every step, lord knows how high,
And frighten foolish babes, the lord knows why;
While high-born ladies in their magic cell,
Forbidding knights to read who cannot spell,
Despatch a courier to a wizard's grave.

English Bards and Scotch Reviewers.

- X. a. Distinguish between Romantic poetry and Epic.
 b. Exemplify the following statements from Macaulay and Scott:—
1. "In an age of ballad-poetry, it scarcely ever fails to happen that certain phrases come to be appropriated to certain men and things." *Introduction to the Lay of the Battle of Lake Regillus.*
 2. "If a message is to be delivered, the poet saves himself a little trouble by using exactly the same words in which it was originally couched." *Appendix to the Border Minstrelsy.*
- XI. a. Mention half-a-dozen popular superstitions alluded to by Scott.
 b. Quote the 'incomparably vigorous' lines in which Scott describes the 'stark moss-trooper.'
- XII. a. Speaking of the Metre of *Christabel* (which Scott has imitated in his *Lay*), Coleridge says that though the number of syllables may vary from seven to twelve, yet in each line the accents will be found to be only four.
 Explain the foregoing remark and illustrate it fully by scanning as many lines as may be necessary.
 b. Following the same principle, Scott has written a whole stanza in trochaic metre. Quote a line from the stanza.
- XIII. Quote lines from the *Lay* similar in phraseology or idea to:—
1. Never, I ween, did swimmer, in such an evil case,
 Struggle through such a raging flood safe to the landing place;
 But his limbs were borne up bravely by the brave heart within,
 And our good father Tiber bore bravely up his chin.
 MACAULAY'S *Lay of Heratius.*
 2. And variable as the shade
 By the light quivering aspen made. SCOTT'S *Marmion.*
 3. Under an oak whose boughs were mossed with age.
 SHAKESPEARE'S *As You Like It.*
 4. The narrowest strait was to Napoleon's power, what it was of old
 believed that a running stream was to the sorceries of a witch.
 MACAULAY'S *Essays.*
 5. You demi-puppets that
 By Moon-shine do the green sour ringlets make
 Where of the ewe not bites. SHAKESPEARE'S *Tempest.*
- XIV. a. Explain the double negative in (1) and the omission of the infinitive suffix in (2).
 1. Letter nor line know I never a one.
 2. No kind influence deign they shower.
 b. Explain the constructions of the italicised words in:—
1. *Him* listed his magic wand to wave.
 2. Trip it deft and merrily.
 3. In Eske or Liddel, fords were none
 But he would ride them, one by one.
 4. Up and list their music sweet.
 5. Other prayer can I none.
- XV. a. Quote examples from the *Lay* of (1) anachronism, (2) enallage, (3) epigram, and (4) inaccuracy.
 b. Give half-a-dozen (1) Celtic words, (2) words used only in poetry, (3) words which have become quite obsolete.

XVI. a. Explain the allusions in:—

1. The bigots of the iron time
 Had called his harmless art a crime.
2. O gallant chief of Otterburne!
3. Paynim countries I have trod
 And fought beneath the Cross of God.
4. She salved the splinter o'er and o'er.
5. Write notes on:—Our Lady; Ave Mary; Salamanca's cave; St. Michael's night; Notre Dame; St. George.

XVII. Explain the following passages:—

1. My bow of yew to a hazel wand.
2. A nutshell (to) seem a gilded barge.
 Use *nutshell* in a sentence of your own making.
3. And lands and livings, many a rood,
 Had gifted the shrine for their soul's repose.
4. How could I to the dearest then,
 That ever warmed a minstrel's dream
 So foul, so false a recreant prove!
5. Vengeance, deep-brooding over the slain,
 Had locked the source of softer woe;
 And burning pride and high disdain,
 Forbade the rising tears to flow.
6. Cold diffidence and age's frost
 In the full tide of song were lost,
 Each blank, in faithless memory void,
 The poet's glowing thought supplied.

XVIII. a. Explain:—fleur-de-lys, belted sword, couch a lance, Orion's belt, Doric reel, neck-verse at Hairibel, exalt the Crescent.
 How is the last phrase generally understood?

b. Derive:—

- Well-a-day, threshold, albeit, unicorn morris, Dunedin, Crans-toun, putter, stirrup, granerney.
 Give the meanings of the italicised.

PRESIDENCY COLLEGE.

DISTRIBUTION OF PRIZES.

The anniversary of the Presidency College was celebrated at 5-15 on Saturday, the 28th April. The Hon'ble Mr. Justice Innes was in the chair. Among those present were Dr. W. H. Wilson, Mr. and Mrs. G. Duncan, Mr. Justice Muthusawmy Iyer, the Rev. G. Ina Rae, Mrs. Rae, Mr. D. Sinclair, Mr. J. Townshend Fowler, Mr. Mrs. Powell, Mr. R. B. Michell, Raja Sir T. Madhava Rao, Mr. Michie Smith, Mr. P. Chentsal Rao, and Mr. P. Vigiaranga Moobhar. The proceedings commenced by Dr. Duncan, the Acting Principal, reading the report:—

Changes in the College Staff.—First as to the Mathematical chair. E. S. Evans, Professor of Mathematics, returned from furlough on

the 2nd April 1882, and on the forenoon of the 3rd took over charge of his duties from Mr. V. Srinivasa Aiyar, of Kumbakonam College, who had taken the place of Mr. P. Ranganatha Mudaliyar when that officer went to Calcutta to sit on the Education Commission. Mr. Evans's friends witnessed with deep concern the feeble state of health in which he arrived in Madras, and it was hardly believed that he could carry on his duties. But with indomitable fortitude he continued during April to attend College with many interruptions and amid much pain and weakness. When Mr. Thompson went on furlough on the 3rd May, Mr. Evans had to undertake the additional duties of Acting Principal. The increased responsibility thus thrown upon him seemed to have the effect of rallying him considerably for a week or ten days. But notwithstanding this, there were not wanting indications that the illness was gaining ground and the worst fears began to be entertained about him. On the closing of the College on the 20th May, Mr. Evans betook himself to his favourite station, Ercaud, in the hope of reaping great benefit. Getting rapidly worse after his arrival there, he returned to Madras on the morning of the 6th June, and died at the residence of his brother-in-law the next day. In Mr. Evans's death, Government lost a most faithful servant; his pupils a painstaking teacher animated by a sincere regard for their welfare; while we his colleagues have to mourn the loss of a fellow-worker whose character was not less remarkable for singular straightforwardness and honesty than for kindly though undemonstrative consideration for the feelings of others. Mr. Bilderbeck, who was appointed to succeed Mr. Evans as Professor of Mathematics being employed in the English chair, Mr. P. Ranganatha Mudaliyar was appointed to act. Mr. Ranganatha carried on this work from the opening of the College after the summer vacation till the 3rd of October, when the Education Commission began its sittings in Madras; and again from the 18th of the same month to the end of November, when he went to Calcutta. On the opening of the College in January, Mr. T. Gopala Rau was appointed to act as Professor of Mathematics, a post which he filled till the Easter holidays, when he was relieved by Mr. P. Ranganatha Mudaliyar. Mr. Thompson proceeded on furlough to Europe for twenty-three months on the 3rd May, Mr. Evans being appointed to act as Principal and Mr. Bilderbeck as Professor of English Literature, Mr. P. Ranganatha Mudaliyar taking the place of the latter as Professor of History. On the death of Mr. Evans I was appointed Acting Principal and Mr. P. Ranganatha Mudaliyar Acting Professor of Mathematics, the History chair remaining vacant till the 20th July when Mr. S. Seshayya came to act, until he should be relieved by Mr. T. Gopala Rau. Mr. Gopala Rau took over charge on the 21st August, but was compelled by ill health to proceed on two months privilege leave on the 12th October. The History chair remained vacant from this date till the 16th November, when Mr. S. Seshayya was again appointed to act till the 12th December. During the employment of Mr. T. Gopala Rau as Acting Professor of Mathematics from January to the Easter holidays, Mr. S. Seshayya conducted the duties of the History chair. On the 2nd September, Dr.

Oppert proceeded to Europe on furlough for fifteen months, his place being taken by Mr. M. Seshagiri Sastri, the Superintendent of Vernacular studies. The duties of the latter officer were entrusted to Mr. J. M. Velu Pillai, Vernacular Training Master of the Government Normal School, who took over charge on the 11th September. Pending the reorganization of the College Staff, Mr. T. Paramasivan was appointed Assistant to the Professor of Physical Science with effect from the 1st January. Mr. Michell, the Professor of Law, was absent on leave from the month of May to the 1st January, during which time Mr. H. H. Sheppard performed the duties of the chair. Mr. P. Sankaranarayana Chetti, the 6th Master in the Junior Department, having been transferred to Kumbhakonam College on the 3rd September, Mr. M. V. Narayanaswami Pillai was appointed to take charge of his class, the Upper Fourth, from the 8th September. In January Mr. E. E. Perrett having left to take charge of the Salem College, Mr. Williams became Acting 1st Master, and Mr. Small took charge of the B. Division of the Matriculation Class. At the same time Mr. C. Bashyam Aiyangar took charge of one of the divisions of the Fifth Class, handing over to Mr. Narayanaswami Pillai the Upper Fourth Class, which he had managed so successfully for seven years. Mr. S. Krishnamachari, 3rd Tamil Pandit, was absent on sick leave for three months from the 1st August, and Mr. G. Sudarsanachari, Acting Sanskrit Pandit, had similar leave from the 21st to the 29th August. The Malayalam Pandit was absent without pay from the 13th April to the 2nd May. Temporary arrangements were made for carrying on the duties of those three officers. Mr. Johnson, who had been Writing Master and Librarian for a period of 31 years, having applied for pension from the 2nd November, the Library has been temporarily placed in charge of Mr. R. Tiruvengadam Pillai from the 22nd January.

Strength of the College.—The number of pupils in the Junior Department on the 31st March was 292, a figure somewhat less than at this time last year owing to the abolition of the Lower Fourth Class in December last. The College Department contains more pupils than it ever did before, the number on the 31st March being 254. Notwithstanding the fact that some ten pupils were not promoted from the Third Class at the end of the year, that class (now the Fourth) has again risen to about 80. I need not here repeat Mr. Thompson's words last year as to the inadequacy of the staff for such large numbers. In compliance with para. 3 of your Proceedings, dated 30th November 1882, No. 6228, I am about to address you regarding the reorganization and increase of the College Staff.

Examinations.—As usual the classes throughout the College and School were examined at the end of the year by the Professors and Masters. For the Middle School Examination 44 pupils appeared, of whom 36 passed, nine in the First Class, thirteen in the Second and fourteen in the Third. This result is again very creditable to Mr. C. Bashyam Aiyangar, who had charge of the class throughout the year. Sixty-seven pupils presented themselves for the Matriculation Examination, of whom 48 passed, nine in the First and thirty-nine in the

Second Class. This gives 71.6 per cent., the rate for the whole Presidency being only 35.2 per cent. Of the nine who passed in the First Class seven belonged to Mr. Williams's division. The success in the Middle School and Matriculation Examinations partly explains the popularity of our Junior Department, the applications for admission to which have been far more numerous than could be entertained. In the First Arts Examination we were singularly unsuccessful. Out of the 35 pupils who went up, only 12 succeeded in passing, two of them being in the First Class. One of our boys who had been educated here from the Fifth Class upwards during more than three and a half years, having on account of the death of a relative been obliged to remove to Black Town in August, joined the Christian College, and according to the rules of the University has been credited to that Institution. I should be glad to see among the pupils of this and other Colleges in Madras more of that love for the Institution in which they have been educated which would induce them to put themselves to a little temporary inconvenience and expense rather than desert the College to which they owe their education. The failure in this examination is due to various causes:—(1) The Class was as a whole of poor attainments, only some ten or twelve having been expected to pass. (2) Most of the members of it left the College at the end of September to escape the payment of fees for three months. This is a crying evil, the best remedy for which, as far as I can see, is that which I urged before the Education Commission, namely the payment of fees by the term instead of by the month. (3) The failures must be traced in part to want of teaching due to the frequent interruptions and vacancies in the chairs of Mathematics and History during the year. Without counting the many interruptions in April and May owing to Mr. Evans's ill-health, the Mathematical chair was vacant for nearly a fortnight in the beginning of February 1882, for about three weeks in October and again from the end of November to the closing of the College for the Christmas holidays. The History chair was vacant from the 9th to the 20th July and from the 12th October to the 16th November. For the B.A. Examination 38 appeared, of whom 26 passed, one in the First Class at the top of the list. The Sri Goday Vari Sanskrit prize, also the first Sanskrit prize of his Highness the Maharajah of Vijayanagar, (for the second prize one of our boys and a Kumbhakonam boy have equal claims), the Arni Medal for Physical Science and the Norton Medal, have all been gained by pupils of this College. One of our most promising students in Physical Science was compelled by ill-health to give up his studies towards the end of November.

Optional Subjects in the B. A. Degree Examination.—There has this year been a considerable increase in the proportion of those taking up Physical Science, but I regret to say that the former popularity of Mathematics shows no sign of returning. Whether the educational value of Mathematics, or the chances of its votaries passing the examination and obtaining employment in after-life, be considered, it appears to me to be a subject which should attract a larger proportion of our pupils. However desirable it may be to develop the experi-

mental sciences, I for one would regret to see them attract all our best students from Mathematics and Natural Philosophy.

Oriental Classics.—The number reading Sanskrit last year was 73. This year the Lower Fourth Class having been abolished, the number might have been expected to fall, instead of which there is a rise of two. It is a hopeful sign for the future that this language seems more popular with the Junior than with the Senior Classes. The number reading Persian is twenty-one.

Law Class.—The number attending the Law Class during the second term of 1882 was 115. The present class consists of 111 students. As pointed out by Mr. Thompson last year, a considerable sum accrues to Government from this class. I wish I could add that the condition of the class in other respects was on a par with its financial prosperity. But taking the class as a whole, its morale is not what I could wish it to be. While I readily admit that it contains many students, hard-working and eager to attend to the lectures, there are many, I fear, who look upon attendance as an irksome burden to be shirked on every possible occasion. This unsatisfactory state of things is being enquired into by Mr. Michell and myself, and a separate report on the subject will be forwarded to you.

The Library.—The working of the Library has gone on satisfactorily throughout the year. In September last a Consulting Library was opened in a separate room where, during College hours and on Saturdays, pupils of the three higher College classes may consult books of reference. This Library has been immensely popular with the students, and we hope that it will contribute largely to the formation of a habit of self-help in the matter of acquiring knowledge. The College Library will never be worked economically or well so long as the Oriental Manuscript Library occupies its present place. It now occupies a part of the College Library Hall, a most inconvenient arrangement for our pupils. Were it merely a Library with a Librarian to look after it, the inconvenience to the College would be less, but there is a whole staff of clerks and peons located, I may say, in our very midst. The portion of the hall they occupy was originally intended as a Reading Room and Consulting Library for our pupils, and if the Oriental Library cannot be accommodated in some other building, I would strongly urge that the opportunity may be taken of the abolition of the Junior Classes to find a separate room for its accommodation. I do not think there would be any difficulty in such an arrangement being carried out, and I believe it would be as advantageous to the Oriental Library as it would be to the College Library.

The Gymnasium and Field Games.—During the year there has been supplied to the College a set of gymnastic apparatus consisting of one sliding plank, one sliding horizontal bar, two parallel bars, one horse, one jumping bar, one movable parallel bar, one combined system. Several of these were supplied about the month of September and the pupils were under instruction during the last three months of the year. On the completion of the apparatus at the beginning of this year, sanction was requested for the levy of a fee of two annas on every

pupil, and the employment of a competent instructor and a peon. The services of Mr. Clayton Cotter, who holds a certificate of the Madras Physical Training and Field Games' Association have been secured, and he will enter on his duties at the beginning of the official year 1883-84. All pupils, except those exempted on Medical certificate, will be required to attend the Gymnastic classes. The love of out-door exercise has grown in other ways. A subscription was set on foot in September last with the view of raising funds for the purpose of preparing a cricket-field, making Law Tennis Courts, &c., and improving the surroundings of the College generally. The furnishing of a Reading Room was also contemplated. In response to the circular, a sum of nearly Rs. 1,200 has been subscribed by present and former pupils, and by the Professors, Masters, and friends of the Institution. A portion of this amount has already been spent in making and furnishing three Tennis Courts. It is hoped that Government will give substantial encouragement to this effort on the part of our students to help themselves. In addressing you last year, requesting sanction for gardeners, I took occasion to urge how desirable it was that the College grounds should be handed over to the custody of the Principal of the College. At present the ground belonging to the College have no defined boundaries, being included in the Chepauk Park, under the control of the Board of Revenue. The result is that outside the College doors, I am uncertain both as to the nature and as to the extent of my authority. Our Gymnasium and Tennis Courts lie right along what has been allowed for many years to become a thoroughfare between Triplicane and the Beach Road at the Chepauk Agent's Office: the consequence being that the College property is destroyed and our apparatus used by any idler in the neighbourhood. I would strongly urge that the College grounds be fenced in and transferred to the jurisdiction of the Principal of the College.

Scholarships.—The Ellis Scholarship of Rupees 10 per mensem, maintained by the Honorable Mir Humayun Jah Bahadur, C. I. E., which was held during 1882 by Sayed Ahmed Kabir from the Madura College, who stood first in Persian at the F. A. Examination of December 1881, became vacant in January last. Sayed Ahmed Kabir having failed to obtain promotion to the Senior B. A. Class. The Scholarship has been awarded to P. C. Gopalachari, who stood third in Sanskrit at the F. A. Examination of December last. The Denison Scholarship, of the monthly value of Rupees Four, continues to be held by Syed Asseidulla, a pupil of the Upper Fourth Class. The Elphinstone Scholarship, of the monthly value of Rupees 12, continues to be held by M. A. Gopalachari of the Senior B. A. Class. R. Ganapati Aiyar lost the Senior Conolly Scholarship not having been promoted to the Fourth Class in January. The other Senior Conolly Scholar continues to draw the Scholarship. His Highness the Maharajah of Vijayanagaram bestows a Scholarship of Rupees 24 a month on K. Krishnamachari, who joined this College from Vijayanagaram. The Morehead Law Scholarship which was held by P. S. Krishna Rau, B. A., up to the end of December last is now vacant

and will be awarded on the results of the next May Examination. All the Pachappah's students, except one, got promotion to the Senior B. A. Class.

Prizes.—For the Powell Tamil Translation Prize only two competitors came forward. For the Elphinstone English Essay Prize there was only one competitor. The Norton Medal attracted three candidates, two in Tamil and one in Telugu. The Kunhunn Nambiyar Malayalam Essay Prize was competed for by only one. My best thanks are due to Rai Bahadur T. Gopala Rau, Mr. P. Ranganatha Mudaliyar, Mr. S. Seshayya and Mr. Seshayya Sastriyar for their trouble in reading and valuing the Essays and Translations. As one of our pupils headed the list of successful candidates in the First Class at the B. A. Examination, no difficulty has been experienced in deciding on the award of the Innes Gold Medal. His Highness the Maharajah of Travancore and His Highness the Maharajah of Vijayanagaram's Prizes have this year been awarded in connexion with Natural Philosophy and Physical Science respectively. The Arbuthnot Prize for English composition, the Gordon Prize for History and the Bourdillon Vernacular Prize have been awarded in the usual way.

The usual Appendices accompany this report. In conclusion my best thanks are due to the Professors, Masters and staff generally for the cordial assistance they have rendered me since I took charge of the College.

Mr. Fowler then read a paper, in which he said that the Principal's report had gone fully into the history of the College, and it was therefore not necessary for him to go over the same ground. He would simply refer to the great disadvantages under which the College suffered by the loss of the Principal, Mr. F. S. Evans and by the absence of Mr. P. Ranganatha Moodeliar; the F. A. Class had particularly suffered, and that to some extent accounted for the poor results of that class in the University Examination. Another point was "physical science." The Principal regretted that so many students had been attracted to that study instead of to Mathematics, but that would probably right itself in course of time.

Mr. Fowler had received a report from the Committee of which Mr. Justice Muthusawmy Iyer was the President, pointing out the very great inconvenience that Mofussil students suffered from want of a suitable boarding house in Madras. Out of 255 students in the College only seventy-two belonged to Madras. The students had to provide themselves with such house accommodation as they could obtain in Madras and such accommodation was often very limited, and otherwise unsuitable, affecting the students physically as well as intellectually; the provision of boarding houses would supply a desideratum. The Committee had received subscriptions and promises of money to the extent of Rs. 14,500. The Maharajah of Travancore had offered to erect a block to accommodate 128 students. Mr. P. Rungiah Naidu had made a similar offer, and Mr. Fowler believed that the Hon. G. Gajapathi Rao had also made an offer. The Committee hoped that Government would help them in their efforts in this direction. Mr.

Fowler next alluded to Mr. Runga Charlu, the late Dewan of Mysore, and said that "during the last year a very distinguished student has been lost to the country; he was one of the earliest students of this College," Mr. Fowler proceeded to say that by Runga Charlu's death not only had a native State suffered a heavy loss, but to higher education in Southern India the loss was also a heavy one. Mysore had found a successor in Mr. Seshadri, who also owed his education to the College. Mr. Fowler believed it was usual at the anniversary for the Director of Public Instruction to give a *resumé* of the educational work of the year; but as the permanent holder of the appointment, Mr. Grigg was at present absent from Madras, and he himself had been absent for the last eighteen months on the business of the Education Commission, he would only make a few remarks. The results of the Education Commission would probably influence India for a long time to come. The report of that body was not yet before the Government of India, but some particulars had been published in the *Calcutta Englishman*, and Mr. Fowler thought that he would not be exceeding official bounds if he said that the two hundred recommendations which the *Englishman* stated the Commission had arrived at would be found to embrace every grade of education and every class of the population, and the fear therefore that higher education would suffer was unfounded. Another important event for this Presidency was the sitting of a Committee for the consideration of local self-Government; the report of the Committee was before Government and as far as education was concerned, the recommendations of the Committee would extend the principles on which Government had been acting for some years; namely, that primary and secondary education should be localized, by which means its maintenance and support would be derived mainly from local and Municipal funds.

Speaking in his last report of the Arts degrees, Mr. Grigg said: "No better evidence could exist of the estimation in which the Arts degrees of this University are held by the people generally than the growing demand for higher education, and their appreciation of superior knowledge. If this ambition could be directed towards the sciences, and the Fine, as well as the Mechanical Arts, the rapid progress of the country might be more confidently looked for"..... The vast preponderance of the Brahmin element in the Arts course is probably one of the chief reasons why the *alumni* of the University adopt callings of a learned or clerical, as opposed to those of a scientific or practical character. An analysis of the figures for the B. A. and F. A. examinations brought to light the astonishing fact that there was one Brahmin candidate to every 125 Brahmins in the Presidency, while the proportion for other great sections of the population were: Hindus not Brahmins, one in 6,000, Mahomedans one in 12,000, and it was not to be wondered at, therefore, that Brahmins looked for high appointments—they worked for them. The increase in both middle and primary education had been gradual and satisfactory. The principles acted on in order to produce these great results were (1) cordial recognition of all private agencies; (2) encouragement of local effort;

(3) liberal aid to such effort, with judicious adaptation to local circumstances. Mr. Grigg had borne repeated testimony to the cordial spirit in which local and Municipal bodies had accepted additional responsibilities, more particularly in the following directions:—(1) In providing Normal Schools for the training of teachers especially for Primary Schools. (2) In taking over Primary Schools or Departments previously maintained by Government direct. (3) In contributing towards the cost of additional inspecting agency. (4) In assigning sums for results grants to elementary schools. Mahomedan education had continued to receive the careful attention of the department and the taking of their degrees at the last examination of the University by four Mahomedan students showed a very marked advance. The rules framed, especially for primary education, were most liberal, and the percentage of Mahomedans receiving primary education was greater than that of Hindus, but the comparison unfortunately was not as good in the case of higher education. Mr. Grigg attached very great importance to gymnastics; in fact the movement owed its impetus to Mr. Grigg. Mr. Fowler then spoke of female education. Greater progress had been made in female education in the Madras Presidency than in other parts of India, and the progress was undoubtedly more than they had looked for, and lastly as a very practical evidence of the additional value in which education was held, Mr. Fowler mentioned that during the year ending 31st March 1882, the amount paid in fees was Rs. 9,45,000, while ten years ago it was only 5,38,918.

The prizes having been distributed, the Chairman Mr. Justice Innes said:—

It was with great diffidence that I accepted the honor of Dr. Duncan's invitation to preside on this occasion, as there were so many others who, it seemed to me, could much more efficiently have fulfilled the rôle. But Dr. Duncan kindly put his invitation on the ground, among others; that this was the last occasion on which I should be available, and also urged other reasons of a personal nature connected with our private friendship, which I felt it would be ungracious in me to resist. I have had great satisfaction in presiding, and in finding that the report is so favorable excepting in the points noticed in the report, *viz.*, the failure of the F. A. Class, and the unsatisfactory condition of the Law Class. The failure of the F. A. Class is no doubt attributable to the exceptional causes set out in the report which sufficiently account for it, and which are not likely to recur. One of those causes was the illness and death of the late lamented Mr. Evans, whose loss we all still mourn, and whom Dr. Duncan has truly characterised as a most faithful servant of Government. I trust the condition of the Law Class may be improved. The success in the Matriculation and B. A. Examinations is highly creditable to the College. The report shows that the College maintains the position it has hitherto held under its able Principal, Mr. Thompson. It is still true as Lord Hobart observed in 1876 that "we look to this College as our present stronghold,

our highest example;" the "key-stone, I may call it," he said, "of the stately fabric of which our University is the consummation and the crown." And this is the position the institution has uniformly held whether as High School or College ever since its erection within a few years of my arrival in this country. At that period what little education there was, was all in the hands of the Missionaries, to whom all honour is due for the comparatively great work effected with very inadequate means. With the arrival of Mr. Powell, of whom your College is so justly proud, a new era commenced for education, and it is to the untiring efforts of that eminent man that the present forward condition of education in the Southern Presidency is mainly attributable. When his statute was inaugurated in 1880, he was spoken of in the address as a humble teacher. The expression was used no doubt with the object of showing the high estimation to which a man in that humble position might rise but the expression grated upon me. In one sense no doubt the teaching of small boys is a humble office, but in another and a higher sense there is nothing humble—indeed nothing is more suggestive of a lofty office than the devotion of a great mind to the task of imparting knowledge fitted to qualify men for the highest offices in the land. Such a teacher is not properly described as 'a humble teacher' when we consider the vast forces he has organized in the cause of civilization, and the great results that have been achieved by him; when we consider further (to quote Lord Hobart again) the distinguished men who have owed their high position to his teaching,—their splendid power—their imperial renown. One of these distinguished men, Raja Sir T. Madhava Row has lately retired from his high office to the great regret of all who have at heart the progress of Native States. And we have to mourn the untimely death of another whose loss to the country is very serious. It is a curious fact that those who are awarded statues in the present day are for the most part men who could most easily dispense with them. Who can doubt for instance that if, in the course of ages this beautiful fabric should perish, and leave surviving no trace of the memorial to Powell, his name would still live in the memory of the people; and when enquiry should be made how it was that there remained no visible sign to perpetuate the memory of such a man, the answer would be ready—look around you—look at the civilization at your doors, and at the moral and social advantages of which that civilization is the sum: all of which can be clearly traced to that crusade upon ignorance which had him for its first and worthiest pioneer. These constitute his monument, and will perpetuate his name. *Si monumentum requieris, circumspice*. It is not probable that many of you will enjoy the privilege of being teachers but in any avocation it will be open to you to assist in communicating knowledge and in stimulating the acquisition of it by encouraging those who are engaged in the actual work of teaching. Now, boys, I have not touched upon this subject merely for the purpose of eulogizing Mr. Powell—he requires no eulogy from me—but I have desired to impress upon you the grandeur and dignity of the office of teaching; it is

probable that the extension of education to those of lower social grades than your own will soon be undertaken. You can then assist and encourage those engaged in the important work of dispelling the darkness and ignorance of those lower grades; darkness and ignorance which are a fruitful source of crime and disease and of untold social and political danger. Before sitting down I would say a few words upon the prize that is given yearly in my name. I have felt much gratified that the trifling services I rendered to Coopposamy Aiyer in connection with his studies many years ago, should have been remembered by him to the day of his death, and that his recognition of them should have taken a form which will, I trust, for many years, in some shape or other, be a stimulus to learning in this College. After this, let no man say that the people of India are unmindful of kindnesses. Before concluding I must not forget to congratulate those who have gained honors, and to all I would say as it is usual to tender advice on these occasions, while respecting the opinions of others, do not follow them slavishly and blindly. Think for yourselves. Be yourselves. Be genuine. Work out your own character as dictated by your conscience. Do not indulge in the idea that you can commit wrong one day, and retrieve your character the next. I have read somewhere of a beautiful temple of Serapis which subsided with the subsidence of the ground on which it stood. After a long period it rose again, but its pure white marble pillars were then found to have been permanently disfigured by the ravages of the organic life peculiar to the strata into which it had sunk. Men may perhaps

"rise on stepping stones"

"Of their dead selves to higher things,"

but wrong doing will infallibly leave its traces upon the character.

On the conclusion of the Hon'ble Mr. Justice Innes's speech, Dr. Duncan rose and said:—I feel sure, Sir, that I am expressing the sentiments of the Professors, Masters and senior students of this College when I ask you to accept our best thanks for your kindness in presiding on the present occasion; knowing as I do how many demands there are at present on your time and strength, I had some scruples about asking you to come here this evening. But the temptation was more than I could resist. A series of kindnesses received at your hands, and extending over many years, had emboldened us to think that we might claim a further proof of your interest in us, by asking that one of your last public acts in India should be to preside on the present occasion. You have, Sir, been on terms of intimate friendship with successive Principals and Professors of this institution during your long residence in Madras, and we have come to look upon you as one of our truest friends—a friend who has not flattered us overmuch in prosperity, but to whom we felt we could always resort for counsel and encouragement in adversity. To me personally, associated as I have been with you for so many years in the University, your departure will be a great loss. To the native community, to the graduates and others, not of this College alone, but of all the great colleges of the Presidency, the loss must appear almost irreparable.

Your natural diffidence prevents you from realizing how deep-rooted is the affectionate esteem with which you are regarded and the sense of coming loss with which your departure is contemplated by all of every persuasion who are directly or indirectly interested in educational work in this city. The other day, in the Senate in reply to a vote of thanks proposed by His Excellency the Governor, in recognition of the eminent services rendered by you to the University as a Fellow, as a Member of the Syndicate, and as Vice-Chancellor, you were good enough to say that your interest in education in Madras would not cease when you left these shores. It may not appear an inappropriate counterpart to this expression of your continued interest in the people of this country, when I take it upon myself to say that your name will be cherished and revered by the natives of this Presidency, long after most of us here have retired from active life. When you return to dear old England, may you enjoy such a life of honor and happiness as a long and distinguished career like yours deserves.

The proceedings then came to a close.—*Madras Mail.*

CONVOCATION OF THE MADRAS UNIVERSITY.

A Convocation of the Madras University for conferring degrees on candidates who recently graduated in Law, Medicine and Arts was held at the Senate House, on Saturday evening, the 31st March, at half past four o'clock. Before the appointed time the large hall was crowded, and those who came late had to content themselves with standing. Precisely at half past four, the Governor's Band which was placed on the gallery to the south of the hall, struck up the National Anthem, and a procession marched to the dais from the robing room, headed by an A. D. C. to his Excellency the Governor, and followed by Dr. Duncan, the Registrar, His Excellency Mr. Grant-Duff (Chancellor,) who wore a robe of purple velvet trimmed with gold; the Hon'ble Sir Charles A. Turner (Vice-Chancellor,) who wore a violet robe; and the following Fellows with their gowns and hoods; the Hon'ble D. F. Carmichael, the Hon'ble Mr. Justice Innes, the Hon'ble Mr. Justice Muthusami Iyer, Rajah Sir T. Madhava Row, the Hon'ble Rajah G. N. Gajapathi Row, the Hon'ble Humayun Jah Bahadur, the Right Rev. Dr. Gell, the Right Rev. Dr. Colgan, Surgeon-General Cornish, the Rev. Dr. Kennett, Mr. Kristnama Chariar, Mr. Bashyam Iyengar, Dr. Mohidin Sheriff Khan Bahadur, Mr. B. Lavery, the Venerable Archdeacon Warlow, the Rev. Milne Rae, the Rev. C. Cooper, Dr. Wilson, Dr. Macrae, Dr. Keess, Mr. H. B. Grigg, Mr. Sashia Garu Shastrulu, Mr. Balaji Row, Dewan Bahadur Ragoonath Row, Rai Bahadur Gopal Row, Mr. Runganadha Moodelly, Mr. Vencataramana Punt, Dr. Bidie, the Rev. E. Sell, Mr. J. W. Handley, Mr. J. T. Fowler, Mr. Vijiarungum Moodelly, Lieutenant Love, the Rev. Mr. Sathianaden, Mr. Mir Ansurudeen Saib Bahadur, Mr. D. Sinclair, Mr. Chentsal Row, Mr. J. Cook, Mr. Vencataramiah Shastriar, Colonel Sankey, Colonel Hasted, the Rev. Dr. J. Hay, Dr. A. Porter and Mr. C. Michie Smith.

The Chancellor opened the Convocation by directing the Registrar to read the names of the candidates who had graduated in Law, Medicine and Arts. This being done, the Chancellor put the usual questions to the candidates, and, after these were answered, the presentations took place. The

Bachelor of Laws candidates were presented by Dr. Duncan, the candidate for the M. B. and C. M. Degree by Surgeon-General Cornish, the Licentiate in Medicine and Surgery by Dr. Keess, the Master of Arts candidates by Mr. Runganadha Moodelly, and the Bachelor of Arts candidates by Dr. Duncan, the Rev. Milne Rae, the Rev. C. Cooper, Rai Bahadur Gopal Row, Mr. Krishnama Chariar, Mr. J. Cook and Mr. Cecil M. Barrow.

The Chancellor having declared the degrees conferred, the Hon'ble D. F. Carmichael delivered the following address:—

Gentlemen, Graduates of 1883—I now rise to discharge the duty, which the Right Hon'ble the Chancellor has entrusted to me, of delivering the annual address, in this the last year of my service amongst a people I have known so long and have (if you will believe me) loved so well. With the exception of two distinguished educational officers, who still labor in our midst, and who were created fellows by the Act of Incorporation in 1857, I am, I think, the oldest member of this University now in India. In the year following the Incorporation Act, there was, so far as I recollect, no addition made to the Senate; in 1859, or four and twenty years ago, I was the last of five appointed to it by Sir Charles Trevelyan, whom I had the honor of serving as his Private Secretary. I am to exhort you, gentlemen, "to conduct yourselves suitably unto the position to which, by the degrees conferred upon you, you have attained." Can I doubt that you will do so? The knowledge you have acquired during long years of study has called into daily exercise your patience, your perseverance, your watchfulness, and self-control. These habits must have excluded a host of follies and vices. In the morning of life, when the blandishments of passion take the reason prisoner, these habits, I persuade myself, have sustained and invigorated your mind, have imparted a freshness and a healthful tone to its enjoyments, and fitted it for the more arduous purposes of your work in the world. And, my young friends, the knowledge you have gained is to be prized not only for the qualities and serene pleasures which it directly tends to excite, but also for the material blessings which it confers upon society. Look back to the days of the old system of education, when the students of British India were delivered up to the moulvi and the pandit, and you will admit that it is possible for knowledge, when wisdom has not guided her impulses, and false systems have arrested her progress, to damp the ardour of invention, to repress the nobler energies of the understanding, and result in moral apathy and a stagnant civilisation. Let me tell you how education in India was emancipated. It is now exactly seventy years ago that Parliament directed the East India Company to set apart a lakh of rupees a year "for the revival and promotion of literature, and the encouragement of the learned natives of India, and for the introduction of a knowledge of the sciences among the inhabitants of the British territories." Such was the general apathy on the subject amongst Indian administrations that nothing was done, nothing attempted, till ten years had expired. At the end of that time a General Committee of Public Instruction was formed in Calcutta, whose first step in the direction of progress—as they supposed it to be!—was the establishment of a Sanskrit College in that city, in addition to the Sanskrit College established thirty years previously at Benares. That enlightened Brahmin, Ram Mohan Roy vigorously protested, pointing out that it was "English literature and science" that the people, when left to themselves, desired for their sons, as was manifested in the foundation, by the zemindars and merchants of Bengal, of the Hindu College of Calcutta for such pursuit in the year 1816. To Sanskrit literature and its more diligent cultivation, Ram Mohan Roy himself an eminent scholar and the translator into English of the Upani-

shads or speculative portion of the Vedas, was willing to give every reasonable encouragement, but if the improvement of the native population was the object of Government let it promote, he entreated, a more liberal and enlightened system of education. What a Government College was in those days the journal of Bishop Heber at Benares in the same year shall tell us:—

“The Vidyāhaya is divided into a number of classes who learn reading, writing, and Arithmetic (in the Hindu manner), Persian, Hindu Law and Sacred literature, Sanskrit, Astronomy according to the Ptolemaic system, and astrology! There are 200 scholars; the Astronomical lecturer produced a terrestrial globe, divided according to their system and elevated to the meridian of Benares. Mount Méru he identified with the North Pole, and under the Southern Pole he supposed the tortoise to stand on which the earth rests. The southern hemisphere he apprehended to be uninhabitable; but on the concave surface in the interior of the globe he placed Pātālam or hell. He then shewed me how the sun went round the earth, once every day, and how by a different but equally continuous motion he visited the signs of the Zodiac. Well—yet another ten years drag on, and the question is still undecided whether the people of India, whose mother tongues are generally poor and rude, should have the means of pursuing higher studies by acquiring the Arabic and Sanskrit languages or the English. In 1835 that question was settled as it now stands, by the advocacy of one who, having already embellished the literature of Europe, came to its aid when doubting orientalists weighed its claims with the literature of Asia. I allude to Macaulay, then the legal member of the Governor-General's Council. Listen to his glowing eulogy on the claims of his own language and be thankful for the glorious heritage which his pen secured for you:—

“It stands pre-eminent even among the languages of the west. It abounds with works of imagination not inferior to the noblest which Greece has bequeathed to us; with models of every species of eloquence; with historical compositions which, considered merely as narratives, have seldom been surpassed, and which, considered as vehicles of ethical and political instruction, have never been equalled; with just and lively representations of human life and human nature; with the most profound speculations on metaphysics, morals, government, jurisprudence and trade; with full and correct information respecting every experimental science, which tends to preserve the health, to increase the comfort or to expand the intellect of man. Whoever knows that language has ready access to all the vast intellectual wealth which all the wisest nations of the earth have created and hoarded in the course of ninety generations.”

The next twenty years witnessed considerable advancement, including in our presidency the advent of Mr. Powell from Cambridge, and the establishment of the High School, which nurtured so many distinguished men. Towards the close of the same period the sanction of the Court of Directors was received for the creation of Universities. Then came the rebellion of 1857; the fate of Universities, the fate of Public Instruction in India, trembled in the balance; but Lord Canning was firm; he felt that it was not liberal education, but the want of it that had raised the storm. Like Columbus, in spite of the mutiny of his crew and the remonstrances of some of his lieutenants, he refused to delay, much less to turn back from his course; but unlike Columbus, he was not amongst the seaweed, nor were the birds fluttering over his head; with the eye of faith he pierced the gloom and discerned the haven where he would be. I like to recollect that his assent to the Act establishing our own University was given on the 5th September 1857, a time when the siege of Delhi still proceeded under the

most disadvantageous conditions. It was in 1859 that the degree of Bachelor of Arts was for the first time conferred on students educated in this presidency. Taking the five quinquennial periods that may be counted from 1859 to the present year, I find that the rate of success has been uniformly about fifty per cent. of the whole. In the professional degrees the rate of success has fluctuated to a remarkable extent, as is too well known, for instance, to recent candidates for the degree in Law. Having worked with and watched the work of men, some of whom are proficient in the pre-University High School, and others are graduates of the University, I gratefully acknowledge that I have found both classes equally efficient and equally honorable. The proficient in their day had an advantage which graduates cannot share. They were so few in number that there was a perfect scramble amongst the heads of departments to secure them. Once caught, they were rapidly promoted to be Tahsildars, Deputy Collectors and District Munsiffs. Now—so strong is the general competition—that a Bachelor of Arts is often very glad to get a clerkship on four or five pagodas a month, in which situation he may languish without advancement for years. But there is more than this to account for the poor prospects of graduates. They would be far more numerous and far better remunerated, but for a direct check, which I trust will be shortly removed, after the consideration which it is about to receive from the Governor-in-Council. It is the admission of men, without any connection with the University beyond the matriculation—sometimes not even that—to the Special Test, by passing which the candidates become qualified to hold the more important offices in the country. This system has been injurious to education, the University, and the public service itself. Look at the hundreds and hundreds of young men who annually matriculate or pass what is best known as the Uncovenanted Civil Service Examination. What becomes of them? Do they go on to F. A., and B. A., and B. L.? Not at all; they have now reached the goal of their miserable ambition as students; they take a petty post as a copyist and set to work to cram, in their scanty hours of leisure, the Special Tests for the Judicial and Revenue Departments. Now, a matriculate has just begun his education, and of what value to the State is the occupation of the higher appointments by half-educated men? I would say to those who are satisfied to stop at the matriculation stage, that they shall get no further than petty clerkships, that they shall remain “hewers of wood and drawers of water.” They may cram the Special Tests in time, but it is not good for the country that any but really educated men should become Magistrates, Tahsildars and Munsiffs. Now that the University has stood and prospered for a quarter of a century, it is surely high time that we promoted to the more responsible offices in the public service, none but those who have taken complete advantage of the education now offered to all; each high official would then be a beacon on a hill, whence should radiate the glorious influences of Western civilisation. There are some twelve hundred graduates in Arts of this University; yet there are only two or three per cent. of the number holding responsible offices in the general administration. What becomes of our graduates? The Educational Department readily absorbs some of them; others join the Native Bar, and the remainder, wherever they go to, are not to be found in the higher ranks of the public service. And yet it is just there that they should be found. Those who take their notions from England can have no conception what an immensely powerful engine, either for good or evil, an Asiatic Government is. Time will bring its changes, but in the India that we now know, the Government is everything; its establishments are on the largest scale and nearly the whole rental of the country passes into its coffers. The

mercantile, medical, sacerdotal and other professions, which absorb the greater part of our English youth of the middle class, are either held in comparatively low esteem, or are confined, at present, to particular castes: and, except when he becomes a Pleader, almost the only idea which a liberally educated native has of rising in life is by attaching himself to the public service. In the early years of British rule in India, the system of government was based on the principle of doing everything by European agency; the wheels became clogged; more than half of the business of the country remained unperformed, and at last it became necessary to abandon a plan which, after a fair trial, had completely broken down; substituting in its stead the present system of transacting the public business by Native agency under European superintendence. Having opened such preferment to the natives, is it not the duty, the plain policy of the Government, to see that the men whom it appoints to be interpreters between itself and the rude millions whom it governs, shall come from a class which, if Indian in blood and color, shall be English in taste, in opinions, in morals and intellect? And yet what is the state of the case? I look down the rolls of the Native public service. Amongst the Subordinate Judges I find a single graduate only; one in the first grade of Munsiffs; one in the second; in the third class as many as fourteen; while the Deputy Collectors, the Tahsildars, and other high revenue officials, who are Bachelors of Arts, can be counted on the fingers. We have been hearing lately, gentlemen, of a coming Convocation of Graduates to be incorporated for the very reasonable purpose of considering matters affecting the well-being of the University and making suggestions to the Senate regarding them. Would to heaven we could see another Convocation, consisting of those amongst you—(an immense majority they are)—who are Hindus—formed for the still more reasonable and beneficent purpose of exploding the innovations in the ritual and usages of your sacred Vedas, which, however brought in, have now unhappily, for centuries prevailed; innovations involving the degradation of the female sex, ruin to the moral virtues and the intellectual energies of the man, and the hopeless postponement of national advancement and domestic felicity. Already I seem to see a hand writing on the wall, that the end of this and other old superstitions is at hand. Shall they be driven out by the winter storm in its overwhelming fury, or shall they be removed by the gentle and peaceable means which an united body of educated men, actuated by the purest patriotism, should well know how to use? How long will you hang back undecided and desponding? Whom and what do you fear, *you*, who have sworn to-day, as far as in you lies, to support and promote the cause of morality, and to advance the well-being of your fellow men? Take courage as you recall this solemn pledge, given in the presence of an august University which *then and not till then* decorated you with the insignia of the order to which you have so worthily attained. Graduates, farewell! may happiness and prosperity be yours in your course through the world. But, however onerous and important your work in life may be, let the pleasures which arise from intellectual pursuits return to you at every vacant interval. The great reformer of philosophy has beautifully declared that, in all other pleasures, after they be used, "their verdure departeth, which sheweth that they be *deceits* of pleasures"; but in these, "satisfaction and appetite are perpetually interchangeable." These, indeed, are the only pleasures which, fraught with unalterable delight and interest, outlive the fervent years of youth, and grow still stronger in the decays of age.

The Chancellor, after this, dissolved the Convocation.—*Madras Mail*.

APPOINTMENTS

Sanctioned by the Director of Public Instruction, during the month of April 1883.

Ghulam Mowla Sahib, to be 5th Assistant, Madrasa-i-azam, from 1st April 1883.

Abdul Kallik Sahib, to act as 2nd Assistant, Madrasa-i-azam, from the same date.

Jamshedji Edalji Daruwala, Bachelor of Science, Bombay University, to be *Sub pro tem*, Lecturer of Physical Science, in the Kumbakonam College, to join after the Midsummer vacation.

A. Subrahmanya Aiyar, B.A., to be *Sub pro tem*, 6th Assistant, Presidency College.

T. Aiya Aiyar, Deputy Inspector of Schools, South Coimbatore, to be Deputy Inspector of Schools, Tindivanam Range.

K. P. Guruswami Aiyar, B.A., Deputy Inspector of Schools, Kavali, to be Deputy Inspector of Schools, South Coimbatore, *vice* T. Aiya Aiyar, but to act as First Assistant in the Madura College.

K. Srinivasulu Nayudu, F.A., Acting Deputy Inspector of Schools, Kavali, to be *Sub pro tem*, Deputy Inspector of Schools, Kavali, on Rs. 75.

T. S. Lakshminarayana Aiyar, F.A., Third Assistant, Palghat High School, to act as Deputy Inspector of Schools, South Coimbatore, during Guruswami Aiyar's employment on other duty or until further orders.

A. K. Krishnayyar, 4th Assistant, High School, Palghat, to act as Head Master, Middle School, Badagara, *vice* K. Kuppaiya, on leave.

Asirvadam David, B.A., 3rd Assistant, and *Sub pro tem* 2nd Assistant, to be 2nd Assistant, High School, Cuddapah.

B. Venkata Ran, B.A., to be *Sub pro tem*, 3rd Assistant, in the same school, subject to the usual conditions.

A. Padmanabha Aiyar, F.A., (trained) 5th Assistant Master, to be *Sub pro tem*, 4th Assistant Master, Calicut College, *vice* Selvanayagam.

S. Venkateswara Aiyar, B.A., (trained) 6th Assistant Master, to be *Sub pro tem*, 5th Assistant Master in the same College.

Mr. A. S. Noronha, Head Master, High School, Cannanore, to be *Sub pro tem*, Deputy Inspector of Schools, Southern Range, South Canara, on Rs. 100.

Mr. Campbell, to be 6th Assistant Master, *Sub pro tem*, Civil Engineering College.

T. S. Swaminatha Aiyar, to be Clerk, Writing Master and Librarian in the Normal School, Madras, on Rs. 30.

Mr. C. Cotter, to be Gymnastic Instructor, Presidency College.

LEAVE.

J. Pallaiya, 2nd Assistant, Government High School, Guntur, leave on Medical Certificate for one month.

K. Kuppaiya, Head Master, Middle School, Badagara, furlough for one year, with effect from 1st March 1883.

T. S. Sambasiva Aiyar, Head Master, Krishnagiri Middle School, leave on Medical Certificate for one month.

E. Jaganayakulu, Head Master, Kasinkot Middle School, leave on Medical Certificate for three months, from 9th February 1883.

Ghulam Mawla Sahib, Assistant Master, Madrasa, leave on Medical Certificate from the 8th March to 30th November 1883.

B. Lakshminarayana Aiyar, 1st Assistant, Kallakurchi Middle School, 22 months leave without pay.

Krishna Prabhu, 1st Assistant Master, School of Agriculture, leave without allowance for 24 days.

G. V. Sivarama Aiyar, Acting Head Master, Middle School, Erode, leave without allowance for 19 days.

APPOINTMENTS, May 1883.

K. Rama Rau, 8th Assistant, Mangalore College, to be Writing Master, Clerk and Librarian in the same College.

N. Venkataramaya, to be 5th Assistant Master, (provisionally) in the Bellary College, but to join the appointment on the completion of his training in the Normal School.

A. Anantakrishnayya, 2nd Assistant, High School, Cannanore, to act as 3rd Assistant, High School, Palghat, during T. S. Lakshminarayana Aiyar's employment on other duty or until further orders.

K. Kartikeya Pillai, Head Master, Middle School, Tripatur, to act as Deputy Inspector of Schools, Salem Circle, during the absence of Amirthanayagam Pillai, on leave.

P. Srinivasa Rau, 1st Assistant Master, to act as Head Master, Middle School, Tripatur.

A. Gideon Pillai, 2nd Assistant, to act as 1st Assistant in the above school.

LEAVE.

T. Srinivasa Charlu, Deputy Inspector of Schools, Masulipatam Range, privilege leave for 45 days.

J. Pallaiyar of the Guntur High School, extension of leave for 1 month.

S. Shunmukha Mudali, Deputy Inspector of Schools, Karnool Range, privilege leave for 45 days.

Y. Amirthanayagam Pillai, Deputy Inspector of Schools, Salem Circle, privilege leave for 2 months and 15 days, from the 16th June 1883.

C. Kotayya Chetti, Deputy Inspector of Schools, Ongole Range, privilege leave for 2 months and 10 days.

Muhammad Azam, Deputy Inspector of Muhammadan Schools, privilege leave for 2 months and 15 days.

T. S. Krishnaswami Aiyar, Deputy Inspector of Schools, Northern Range, Tanjore, privilege leave for 3 months.

J. T. FOWLER,

Acting Director of Public Instruction.

"Gladly would he learn and gladly teach."

THE Madras Educational Record.

VOL. II.
Nos. 6 & 7.

JUNE & JULY 1883.

New Series.

JOHN STUART MILL.

MR. BAIN's two latest works on John Stuart Mill deal more with the works of the Philosopher than with his life; but we dare say no better life could ever be produced than his own deeply interesting "Autobiography." We wish to say a few words about his Philosophy in this short sketch.

This practical age of ours seldom produces great men who turn their minds to pure thinking. Philosophy is repellent because men do not see that it deals with practical questions, or is attended with positive results. This is pre-eminently a scientific age and is too thoroughly Baconian to have any intense liking for abstract speculation. Even the modern philosophers give their abstruse subject a practical turn. Take for instance, Herbert Spencer dealing with such a practical question as Education: or even notice the numerous writings of Mr. Bain. Practical aims pervade all his teachings. In fact, all his philosophy is worked out physiologically, and he is perhaps the most systematic and far sighted of English teachers. Mr. Mill, notwithstanding his powerful speculative powers, concentrates his genius on all kinds of practical questions, Ireland, Land, Labour, India, &c. Political economy itself, which is just being recognized as one of the most important sciences, is an outcome of this theoretical and practical mode of thinking. We doubt, whether the philosophers before Bacon's day would have ever condescended to give their attention to such a science, which has in it so much that is both practical and theoretical. Philosophy has certainly gained much by the introduction of this practical element into it. Will it not be well for science to have at least some tinge of philosophy also in it? For Philosophy, in its widest sense, is Search after Truth or, if you like, Reasoned Truth, not truth on which we accidentally stumbled or which we have accepted on authority, or which we desire or are disposed to accept; but truth which we have sought, and reasoned

and worked out for ourselves, and, in this sense, philosophy is the directress of human intelligence, and philosophers are the guides of human society.

And now for a word about Mill. The chief of all English philosophers is the mighty Mill. His influence whether directly or indirectly, has been felt by all England and even to a great extent by Europe. His works, among them especially his remarkable work on Logic, are far beyond our feeble praise. It was originally thought that Mill's ideas were only reproductions of the famous Comte, but the former soon shewed to the world that he was independent of Comte; his remarkable article in the "Westminster Review" was very displeasing to the Comteists. Mr. Mill's system it must not be denied, has some tinge of Comteism about it, although he rejects entirely the 'culte sytematique de l'Humanite.' Mr. Mill says, "there is not any idea, feeling or power, in the human mind, which, in order to account for it, requires that its origin should be referred to any other source than experience. In fact, Mr. Mill, throughout the course of his philosophy, has no room for belief as distinct from knowledge. At the same time he gives some sort of sanction to the argument from design which thinkers even still more advanced than he is, are giving up or attacking. Still, after all, he represents British Empiricism. We believe however, that in this point he is not in harmony with the instincts of British nature.

Let us hear M. Taine who has written on "Mill and English Positivism." An Englishman is naturally influenced by the sentiment of the far beyond. For him, beyond human experience, prolonged so far as it is possible to imagine, there is an abyss, a vast—we do not know what whether blankness or brilliancy; and in this matter the most determined votaries of pure experience are at one with the believer. Beyond attainable things Herbert Spencer expressly places something unattainable, "The unknowable"—the infinite basis whereof we can touch but a portion and the surface. If J. S. Mill dare not offer this infinity which oversteps all limits, he at least admits it as a possibility. An expanse of darkness, empty or peopled, enveloping the narrow circle wherein flickers our little lamp. Such is the common impression made upon the sceptics as well as upon the faithful by this spectacle of things. Such an impression puts the mind in a solemn attitude; it does not proceed without a tincture of error; the human beings are in presence of an incommensurate and overwhelming spectacle; he is inclined to wonder and awe. We may compare with this a powerful sentence of Mr. Masson's: "One may even figure to oneself that the entire human cosmos is the totality of phenomenal existence, but as one of those glass globes in which in a lighted drawing-room in these days of aquaria some of the guests may be seen studying the little forms of filmy and filamentous life attached to stones and weeds, or the movements of the small fishes, as they go round and round, speculating confusedly with their eyes, what is all that glamour beyond the globe and away in the distance of the room."

We need not say anything about Mill's Utilitarianism; Bentham, who went before Mill, has the honor of starting the Utilitarian School. But our author has touched many other subjects, all the 'knowledge' to use Bacon's term, and he has treated all with remarkable ability. As a champion of woman's rights, he awoke a tender interest in many and a general interest in all. His avowal that he owed whatever was best in his writing to his wife, is exceedingly touching and instructive. His Essay on Liberty touched a national chord of a convenient length, and in a tone and style that are admirable examples of the philosophic treatment of a great subject. But, in fact, Mr. Mill has circumnavigated all the waters of philosophy, and has laid under contribution all the streams of truth. He has more than sustained his hereditary fame which he inherited from his father, the historian of British India; and has left behind the most potent mark in the world.

ESSAY ON POETRY.

(Extracted.)

CHAPTER II.

ON THE FORM AND MATTER OF POETRY.

(Continued from page 163.)

In its form, Poetry divides itself into the EPISTOLARY, the INSCRIPTIVE, the DIDACTIC, the ELEGIAC, the LYRIC, the DRAMATIC, and the EPIC.

Poetry, in its matter, divides itself into the LUDICROUS, the DESCRIPTIVE, the FESTIVE, the SENTIMENTAL and the ETHIC.

We have thus six principal divisions as to form, and five as to subject, under which all the others may be reduced.

The *encomiastic* and *satiric* are not noticed, as being species of the ETHIC, whenever they be brought under any description of legitimate poetry: nor the *epigrammatic*; as it belongs either to the INSCRIPTIVE (its original sense), the SATIRIC (its most general modern application), or to some of the other classes. The *sonnet* is properly referable to the LYRIC.

These classes are arranged according to their dignity; beginning with the least considerable, and ending with the greatest.

The LUDICROUS, the ELEGIAC, the ETHIC, the EPIC, and the DRAMATIC, have (the first three generally, the fourth and fifth always) their appropriate measure and form of verse; at least the exceptions are so rare, that they cannot properly enter into a general enumeration.

As comedy is the least poetic form of the drama, LUDICROUS poetry in general may be regarded as least partaking of the poetic spirit and character; from wanting dignity and pathos, and that vesture of imagery, diction, and cadence, by which poetry in the higher kinds is distinguished.

The ludicrous may be divided into the common and the burlesque; and the burlesque into the mock-heroic and the macaronic.

Of the common ludicrous the specimens are very numerous. The Hudibras of Butler, and the poems (so fertile in good and bad) of Dr. Wolcot, ('Peter Pindar') are the best.

Of the mock-heroic, the *Lutrin* of Boileau, the *Dispensary* of Garth, and the *Rape of the Lock* of Pope, are examples which almost universally recur to the mind whenever this kind of poetic composition is mentioned.

The macaronic consists of verses partly in one language and partly in another: it is hardly necessary to state examples of this whimsical medley; the late ingenious Dr. Geddes condescended to give some superior specimens.

Satirical poetry is descriptive of men and manners; its aim is to delineate the follies and chastise the vices of the age. Satire is evidently the offspring of polished times; and, unlike other poets, the satirist finds his empire enlarged, and his influence extended, by the progress of society.

Satire is either pointed or oblique: eloquence is the soul of the one, and ridicule of the other. The one rushes on its object in a torrent of vehemence and declamation; the other pursues a smooth tortuous course, occasionally reflecting to the mind the most momentous truths in the playful aspect of wit and humour. In *Hudibras*, the *Lutrin*, and the *Rape of the Lock*, the effect of oblique satire is heightened by an assumption of the heroic style, the perversion of which produces an effect exquisitely ludicrous. Gay's *Shepherd's Week*, and Gresset's *Ver-vert*, belong to this species; as do many of Voltaire's lighter poems, and most of La Fontaine's tales. Swift's satire is commonly of a similar cast. The satire of Young is always pointed and saturnine. In Wolcot and Churchill the pointed and the oblique are united: as they are in Dryden and Pope, the two great original masters of English satire; who both possessed with wit and fancy a knowledge of men and manners, and an intuitive discernment of characters with the aptitude of describing them, which are its first requisites.

The following extracts afford a specimen of the manner of each in the delineation of character: it must however be remembered, that Pope moralizes while Dryden declaims:

"Some of their chiefs were leaders of the land;
In the first rank of these did Zimri stand;
A man so various, that he seem'd to be
Not one, but all mankind's epitome:
Stiff in opinion, always in the wrong,
Was everything by starts, and nothing long;
But in the course of one revolving moon,
Was chemist, fiddler, statesman, and buffoon;
Then all for women, painting, rhyming, drinking,
Beside ten thousand freaks that died in thinking,
Blest madman! who could every hour employ
With something new to wish, or to enjoy.
Railing and praising were his usual themes;
And both, to shew his judgment, in extremes,
Is ever violent, or ever civil,
That every man with him was God or devil.
In squandering wealth was his peculiar art;
Nothing went unrewarded, but desert:
Beggard by fools, whom still he found too late,
He had his jest, and they had his estate.
He laugh'd himself from court; then sought relief
In forming parties, but would ne'er be chief."

DRYDEN.

"In the worst inn's worst room, with mat half-hung,
The walls of plaister, and the floor of dung;
On once a flock-bed, now repair'd with straw,
With tape-tied curtains never meant to draw;
The George and garter dangling from his head,
Where tawdry yellow strove with dirty red;
Great Villiers lies: alas! how chang'd from him
The life of pleasure, and the soul of whim,
Gallant and gay, in Clarendon's proud alcove,
The bower of wanton Shrewsbury and love;
Or just as gay at council, in a ring
Of mimic statesmen and their merry king!
No wit to flatter left of all his store;
No fool to laugh at, which he valued more;
The victor of his health, his fortune, friends,
And fame, this lord of useless thousands ends."

POPE.

It would be amusing to pursue the comparison between these two great poets in the *Dunciad* and *Mac Flecknoe*; to observe the unpruned exuberance and careless vigour of the elder bard, and the exquisite judgment of his incomparable imitator.

We come now to *DESCRIPTIVE* poetry. This in its present state has much less of originality and force than the ludicrous: but it has abundantly more of the sweet and pleasing, of the elegant and the graceful.

When descriptive poetry is merely such, it falls so much short of the distinctness and vividness of which painting is capable, that it cannot long interest. But when it is combined with philosophic thought, tender and generous feelings, and exalted sentiment, as in Dyer, Thomson, and Akenside, it constitutes a mixed species of poetry of transcendent excellence. The simply natural, the soft and elegant, the beautiful, the picturesque, the magnificent and grand, ascending ultimately to the true sublime, constitute the principal characteristics of the different species of descriptive poetry. Descriptive poetry, when it rises into dialogue and action, with appropriate scenery, becomes pastoral, pictorial, or venatorial, according to its subjects.

Pastoral poetry has much of the descriptive. The scene necessarily implies it. Simplicity and sweetness are its most distinguishing features; a sort of *naïveté* in the characters, consisting of rusticity and acuteness, modesty and frankness. Theocritus is the great model of pastoral poetry; and had Bloomfield written in dialogue, *he* would have been *our* Theocritus. If Gay's was meant for ridicule, the natural genius of the writer, and his good-nature, carried him to something far better than the most successful ridicule. Cunningham was perhaps at first too much admired, and certainly is at present too little remembered. To close the descriptive list, those surely may well justify their opinion, who prefer Sannazarius* to Virgil in this branch of poetic composition. His numbers are full of dignity, variety and impressive power; his local scenery and manners uncommonly happy; and his incidental passages most pathetic, beautiful, and elevated.

Pastoral poetry is, above all other, the most limited in its object; and when formed on the model presented to us by Virgil and Theocritus, should be a description of rural scenes and natural feelings, enriched with elegant language, and adorned by the most melodious numbers.

Few English pastorals will be recognized in this definition; the scenes which they represent are artificial, and the sentiments unnatural among us

* In his piscatory eclogues.

because imitated from poets who were natives of a luxuriant region, and accustomed to the living tints and glowing azure of a cloudless sky. From this censure, however, the pastoral drama of Allan Ramsay must be excepted, as should Shenstone's celebrated ballad. The ballad is perhaps the happiest vehicle of pastoral poetry, and there are in our language many ballads of exquisite beauty. Some of our pastorals are elegiac; such is Milton's monody on Lycidas:

"Together both, ere the high lawns appeared
Under the opening eyelid of the Morn,
We drove afield; and both together heard
What time the grey fly winds her sultry horn,
Batt'ning our flocks with the fresh dews of night,
Oft till the star that rose at evening bright,
Towards heaven's descent had slop'd his westerling wheel."

The conclusion of this poem is in the true spirit of elegant pastoral:

"Thus sung the uncouth swain to th' oaks and rills,
When the still Morn went out in sandals grey;
He touch'd the tender stops of various quills
With eager thought, warbling his Doric lay;
And now the sun had stretch'd out all the hills,
And now was dropt into the western bay.
At last he rose, and twitch'd his mantle blue,
To-morrow to fresh woods, and pastures new."

Of the FESTIVE we have examples in the odes of Anacreon: though concerning many of these a doubt has been, and apparently with reason, entertained, whether they are not much more modern. They are beautifully imitated by Cowley.

The SENTIMENTAL may be distributed into five principal classes, all which have the sentiments or affections for their objects; the *simply affectionate*, the *amatory*, the *patriotic*, the *philanthropic*, and the *devotional*.

The *simply affectionate* are those which are devoted to friendship, or the parental, filial, and fraternal, duties and affections; or to the general sympathies which interest man in the welfare of percipient and sentient nature in general. The *amatory* are sufficiently expressed in the form of these: some of the epistles of Ovid in the character of the Grecian heroines, his own to his wife, several of the elegies of Tibullus, and some of those of Propertius, are beautiful examples. Among the Italians, Petrarch, Tasso, Vittoria, Colonna, Veronica, Gambara, and Sannazarius, are pre-eminent, generally in chastity, refinement, and elevation, and frequently in the tenderness and natural sweetness of the passions: and among our own poets, Hammond, Shenstone, Thomson in his two exquisite songs and in many detached passages, Shakespeare and Milton in their occasional delineations, and Mrs. Robinson in her series of sonnets, and in many of her poems, which have exceeding delicacy, sweetness, and tenderness, with truth and energy of affection. Hammond, it is true, has something of a cold appearance, or which he would have had less if he had been more avowedly a translator of Tibullus. Shenstone has often, with a most musical sweetness, the truest and most affecting simplicity.

Of *patriotic* poetry, it must be owned, there is but little: some noble odes of Akenside, Thomson's Liberty, and Glover's Leonidas, breathe however this spirit. Nor is Smollet's Ode to Independence to be deprived of a high rank in this class.

Of the *philanthropic*, we have some noble specimens in the poems written to promote the abolition of the slave-trade.

Of the *devotional*, except some wonderful passages in the Psalms and prophets, instances of great excellence are rare; and I know not whether the Italian poets have not been more frequently successful than ours. In the Esther and the Athalie of Racine, there are admirable examples of devotional sentiment combined with poetry. In our own language, several passages in Sir Richard Blackmore's too much neglected poem on the Creation; Baker on the Universe; some hymns and psalms of Watts, Addison, Barbauld, and Steele; many passages in Milton, and the sublime hymn which closes the Seasons, prove that poetry is capable, even in this class, of vying with the dignity of its subject: though the majority of instances, it must be acknowledged, are exceedingly unhappy in sentiment and imagery.

There remains only the *ETHIC* among the principal classes (as to matter) of poetry. And here, though Pope is frequently excellent, both in sentiment and manner, I know not any author who so uniformly excels as Horace in several of his epistles; or with such sublimity as Juvenal in his tenth satire, which Dr. Johnson has imitated with considerable success.

The name of ELEGY was originally given to funeral monody, but was afterwards attached to all plaintive strains. In the Latin language it was always written in hexameter and pentameter verse. By the moderns an elegiac stanza was invented, assimilating as nearly as possible with those slow melodious numbers. Many elegies, and perhaps the best, are expressive only of soothing tenderness: such are those of Tibullus, so happily imitated by Hammond. The 'Jesse' of Shenstone, which has perhaps never been surpassed, is all pathos. The celebrated elegy of Gray combines every charm of description and sentiment. The usual elegiac stanza, the monotony of which soon becomes oppressive to the ear, is sometimes happily exchanged for a lighter measure, as in Cowper's Juan Fernandez:

"Ye winds that have made me your sport,
Convey to this desolate shore
Some cordial endearing report
Of a land I shall visit no more.
My friends do they now and then send
A wish or a thought after me?
Oh! tell me I yet have a friend,
Though a friend I am never to see."

The *sonnet* represents in an abridged form the ancient elegy; the same slow stanza is assigned to each, and the sentiments suitable to one are appropriate to the other. The sonnet is derived from the Italian school, and was much cultivated in England during the seventeenth century. It is always limited to fourteen lines, an artificial character which seems to indicate an Oriental extraction. The following, by Milton, is a fine specimen of English sonnet in the Italian manner:

"O nightingale, that on yon leafy spray
Wast blest at eve, when all the woods are still!
Thou with fresh hopes the lover's heart dost fill,
When the jolly Hours lead on propitious May.
Thy liquid notes, that close the eye of Day,
First heard before the shallow cuckoo's bill,
Portend success in love. Oh! if Jove's will
Have link'd that amorous power to thy soft lay,

Now timely sing, ere the rude bird of hate
Foretell my hopeless doom in some grove nigh;
As thou from year to year hast sung too late
For my relief, yet hadst no reason why.
Whether the muse or love call thee his mate,
Both them I serve, and of their train am I."

In the following sonnet, which is of a modern date, the stanza is happily accommodated to the English language:—

Written in the church-yard of Middleton, Sussex.

"Press'd by the moon, mute arbitress of tides,
Whilst the loud equinox its power combines,
The sea no more its swelling surge confines,
But o'er the shrinking land sublimely rides.
The wild blast rising from the western cave,
Drives the huge billows from their heaving bed,
Tears from their grassy tombs the village dead,
And breaks the silent sabbath of the grave.
With shells and sea-weed mingled on the shore,
Lo! their bones whiten on the frequent wave.
But vain to them the winds and waters rave,
They hear the warring elements no more;
While I am doom'd, by life's long storm oppress'd,
To gaze with envy on their gloomy rest."

Pope's *Elegy to an Unfortunate Lady*, and his *Eloisa*, are in heroic verse; which, in the hands of that great master, is adequate to the expression of every feeling.

LYRIC poetry is versatile and miscellaneous, admitting almost every variety of measure and subject. Love and heroism, friendship and devotional sentiment, the triumphs of beauty, and the praises of patriotism, are all appropriate to lyrical composition. The soul of enthusiasm, the spirit of philosophy, and the voice of sympathy, may unite in the same ode. Of our lyrical writers, Dryden is confessedly eminent; Gray is distinguished by the majesty and delicacy of his expression, and the correctness of his style; Collins is occasionally animated by a portion of Pindaric spirit. Among our heroic odes there are perhaps none that breathe a loftier strain than the following patriotic invocation by Burns:

"Scots, who have with Wallace bled,
Scots, whom Bruce hath often led,
Welcome to the gory bed,

Or to glorious victory.
Now's the day, and now's the hour,
See the front of battle lour;
See approach proud Edward's power,
Edward's chains and slavery.
Who will be a traitor knave?
Who can ask a coward's grave?
Who so base to be a slave?

Traitor, coward, turn and flee.
Who for Scotland, king, and law,
Freedom's sword will strongly draw,
Freeman stand, or freeman fa'?

Caledonian, on wi' me.

By oppressions, woes, and pains,
By your master's servile chains,
We will draw our dearest veins,
But they shall be, shall be free.
Lay the proud usurpers low;
Tyrants fall in every foe,
Liberty's in every blow:
Forward let us do, or die."

In the minor lyrics are included songs, a species of composition sedulously cultivated by English writers. The themes of songs are in general amatory or convivial; there are however some, of which the strain is purely patriotic and martial; and not a few are of the humorous cast. Shakespeare, Johnson, and other elder bards, have bequeathed to us songs of exquisite beauty. During the last century Prior excelled in these short compositions, but the most popular song-writer was Gay. Allan Ramsay has left some enchanting airs. Percy's 'Collection' has restored many lyrical pieces of inimitable pathos and simplicity. In latter times, many songs of classical eminence have been supplied by Stevens, Wolcot, Sheridan, Dibdin, Roscoe, and Burns.

DIDACTIC poetry is minutely preceptive, and professes to convey useful instruction on some particular subject. It is obviously not easy to discover situations in which an author may become a practical teacher, without ceasing to be a poet: and this difficulty is aggravated to the English writer, who has not the resources of the Greek and Roman in the metrical capacities of his language.

Virgil's georgical poem is a performance of the first master, operating with the best materials. In imitation of Virgil, a poem was composed by Phillips on cyder. Toward the middle of the last century, when the didactic muse had most votaries, even polemics, physics, and metaphysics, were expounded in verse! But verse is not the medium by which information can be communicated with most advantage; and it is less suitably employed in elucidating abstract speculation, than in enforcing popular and acknowledged truths. The philosophy of Akenside is relished only for his imagery and harmonious language. The aphorisms of Armstrong are remembered only where the author was more sensible to the influences of Apollo than of Esculapius. The *Economy of Vegetation*, and the *Loves of the Plants*, are formed on a plan entirely original. It is probable that the primary idea of this work was suggested to the author by the perusal of Cowley's *Garden*; but on that simple site he has erected a magnificent palace, in which no vestige of the ancient edifice remains. With an imagination luxuriant as that of Ovid, and with powers of description scarcely less universal, he has invented a machinery appropriate to his subject, and which is also derived solely from the philosophy of modern times. From the extensive notes appended to his poems, it is however obvious, that though he might thus embody the principles of science to the eye of fancy, he despaired of rendering them intelligible without the agency of prose. Mason's *English Garden* is more descriptive than didactic. De Laile's *Jardins* is a chef-d'œuvre in its kind. In the *Essay on Criticism*, Pope has most happily enlivened didactic style with wit and satire.

ERIC poetry concentrates all that is sublime in action, description, or sentiment. In the structure of a regular epic poem, criticism requires that the fable should be founded in fact; and that fiction should fill the picture, of which the outline is traced by truth. In the conduct of the poem, the machinery must be subservient to the main design, and the action should be

simple and uniform. In the *Iliad*, the action is limited to the destruction of Troy, which is only to be effected by the conciliation of Achilles to the common cause. In the *Odyssey*, it is the establishment of Ulysses in Ithaca; an event which, after innumerable difficulties, he is finally enabled to accomplish. In the *Æneid*, the hero is destined to found a Trojan colony in Latium. In the *Jerusalem Delivered*, the object of the poem, from its commencement to its close, is the restoration of that city to the Christians.

Criticism requires that poetical justice should be dispensed to all parties; success being awarded to the virtuous, and punishment inflicted on the guilty. On these principles, three authors only, Homer, Virgil, and Tasso, have produced epic works. There are however many poems of the epic or heroic cast to which criticism has hitherto assigned no characteristic name: such are the *Lusiad* of Camoens, and the *Henriade* of Voltaire. In the *Paradise Lost*, Milton appears in solitary majesty and magnificence. He maintains a lofty independence on rules and systems, and eternizes to himself a distinction superior to all that criticism has to withhold or to bestow. The *Inferno* of Dante, the *Orlando* of Ariosto, and the *Fairy Queen* of Spenser, are romances; a species of composition purely fictitious, in which no other restriction is imposed on the poet's fancy than that he shall continue to interest and amuse his reader.

Several romances of a recent date are entitled to praise: such as the *Oberon* of Wieland, ably translated by Mr. Sotheby; the *Thalaba* of Southey, of which the beauties would be more generally appreciated if the work was less tinged with gloom; and the *Lay of the Last Minstrel*, in which a fable of the most superficial texture is drawn out in a succession of scenes which perpetually animate and delight the imagination.

It is obvious, that the poetical nomenclature established on classical authority, is not sufficiently extensive to include all the compositions of modern times.

To what classical name shall we refer the noble ethics of Pope in his *Epistles*, and of Cowper in his *Task*? By what name shall we designate the *Traveller* and the *Deserted Village*, the *Pleasures of Memory*, the *Pleasures of Hope*, and many other exquisite productions? Ossian's poems have been classed with epic compositions; but they are more analogous to the old heroic lays chanted by the scalds, bards, and minstrels. The relics of Scandinavian literature afford many specimens of poetry which, though inferior in beauty, are obviously of similar origin and execution.

Originally a DRAMA was a metrical composition, and exhibited all the critical refinements of poetry. The title of poet is still given to every dramatic author, even if his composition is written in prose, and though the highest dramatic powers may exist without the smallest talent for poetry. The avowed object of the drama is to develop the passions, or to delineate the manners, of mankind: tragedy effects the one, and comedy the other. In the English language are many popular dramas of a mixed character, written in verse intermingled with prose, and called *plays*. The best pieces in Beaumont and Fletcher, and even of Shakespeare, belong to this order. The English drama deviates essentially from that of classical antiquity; and independent of the division of acts and scenes, there is little resemblance between them. The triple unities of time, place, and action, are seldom observed on the English stage; and our best writers have allowed, that "between the acts any change of scene is admissible. In reality this operation is performed in most tragedies and all comedies, at any season, without either condition or restriction; nor perhaps is any change censurable, the cause and object of which are immediately comprehended by the audience.

To the limitation of time more attention is paid. In many tragedies the action is included in one day. Unity of design is obviously an obligation imposed by good sense: and Shakespeare, guided only by his feelings of propriety, is in general careful to exclude from his plays a divided interest; an error perpetually committed by Beaumont and Fletcher, and his other dramatic contemporaries. To construct a simple dramatic fable is no very easy task. The author has to provide sources of constantly augmenting interest, to present a discrimination of characters, to suggest situations capable of extorting from the spectators an active participation in the scene; and above all, to supply a series of natural incidents, the springs of dramatic action, by which all the life and motion of the piece are produced.

The dramatic style should imbibe its character from that of the individuals introduced in the scene, and transmit the impression of every feeling which is there portrayed. On this excellence is founded the superiority of Shakespeare to all other dramatists: from him each passion receives its appropriate language. With a few masterly touches, he lays open the heart, exhibits its most secret movements, and excites in every bosom correspondent emotions. The poet who, next to Shakespeare, has excelled in the dramatic style, is Otway. The tragedies of Rowe possess extraordinary merit. In the plays of Beaumont and Fletcher, and Massinger, are innumerable passages of high poetical beauty; and in those of Dryden are discovered the most brilliant combinations of thought and fancy; but still he wants the touches of nature; that true dramatic idiom which is instantly understood by the heart; and the absence of which is not compensated by beautiful imagery, or the most refined graces of composition.

Dramatic blank verse, when flowing with freedom and facility, is more happily adapted than prose to the expression of strong emotion; it is not only more harmonious, but more concise; and being exonerated from that metrical precision which is expected in other styles of poetry, is simply the language of impassioned feeling. Much of the imagery which might delight in the closet, would offend on the stage: yet figurative language is often employed with great effect in describing the tempestuous passions. In a state of agitation the mind becomes peculiarly susceptible of new combinations. Grief is eloquent: and though the chain of thought is too tenacious to be broken by sensible impressions, it discovers in every external object some typical illustration of its own sufferings; some image which, by a kind of fictitious sympathy, seems respondent to its individual feelings. Thus Lear, though insensible to the storm, invokes the elements, reverting to the contumely he has experienced:

"I tax not you, ye elements, with unkindness;
I never gave you kingdom, call'd you children;
You owe me no subscription."

In impassioned language, even a mixture of metaphors is not indefensible: in a moment of distraction the mind is versatile, and indistinct in its perceptions; and consequently becomes liable to form abrupt, desultory, and even incongruous association.

It is true, that further than as ethics combine themselves with sentiment and affection, it is difficult, respectable as they are, to elicit poetry from the principles of morality; but thus combined, they shine forth like the sun with a glorious and beneficent union of light and animating warmth. This gives the Platonic philosophy (which embodies Virtue, and presents her visible in divine beauty) such advantage in poetry; and as a proof of this, we may read Akenside with admiration and transport never to be exhausted.

CHAPTER III.

OF THE GENERAL CHARACTERISTICS OF POETRY.

METRICAL harmony is but the medium, by which the poet transmits his ideas and sentiments: it constitutes the fabric into which his conceptions are wrought, the form in which his sentiments are exhibited. Metrical harmony is common to all who assume the name of poets; from the humble versifier creeping through hedge-rows of rhyme at the foot of Parnassus, to the son of genius, who has drunk of inspiration at its source, and rides

"Upon the seraph wing of ecstasy."

It has appeared difficult to suggest a proper mode of distinction between these two orders of writers; and it has been often asked, What is the real difference between the legitimate bard and a maker of pretty verses? Their respective pretensions might, it seems, be amicably adjusted, by leaving to the former an exclusive right to the unqualified character of poet, and assigning the rank of metrical poet to the latter. There is in metrical harmony a charm that often renders a trivial thought pleasing. There are also certain agreeable epithets which, if not egregiously misplaced, must always call to the mind grateful associations; and which, when aided by melodious verse, will generally impart some transient sensation of delight. To awaken strong and permanent feelings of this nature, is the prerogative only of the original bard. Poetical emotion springs from admiration or from sympathy, and may be awakened by the novelty or the renovation of sensation. It may arise from combinations new to the fancy, or from recollections interesting to the heart. In the energy of his conceptions, and in the charm of his expression, resides all the poet's power. There are no features of sublimity and magnificence, no touches of tenderness or pathos, but may be traced to those two sources of poetical excellence. Sublimity originates in the amplitude of the poet's mind and is discovered in the majesty of his images, or the grandeur of his sentiments: a sensation of terror, mingled with admiration, also belongs to the sublime. Such is that awakened by Milton's awful description of the gates of hell:

"On a sudden open fly
With impetuous recoil, and jarring sound,
Th' infernal doors; and on their hinges grate
Harsh thunder, that the lowest bottom shook
Of Erebus."

The promotion of virtue may be considered as essential to the character of Poetry. The virtue of descriptive poetry in general, or of pastoral, convivial, and satirical poetry, will be questioned. And yet it may be said, Is it not truly poetry? It is truly poetry if it gives just, and pleasing, and amiable views of nature. It is truly poetic, if it celebrates love and beauty as they deserve to be celebrated; if it exalts agreeably to the benign and wise constitution of our nature, passions into affections, and affections into virtues; if it inspires sentiments of simplicity and gentleness, of content and benevolence; if it tranquillizes and refines, softens and purifies the heart. And, in truth, all blameless pleasure is in its tendency and effect virtuous: nor is pleasure otherwise vicious than if it offends the principles of sober moderation, or violates justice and benevolence. And in the higher poetry, such as the Seasons of Thomson, the Pleasures of Imagination by Akenside, very much of Shakespeare, and almost all of Milton, there is a divine philosophy more truly moral,

and more effectually meliorating, than many labored systems of ethics, and volumes of theological prose.

Poetry is in a peculiar and most comprehensive sense, an imitative art. In its two highest kinds, the epic and the dramatic, this is most evident. This imitation it effects partly by its sentiments and imagery, and partly (like music) by the very tone and cadence. But in an art, the beautiful and the excellent are the proper objects of imitation; and there ought to be no other imitation than such as may be subservient to these. Now there being nothing so beautiful as virtue and goodness,—the pure, the tender, the generous, and the elevated affections,—true poetry cannot be the instrument of vice and folly. If verse descends to this, it may retain its dress, and some remains of its air and tone; but it has lost the divine spirit essential to its character.

What follows is in the genuine spirit of terrific sublimity:

"She opened; but to shut
Excell'd her power. The gates wide open stood;
That with extended wing a bannered host,
Under spread ensigns marching, might pass through
With horse and chariots rank'd in loose array.
So wide they stood; and like a furnace-mouth
Cast forth redounding smoke, and ruddy flame.
Before their eyes in sudden view appear
The secrets of the hoary deep; a dark
Illimitable ocean, without bound,
Without dimension, where length, breadth, and heighth,
And time, and place, are lost."

Sublimity is produced by grandeur of sentiment:

"Farewell, happy fields,
Where joy for ever dwells! Hail, horrors! hail,
Infernal world! and thou, profoundest hell,
Receive thy new possessor; one who brings
A mind not to be changed by place or time
The mind is its own place; and in itself
Can make a heaven of hell, a hell of heaven."

In sublime composition no image should be introduced which is not calculated to impress the mind with feelings of solemnity. The following description of Satan exemplifies the union of sublime imagery, with sublimity of sentiment. There is even something, like pathos in the concluding passage:

"He, above the rest
In shape and gesture proudly eminent,
Stood like a tower. His form had not yet lost
All her original brightness; nor appear'd
Less than arch-angel ruined, and the excess
Of glory obscur'd: as when the sun, new-risen,
Looks through the horizontal misty air,
Shorn of his beams; or from behind the moon,
In dim eclipse, disastrous twilight sheds
On half the nations, and with fear of change
Perplexes monarchs. Darkened, so yet shone
Above them all the arch-angel: but his face
Deep scars of thunder had entrench'd, and care

Sat on his faded cheek ; but under brows
Of dauntless courage, and considerate pride
Waiting revenge. Cruel his eye, but cast
Signs of remorse and passion, to behold
The fellows of his crime (the followers rather),
Far other once beheld in bliss, condemn'd
For ever now to have their lot in pain :
Millions of spirits, for his fault, amerced
Of heaven, and from eternal splendour flung
For his revolt, yet faithful how they stood ;
Their glory withered : as when heaven's fire
Hath scathed the forest oak, or mountain pine,
With singed top their stately growth, though bare,
Stands on the blasted heath. He now prepared
To speak ; whereat their double ranks they bend
From wing to wing, and half inclose him round
With all his peers : attention held them mute.
Thrice he essay'd ; and thrice, in spite of scorn,
Tears, such as angels weep, burst forth : at last
Words interwove with sighs found out their way."

energetic simplicity is essential to the sublime which disclaims artificial ornament. Description includes many of the elements of poetry, and alternately produces emotions of sublimity and beauty. The figurative style is often assumed, in order to give more richness and vividness to description. The elements are thus embodied, and morn and evening are perpetually represented under some popular and pleasing image. Thus Milton personifies the morning :

"Now Morn, her early steps in the eastern clime
Advancing, sowed the earth with orient pearl."

And Shakespeare :

"But see, the Morn, in russet mantle clad,
Walks o'er the dew of yon high eastern hill."

Description is sometimes rendered more lively by the introduction of a figurative allusion. Thus, in the Allegro, Milton illustrates his description of sunrise :

"Sometimes walking not unseen,
By hedge-row elms, or hillocks green ;
Right against the eastern gate,
Where the great sun begins his state,
Rob'd in flames and amber bright,
The clouds in thousand liveries dight."

In the Penseroso he again enlivens his imagery by an interesting allusion :

"Missing thee, I walk unseen
On the dry smooth-shaven green ;
To behold the wandering moon
Riding near her highest noon,
Like one that hath been led astray
Through the heaven's wide pathless way ;
And oft as if her head she bow'd,
Stooping through a fleecy cloud."

In Dryden's poem of the Flower and the Leaf is the following beautiful illustration of the spring :

"When first the tender blades of grass appear ;
And buds, that yet the breath of Eurus fear,
Stand at the door of life ; and ask to clothe the year."

Poetical description is either general or local, and admits of artificial or simple imagery. In the two following passages Pope exemplifies the difference of general and local description :

"Thy trees, fair Windsor, now shall leave their wood,
And half thy forests rush into my flood ;
Bear Britain's thunder, and her cross display,
To the bright regions of the rising day ;
Tempt icy seas, where scarce the waters roll,
Where clearer flames glow round the frozen pole ;
Or under southern skies exalt their sails,
Led by new stars, and borne by spicy gales.
For me the balm shall bleed, the amber flow,
The coral redden, and the ruby glow,
The pearly shell its lucid globe unfold,
And Phœbus warm the ripening ore to gold."

Here the author dwells not sufficiently long on any object to leave a distinct picture on the mind. But in the ensuing lines the delineation is too bold to be missed :

"In genial spring, beneath the quiv'ring shade,
Where cooling vapours breathe along the mead,
The patient fisher takes his silent stand,
Intent, his angle trembling in his hand ;
With looks unmov'd he hopes, the scaly breed,
And eyes the dancing cork and bending reed.
Our plenteous streams a various race supply ;
The bright-eyed perch, with fins of Tyrian dye ;
The silver eel, in shining volumes roll'd ;
The yellow carp, in scales bedropt with gold."

The two following extracts from Milton happily illustrate the difference between artificial and simple imagery :

"Now the bright morning-star, day's harbinger,
Comes dancing from the east, and leads with her
The flowery May, who from her green lap throws
The yellow cowslip, and the pale primrose.
Hail, beauteous May, that dost inspire
Mirth, and youth, and warm desire !
Woods and groves are of thy dressing,
Hill and dale doth boast thy blessing."

"While the plowman near at hand
Whistles o'er the furrow'd land ;
And the milkmaid singeth blithe,
And the mower whets his scythe,
And every shepherd tells his tale
Under the hawthorn in the dale."

In general description, it is the poet's object to force on the mind a variety of brilliant ideas and vivid impressions. In his local or individual delineations, he presents images palpable to the imagination, and almost to

the senses; he stimulates latent feelings, or renovates forgotten sensations. In the combination of artificial imagery, he employs the power of novelty; in that of simple images, he relies on the charm of truth. With the one the attention is awakened, by the other it is absorbed. The reader perceives in himself a capacity for forming associations till then unknown; but he is yet more pleased to retrace scenes and sentiments familiar to memory, and dear to the heart. In one instance he is astonished by the variety of the poet's conceptions: in the other he is enchanted by the fidelity of his imitations. The magnificence of figurative language and metaphorical description extorts admiration: the simplicity of natural images inspires delight. In local description the poet should introduce only such objects as harmonize perfectly with his design. Thus in his delicious landscape of Eden, Milton carefully avoids the intrusion of exotic imagery:

"Thus was this place
A happy rural seat, of various views:
Groves whose rich trees wept odorous gums and balms:
Others, whose fruit burnished with golden rind
Hung amiable, Hesperian fables true
(If true) here only, and of delicious taste.
Betwixt them, lawns, or level downs, and flocks
Grazing the tender herb, were interposed:
Or palmy hillock, or the flow'ry top
Of some irriguous valley, spreads her store;
Flowers of all hue, and without thorn the rose.
"Another side, umbrageous grots and caves
Of cool recess, o'er which the mantling vine
Lays forth her purple grape, and gently creeps
Luxuriant: meanwhile murmuring waters fall
Down the slope hill dispers'd; or in a lake
That to the fringed bank, with myrtle crown'd,
Her crystal mirror holds, unite their streams."

There is in local description a charm that renders objects, in themselves uncongenial, engaging to the mind. The following passage presents few images of beauty; but in contemplating it, who does not feel, that without being removed from the common walk of nature, he is visited by the influences of poetry?

"The day is come, when I again repose
Here under this dark sycamore, and view
Those plots of cottage ground, the orchard tufts,
Which at this season, with their unripe fruits,
Among the woods and copses lose themselves,
Nor with their green and simple hues disturb
The wild green landscape. Once again I see
Hedge-rows, then hardly hedge-rows, little lines
Of sportive wood run wild: these pastoral farms,
Green to the very door, and wreaths of smoke
Sent up in silence from among the trees;
With some uncertain notice, as might seem,
Of vagrant dwellers in the fenceless woods;
Or of some hermit's cave, where by his fire
The hermit sits alone."

If such is the charm of local scenery, yet greater is the captivation of that individual and characteristic sentiment, which, from its appropriation to the drama, has been called dramatic. Such indeed is its enchantment that it has been found capable of producing the most exquisite emotion, without any auxiliary embellishments from figurative language or picturesque imagery. We are never more delighted with the poet, than when thus intimately admitted to his confidence; when we are suffered to commune with his heart, to explore his most retired thoughts, and partake his most sacred feelings. This charm of individuality was in some of their poems eminently possessed by Chaucer, and other of our elder bards; it constituted the leading feature in Cowper's lays; it formed the magic of Burns; and it distinguishes the author of the Lyrical Ballads. The pathetic, like the sublime, must be concise and simple. It depends not so much on the thought as the expression. Virgil's description of Andromache on recognizing Æneas at the tomb of Hector, is strikingly beautiful:

"Verane tua facies? et verus mihi nuncius affers?
Nate! dea, vivisne? aut, si lux alma recessit,
Ubi Hector est?"

The whole passage is affecting, but the pathos dwells in the "ubi Hector est?" Figurative language is often happily employed in the description of impassioned feeling. Sometimes it appears to be the natural overflowing of tenderness:

"Thy cave should be a lover's bower,
Though raging winter rent the air;
And she a lovely little flower,
That I would tend, and shelter there."

In general, however, the simple and unadorned style is most appropriate to pathos and tenderness. Thus Constance, in her touching appeal to the cardinals, exclaims of her son:

"And so he'll die; and rising so again,
When I shall meet him in the court of heaven
I shall not know him; therefore never, never,
Must I behold my pretty Arthur more."

The *curiosa felicitas*, that charm or felicity of expression which Horace so happily exemplified, is one of the most powerful agents in producing poetical emotion. It is the attribute which belongs only to the poet of nature; and is the effusion of some fortunate moments, when consummate judgment has been impelled and inspired by exquisite feeling. It is impossible but that the readers of Shakespeare and Milton must recollect innumerable examples of this kind of excellence. Who has not felt the enchantment conveyed by Shakespeare's "heaven-kissing hill?" What lover of nature has not in some bright autumnal morning, while contemplating a rural scene, experienced that mixed sensation of enjoyment and stillness which is all described in "the air smells wooingly?" Felicity of expression is the native idiom of genius; and as the goddess of beauty was discovered by her first movements, the genuine poet may be detected by a single epithet. The spirit of poetry is not confined to subjects of dignity and importance: it may be perceived in a simple lay, and even in a sportive song. It visited Sappho, as it had sojourned with Pindar; and was as truly the attendant of Theocritus as of Homer. Nor is poetical emotion inspired only by the song of heroes and of gods. It may be awakened even by the strain of playful tenderness, in which the lover celebrates some darling of his mistress. The

requisites of the true poetical character are thus happily summed up by the Duke of Buckingham:

"'Tis not a flash of fancy, which sometimes,
Dazzling our minds, sets off the slightest rhymes,
Bright as a blaze, but in a moment done
True wit is everlasting; like the sun,
Which, though sometimes behind a cloud retired,
Breaks out again, and is by all admired.
Number, and rhyme, and that harmonious sound
Which not the nicest ear with harshness wound,
Are necessary, yet but vulgar arts:
And all in vain these superficial parts
Contribute to the structure of the whole,
Without a genius too, for that's the soul;
A spirit which inspires the work throughout,
As that of nature moves the world about;
A flame that glows amid conceptions fit,
Even something of divine, and more than wit;
Itself unseen, yet all things by it shewn,
Describing all things, but describ'd by none."

(To be continued.)

MATHEMATICAL NOTES.

To prove that there cannot be more than five regular solids.

In proving this, it should be borne in mind (1) that there must be at least three plane angles to form a solid angle; and (2) that the sum of the magnitudes of the plane angles forming a solid angle is always less than four right angles.

The faces of regular solids may be equilateral triangles or squares or regular pentagons only; and cannot be regular polygons of more than five sides, because taking the very next one, a hexagon, we see that three plane angles of three equal hexagons, being together equal to four right angles, they cannot form a solid angle.

First let us consider those regular solids which have equilateral triangles for their faces.

EQUILATERAL TRIANGULAR FACES.

I. The value of an angle of an equilateral triangle is $\frac{2}{3}$ of a right angle, and thrice that will be two right angles (less than four right angles). Therefore we can have a regular solid, having equilateral triangular faces, where three plane angles of three equilateral triangles meet and form a solid angle. This is called a *tetrahedron*.

II. Again $4 \times \frac{2}{3} = \frac{8}{3}$ (i. e.) less than 4.

Therefore we can have a regular solid of equilateral triangular faces where four plane angles form a solid angle. This is called an *octahedron*.

III. Again $5 \times \frac{2}{3} = \frac{10}{3}$ (i. e.) less than 4.

We can also have a regular solid of equilateral triangular faces, where five plane angles form a solid angle. This is called an *icosahedron*.

It can be easily shown that we can have no regular solids of equilateral triangular faces, where more than five angles form a solid angle.

SQUARE FACES.

IV. A regular solid may have square faces. An angle of a square being equal to a right angle, three angles of three equal squares can meet and form a solid angle. This is called a *cube*. This is obviously the only regular solid having square faces.

PENTAGONAL FACES.

V. An angle of a pentagon is equal to $\frac{3}{5}$ of a right angle. Three times $\frac{3}{5}$ being $\frac{9}{5}$ (less than 4) we can have a regular solid of pentagonal faces, where three angles of three equal pentagons meet and form a solid angle. This is called a *dodecahedron*. Four times $\frac{3}{5}$ being greater than 4, we cannot have regular solids of pentagonal faces, where more than three plane angles form a solid angle.

We have already shown that we cannot have regular solids of faces having more than five sides. Hence there cannot be more than five regular solids.

Example.

To find the number of edges and solid angles of a *dodecahedron*.

The number of edges is evidently half the sum of the sides of all its faces. It has 12 faces which are pentagons. Therefore the number of edges is equal to $\frac{1}{2} \cdot 12 \cdot 5 = 30$.

There are on the whole 60 plane angles here and three of them form a solid angle. Therefore the number of solid angles is $\frac{1}{3} \times 60 = 20$.

In any polyhedron, let S = number of solid angles; F = number of faces; E = number of edges; m = number of sides in each face; n = number of plane angles in each solid angle.

Then $2E = nF = Sn$, and $S + F = E + 2$.

Now the sum of all the plane angles which form the solid angles of a regular polyhedron = sum of all the interior angles of all the faces = $F(2m - 4) \frac{\pi}{2} = \pi F(m - 2) = \pi(mF - 2F) = \pi(2E - 2F) = 2\pi(E - F) = 2\pi(S - 2)$.

$$\text{Since } S + F = E + 2 \therefore S = E - F + 2 = \frac{Sn}{2} - \frac{Sn}{m} + 2$$

$$\therefore S - \frac{Sn}{2} + \frac{Sn}{m} = 2 \therefore S \left\{ 1 - \frac{n}{2} + \frac{n}{m} \right\} = 2$$

$$(i. e.) S = \frac{4m}{2(m+n) - mn}$$

Similarly we can show that $E = \frac{2mn}{2(m+n) - mn}$.

$$\text{and } F = \frac{4n}{2(m+n) - mn}.$$

To prove analytically that there cannot be more than five regular solids.

In the above expressions for S, F, and E, we have the same denominator, viz., $2(m+n) - mn$ which must be positive.

$2(m+n) - mn$ is +ve

$$\therefore 2(m+n) > mn \text{ (i. e.) } \frac{1}{m} + \frac{1}{n} > \frac{1}{2} \therefore \frac{1}{m} > \frac{1}{2} - \frac{1}{n}.$$

But n cannot be less than 3. Therefore $\frac{1}{m}$ cannot be so small as $\frac{1}{3} - \frac{1}{3}$ or $\frac{1}{3}$ (i. e.) m cannot be so large as 6.

$\therefore m$ may be either 3 or 4 or 5.

Similarly n may be either 3 or 4 or 5.

I. $2(m+n) > mn$ (a)

Put $m = 3$ and $n = 3$. Then these values satisfy (a), for $2(3+3) > 3 \cdot 3$.

That is we can have regular solid figures of equilateral triangular faces, where three plane angles form a solid angle. Such figures are called *terahedrons*.

II. Put $m = 3$ and $n = 4$; here also $2(m+n) > mn$. That is we can have regular solid figures of equilateral triangular faces, where four plane angles form a solid angle. Such figures are called *octahedrons*.

III. Put $m = 3$ and $n = 5$; here again $2(m+n) > mn$. In this case we have regular solids of equilateral triangular faces, where five plane angles form a solid angle. Such figures are called *icosahedrons*.

IV. Put $m = 4$ and $n = 3$; here also, $2(m+n) > mn$. The regular solids in this case are called *cubes*.

If we put $m = 4$ and $n = 4$ or 5, $2(m+n)$ will not be greater than mn .

V. Put $m = 5$ and $n = 3$; here also, $2(m+n) > mn$. The regular solids in this case are called *dodecahedrons*.

We can now show that no other values of m and n satisfy (a). Hence there cannot be more than five regular solids.

II. In the formula $\text{angle} = k \cdot \frac{\text{Arc}}{\text{Radius}}$, to find k when $\frac{1}{12}$ of a right angle is taken as the unit.

$$\begin{aligned} \text{Angle} &= \frac{\text{Arc}}{\text{Radius}} \times k = \frac{\text{Arc}}{\text{Radius}} \times \frac{180^\circ}{\pi} \\ &= \frac{\text{Arc}}{\text{Radius}} \times \frac{180}{\pi} \cdot \frac{12}{90} = \frac{\text{Arc}}{\text{Radius}} \times \frac{24}{\pi} \left(\frac{90^\circ}{12} \right) \\ \therefore k &= \frac{24}{\pi} \end{aligned}$$

III. To prove that, if $\frac{\sin(x+a)}{\sin(x+b)} = \sqrt{\frac{\sin 2a}{\sin 2b}}$,

$\tan a$, $\tan x$ and $\tan b$ are in geometrical progression.

$$\frac{\sin x \cdot \cos a + \cos x \cdot \sin a}{\sin x \cdot \cos b + \cos x \cdot \sin b} = \sqrt{\frac{\sin 2a}{\sin 2b}}.$$

$$\therefore \frac{\tan x \cdot \cos a + \sin a}{\tan x \cdot \cos b + \sin b} = \sqrt{\frac{\sin 2a}{\sin 2b}}.$$

$$\therefore \frac{\tan x + \tan a}{\tan x + \tan b} = \sqrt{\frac{\sin 2a}{\sin 2b} \cdot \frac{\cos b}{\cos a}}$$

$$= \frac{\sqrt{\sin a \cdot \cos a} \cdot \cos b}{\sqrt{\sin b \cdot \cos b} \cdot \cos a} = \frac{\sqrt{\sin a \cdot \cos b}}{\sqrt{\cos a \cdot \sin b}} = \frac{\sqrt{\tan a}}{\sqrt{\tan b}}.$$

$$\therefore \frac{\tan x + \tan a}{\tan x + \tan b} - 1 = \sqrt{\frac{\tan a}{\tan b}} - 1$$

$$\text{(i. e.) } \frac{\tan a - \tan b}{\tan x + \tan b} = \frac{\sqrt{\tan a} - \sqrt{\tan b}}{\sqrt{\tan b}}$$

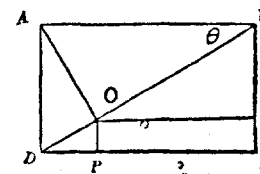
$$\therefore \tan x + \tan b = \sqrt{\tan b} (\sqrt{\tan a} + \sqrt{\tan b})$$

$$\therefore \tan x = \sqrt{\tan a} \cdot \tan b \therefore \tan^2 x = \tan a \cdot \tan b.$$

(i. e.) $\tan a$, $\tan x$ and $\tan b$ are in G. P.

IV. From an angle of a rectangle, a perpendicular is drawn to its diagonal (length = c) and from the foot of it straight lines are drawn to the sides containing the opposite angle. If p and q be the lengths of these latter perpendiculars, prove that $p^2 + q^2 = c^2$.

Let ABCD be a rectangle and from A draw the perpendicular AO on its diagonal BD and from O draw OP and OQ, perpendicular to CD and CB respectively. Then OP = p , OQ = q and BP = c .



Let the angle ABD = θ .

$$\text{Then } OP = p = OD \cdot \sin \theta = AD \cdot \sin^2 \theta = BD \cdot \sin^3 \theta.$$

$$\text{Similarly } q = BD \cdot \cos^3 \theta. \therefore \sin^3 \theta = \frac{p}{c} \text{ and } \cos^3 \theta = \frac{q}{c}.$$

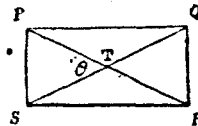
$$\therefore \sin^2 \theta = \left(\frac{p}{c} \right)^{\frac{2}{3}} \text{ and } \cos^2 \theta = \left(\frac{q}{c} \right)^{\frac{2}{3}}$$

$$\therefore \left(\frac{p}{c} \right)^{\frac{2}{3}} + \left(\frac{q}{c} \right)^{\frac{2}{3}} = 1 \therefore p^{\frac{2}{3}} + q^{\frac{2}{3}} = c^{\frac{2}{3}}.$$

V.—If θ be the angle between the diagonals of a parallelogram whose sides a and b are inclined at an angle α , prove that

$$\theta = \tan^{-1} \left(\frac{2ab \cdot \sin \alpha}{a^2 - b^2} \right).$$

Let PQRS be a parallelogram whose sides SP and PQ are inclined at an angle α . Join PR and SQ. Then by the question, if T be their point of intersection PTS = θ



Area of the parallelogram = twice the area of the triangle SPQ
 $= 2 \cdot \frac{1}{2} \cdot ab \cdot \sin \alpha = ab \cdot \sin \alpha$ (1)

Again, area of the parallelogram = twice the area of the triangle PSR
 $= 2 \cdot \frac{1}{2} \cdot PR \cdot ST \sin \theta = PR \cdot SQ \cdot \sin \theta$ (2)

SR = PQ = a and QR = PS = b .

In the triangle PTQ, we have $a^2 = PT^2 + TQ^2 - 2 PT \cdot TQ \cdot \cos (180^\circ - \theta)$
 $\cos (180^\circ - \theta) = PT^2 + TQ^2 + 2 PT \cdot TQ \cdot \cos \theta$.

Similarly in the triangle PTS we have $b^2 = PT^2 + TS^2 - 2 PT \cdot TS \cdot \cos \theta$.

$$\therefore a^2 - b^2 = PT^2 + TQ^2 + 2 PT \cdot TQ \cdot \cos \theta - PT^2 - TS^2 + 2 PT \cdot TS \cdot \cos \theta$$

$$(i.e.) a^2 - b^2 = 4 \cdot PT \cdot TQ \cdot \cos \theta = 2 PT \cdot 2 TQ \cdot \cos \theta = PR \cdot SQ \cdot \cos \theta$$

Substituting this in (2) we get

Area of the parallelogram = $\frac{1}{2} \sin \theta \cdot PR \cdot SQ$.

$$= \frac{1}{2} \sin \theta \cdot \frac{a^2 - b^2}{\cos \theta} \text{ (3)}$$

Equate (1) and (3) which are expressions for the area of the parallelogram. $\frac{1}{2} \sin \theta \cdot \frac{a^2 - b^2}{\cos \theta} = ab \cdot \sin \alpha$

$$\therefore \tan \theta = \frac{2ab \cdot \sin \alpha}{a^2 - b^2} (i.e.) \theta = \tan^{-1} \left(\frac{2ab \cdot \sin \alpha}{a^2 - b^2} \right).$$

VI.—(a) Solve—

$$\sin 2\theta + \sin 4\theta + \sin 6\theta = 4 \cos^2 \theta - 1.$$

SOLUTION.

$$\sin 2\theta + \sin 6\theta + \sin 4\theta = 4 \cos^2 \theta - 2 + 1.$$

$$(i.e.) 2 \sin 4\theta \cos 2\theta + \sin 4\theta = 2 \cos 2\theta + 1.$$

$$(i.e.) \sin 4\theta (2 \cos 2\theta + 1) = 2 \cos 2\theta + 1.$$

$$\therefore 2 \cos 2\theta + 1 = 0.$$

$$\therefore \cos 2\theta = -\frac{1}{2} = \cos \frac{2\pi}{3}.$$

$\therefore$ The general value of 2θ is $2n\pi \pm \frac{2\pi}{3}$.

$$\therefore \theta = n\pi \pm \frac{\pi}{3} = \frac{\pi}{3} (3n \pm 1) \text{ (1)}$$

Again

$$\sin 4\theta = 1 = \sin \frac{\pi}{2}.$$

$$\therefore 4\theta = n\pi + (-1)^n \frac{\pi}{2}.$$

$$\therefore \theta = \frac{n\pi}{4} + (-1)^n \frac{\pi}{8} \text{ (2)}$$

$$= \frac{2m\pi}{4} + \frac{\pi}{8} \text{ or } \frac{2m\pi}{4} + \frac{\pi}{4} - \frac{\pi}{8} \text{ according as } n \text{ is even or odd.}$$

These two expressions are of the same form whether n is odd or even. $\therefore \theta = \frac{\pi}{8} (4m + 1).$

(b) Solve—

$$\frac{\sin \alpha \cos (\beta + x)}{\sin \beta \cos (\alpha + x)} = \frac{\tan \beta}{\tan \alpha}.$$

$$\therefore \frac{\cos (\beta + x)}{\cos (\alpha + x)} = \frac{\tan \beta \cdot \sin \beta}{\tan \alpha \cdot \sin \alpha}.$$

$$\therefore \frac{\cos \beta \cdot \cos x - \sin \beta \cdot \sin x}{\cos \alpha \cdot \cos x - \sin \alpha \cdot \sin x} = \frac{\sin^2 \beta \cdot \cos \alpha}{\sin^2 \alpha \cdot \cos \beta}.$$

$$\frac{\cos \beta \cdot \cos x - \sin \beta \cdot \sin x}{\cos \beta \cdot \cos x} = \frac{\sin^2 \beta \cdot \cos \alpha}{\cos \beta \cdot \cos x}.$$

$$\therefore \frac{\cos \alpha \cdot \cos x - \sin \alpha \cdot \sin x}{\cos \alpha \cdot \cos x} = \frac{\sin^2 \alpha \cdot \cos \beta}{\cos \alpha \cdot \cos x}.$$

$$(i.e.) \frac{1 - \tan \beta \cdot \tan x}{1 - \tan \alpha \cdot \tan x} = \frac{\tan^2 \beta}{\tan^2 \alpha}.$$

$$\therefore \tan^2 \alpha - \tan x \cdot \tan \beta \cdot \tan^2 \alpha = \tan^2 \beta - \tan \alpha \cdot \tan^2 \beta \cdot \tan x.$$

$$\therefore \tan x (\tan^2 \alpha \cdot \tan \beta - \tan \alpha \cdot \tan^2 \beta) = \tan^2 \alpha - \tan^2 \beta.$$

$$\therefore \tan x = \frac{\tan \alpha + \tan \beta}{\tan \alpha \cdot \tan \beta} = \cot \beta + \cot \alpha.$$

VI.—Find the limits of the value of the expression $\frac{\tan(x+a)}{\tan(x-a)}$ for possible values of x .

$$\text{Put } \frac{\tan(x+a)}{\tan(x-a)} = y.$$

$$\text{then, } \frac{\sin(x+a) \cdot \cos(x-a)}{\cos(x+a) \cdot \sin(x-a)} = y.$$

$$\therefore \frac{\sin 2x + \sin 2a}{\sin 2x - \sin 2a} = y. \therefore \frac{\sin 2x}{\sin 2a} = \frac{y+1}{y-1}.$$

$$\therefore \sin 2x = \sin 2a \cdot \frac{y+1}{y-1}.$$

$$\therefore 4 \sin^2 x \cdot \cos^2 x = \left(\frac{y+1}{y-1} \right)^2 \cdot \sin^2 2a.$$

$$(i. e.) \sin^2 x (1 - \sin^2 x) = \left(\frac{y+1}{y-1} \right)^2 \cdot \sin^2 a \cos^2 a.$$

$$\therefore \sin^4 x - \sin^2 x + \left(\frac{y+1}{y-1} \right)^2 \cdot \sin^2 a \cdot \cos^2 a = 0$$

$$\therefore \sin^2 x = \frac{1 \pm \sqrt{1 - 4 \left(\frac{y+1}{y-1} \right)^2 \sin^2 a \cdot \cos^2 a}}{2}.$$

That x may be possible, $\sin^2 x$ must be positive. The expression under root is evidently less than 1; therefore the value of $\sin^2 x$ given above is evidently +ve.

Now the condition of the possibility of x is that the expression

$$1 - 4 \cdot \left(\frac{y+1}{y-1} \right)^2 \sin^2 a \cos^2 a \text{ must be positive.}$$

$$(i. e.) \left(1 + \frac{y+1}{y-1} \cdot \sin 2a \right) \left(1 - \frac{y+1}{y-1} \cdot \sin 2a \right) \text{ is } +ve.$$

$$(i. e.) \frac{1}{(y-1)^2} \left\{ (y-1) + (y+1) \sin 2a \right\}.$$

$$\therefore \left\{ (y-1) - (y+1) \sin 2a \right\} \text{ is } +ve.$$

$$(i. e.) \frac{1}{(y-1)^2} \left\{ y(1 + \sin 2a) - (1 - \sin 2a) \right\}$$

$$\left\{ y(1 - \sin 2a) - (1 + \sin 2a) \right\} \text{ is } +ve.$$

$$(i. e.) \frac{1 - \sin^2 2a}{(y-1)^2} \left\{ y - \frac{1 - \sin 2a}{1 + \sin 2a} \right\}$$

$$\left\{ y - \frac{1 + \sin 2a}{1 - \sin 2a} \right\} \text{ is } +ve.$$

$$\text{But } \frac{1 - \sin^2 2a}{(y-1)^2} \text{ is } +ve. \therefore \left(y - \frac{1 - \sin 2a}{1 + \sin 2a} \right)$$

$$\left(y - \frac{1 + \sin 2a}{1 - \sin 2a} \right) \text{ is } +ve.$$

(i. e.) y or the given expression lies out of the limits

$$\frac{1 - \sin 2a}{1 + \sin 2a} \text{ and } \frac{1 + \sin 2a}{1 - \sin 2a}$$

VII. Sum of $1 + \frac{1}{1 \cdot 2} + \frac{1}{1 \cdot 2 \cdot 3 \cdot 4} + \dots$ ad infinitum.

(Vide March Record, page 114.)

$$e^x = 1 + x + \frac{x^2}{2} + \frac{x^3}{3} + \frac{x^4}{4} + \dots$$

$$\text{Put } x = 1$$

$$\therefore e = 1 + 1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \dots \quad (1)$$

$$\text{Put } x = -1$$

$$\therefore e^{-1} = 1 - 1 + \frac{1}{2} - \frac{1}{3} + \frac{1}{4} - \dots \quad (2)$$

$$\text{Adding 1 and 2 we get } e + e^{-1} = 2 + \frac{2}{2} + \frac{2}{4} + \frac{2}{6} + \dots$$

$$\therefore \frac{1}{2} \left(e + \frac{1}{e} \right) = 1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{6} + \dots$$

VIII. Prove that

$$\frac{\log_a x \cdot \log_b y}{\log_x a \cdot \log_y b} = \frac{\log_b x \cdot \log_a y}{\log_x b \cdot \log_y a}$$

$$\frac{\log_a x \cdot \log_b y}{\log_x a \cdot \log_y b} = \frac{\log_a x \cdot \log_b y \cdot \log_a x \cdot \log_b y}{\log_x a \cdot \log_y b \cdot \log_a x \cdot \log_b y}$$

$$= (\log_a x \cdot \log_b y)^2 = (\log_a x \cdot \log_b a \cdot \log_a b \cdot \log_b y)^2$$

$$= (\log_b a \cdot \log_a x \cdot \log_a b \cdot \log_b y)^2 = (\log_b x \cdot \log_a y)^2$$

$$= \frac{\log_b x \cdot \log_a y}{\log_x b \cdot \log_y a}$$

IX. Find the greatest angle of a triangle whose sides are 2.5, 15, 17.5, having given $\log 6 = .7781513$.

$$L \cos 39^\circ . 14' = 9.8890644.$$

$$\text{Difference for } 30'' = .0000516.$$

The greatest angle is opposite to the side 17.5. Let the angle be called θ .

$$\text{Then } \cos^2 \frac{\theta}{2} = \frac{s(s-c)}{ab} \text{ where } s = \text{half the perimeter of the}$$

triangle and a, b, c , are respectively 12.5, 15 and 17.5.

Substituting the values of a, b, c and s , we get

$$\cos^2 \frac{\theta}{2} = \frac{(22.5)(5)}{(12.5)(15)} = \frac{7.5}{12.5} = \frac{3}{5} = \frac{6}{10}$$

$$\therefore \log\left(\cos^2 \frac{\theta}{2}\right) = \log 6 - \log 10.$$

$$(i. e.) 2 \log \cos \frac{\theta}{2} = .7781513 - 1 = -.2218487$$

$$\therefore \log \cos \frac{\theta}{2} = -.11092435$$

$$\therefore L \cos \frac{\theta}{2} = 10 - .11092435 = 9.88907565.$$

$$\text{But } L \cos 39^\circ . 14' = 9.88906440$$

$\therefore$ Difference between the tabular logarithmic cosines of

$$\frac{\theta}{2} \text{ and } 39^\circ . 14' = .00001125.$$

But .0000516 is the difference for $30''$

$\therefore$ by the theory of proportional parts .00001125 is the difference

$$\text{for } \frac{1125}{5160} \cdot 30'' = 6.54''.$$

But as the angle increases, its cosine decreases and consequently its tabular logarithmic cosine also decreases. Therefore, since the

tabular logarithmic cosine of $\frac{\theta}{2}$ is greater than $39^\circ 14'$, $\frac{\theta}{2}$ must be less than $39^\circ 14'$.

$$\therefore \frac{\theta}{2} = 39^\circ 14' \text{ minus } 6.54'' = 39^\circ 13' 53.46''$$

$\therefore \theta$ or the greatest angle is equal to $78^\circ 27' 46.92''$.

Let BAC be the given angle. Take any point C in AC and from it draw any straight line CD at right angles to AC. Now find a straight line R such that CD may be to R in the given ratio a . Now take any point B in AB and draw BE at right angles to it, making BE = R. Through the points D and E, draw straight lines DF and EF parallel to AC and AB respectively, intersecting each other at the point F. Join FA.

FA divides the angle BAC into FAC and FAB whose sines are in the given ratio a . For, from the point F, drop perpendiculars FP and FQ on AC and AB respectively.

$$\text{Then } \frac{\sin FAP}{\sin FAQ} = \frac{FP}{FQ} = \frac{FA}{FQ} = \frac{FP}{BE} = \frac{CD}{BE} = a.$$

(i. e.) the sines of the angles CAF and BAF are in the given ratio.

XI. A colossal statue on top of an obelisk (height = b) subtends an angle α when viewed at a distance a from the base of the obelisk; find the height of the statue.

Let PQ be the obelisk and QR, the statue on the top of it. Let S be a point at a distance a from P. Join SR and SQ. Let the angle QSP = β . Then $\tan \beta = \frac{b}{a}$.

$$\therefore \sin \beta = \frac{b}{\sqrt{a^2 + b^2}} \text{ and } \cos \beta = \frac{a}{\sqrt{a^2 + b^2}}$$

By the question RSQ = α . And the angle RQS = $90 + \beta$. Let h = height of the statue (QR).

$$\text{Then } \frac{h}{QS} = \frac{\sin \alpha}{\sin (90 + \alpha + \beta)} = \frac{\sin \alpha}{\cos (\alpha + \beta)}. \text{ But } QS^2 = a^2 + b^2.$$

$$\therefore \frac{\sqrt{a^2 + b^2}}{h} = \frac{\cos (\alpha + \beta)}{\sin \alpha} = \cot \alpha \cdot \cos \beta - \sin \beta$$

$$= \frac{a \cdot \cot \alpha}{\sqrt{a^2 + b^2}} - \frac{b}{\sqrt{a^2 + b^2}} \therefore h = \frac{a^2 + b^2}{a \cdot \cot \alpha - b}.$$

XII. To trace the changes in the sign and value of $\cos \theta + \sqrt{3}$.

$\sin \theta$, as θ varies from 0 to 360° . Expression = $(\frac{1}{2} \cos \theta + \frac{\sqrt{3}}{2} \sin \theta) 2$
 $= 2(\sin 30^\circ \cdot \cos \theta + \cos 30^\circ \cdot \sin \theta) = 2 \cdot \sin (\theta + 30^\circ) = a$ (say) when $\theta = 0$, $a = 2 \sin 30^\circ = 1$ and when $\theta = 30^\circ$, $a = 2 \sin 60^\circ = \sqrt{3}$.

As θ increases from 0 to 60° , a also increases continually from 1 to 2 and when $\theta = 60^\circ$, a has its maximum value 2 .

As θ increases from 60° to 150° , a decreases continually from its maximum value 2 to zero.

$$\text{When } \theta = 90^\circ, a = 2 \sin 120^\circ = \sqrt{3}.$$

$$\text{When } \theta = 120^\circ, a = 2 \sin 150^\circ = 1.$$

$$\text{When } \theta = 150^\circ, a = 2 \sin 180^\circ = 0.$$

Hence, as θ increases from 0 to 150° , a continues to retain the positive sign, and from 1 attains its maximum value 2 and then decreases to 0 .

After θ attains a value greater than 150° , a begins to be negative and attains the value -1 when $\theta = 180^\circ$.

It is plain that as θ increases from 150 to 330° , a begins and continues to be negative passing through its least value -2 when $\theta = 240^\circ$, and then increases from -2 to 0 .

$$\text{When } \theta = 210^\circ, a = -\sqrt{3}.$$

$$\text{When } \theta = 240^\circ, a = -2.$$

$$\text{When } \theta = 270^\circ, a = -\sqrt{3}.$$

$$\text{When } \theta = 300^\circ, a = -1.$$

$$\text{When } \theta = 330^\circ, a = 0.$$

Now a begins again to be positive after θ attains a value greater than 330° . As θ increases from 330° to 360° , a increases from 0 to 1 .

Hence we see that a is positive when θ has values between 0 and 150° and 330° and 360° . It is negative for values of θ lying between 150° and 330° .

DOVETON PROTESTANT COLLEGE.

ALGEBRA.

Examiner:—E. SEETHARAMA ROW, B.A.

1. (a) Write down the first three and the last three terms (with their proper signs) in the quotient obtained by dividing $a^{2p+1} + b^{2p+1}$ by $a + b$.
 (b) Express $(a - b + 2c)(17a - 13b + 8c)$ as the difference of two perfect squares.

2. (a) Simplify $\frac{6a}{3b+4c} + \frac{3b}{2c+3a} + \frac{4c}{b+2a} + 6$
 $\frac{1}{3b+4c} + \frac{1}{2c+3a} + \frac{1}{b+2a}$

(b) Prove that the expression

$$\frac{343(2a-3b+4c)^3 - (27b-25c-23a)^3 - (37a+53c-48b)^3}{21(2a-3b+4c)(27b-25c-23a)(37a+53c-48b)}$$
 equals unity.

3. (a) Find the G. C. M. of $20a^4 + a^2 - 1$ and $25a^4 + 5a^2 - a - 1$.

(b) Extract the square root of $\frac{a^2}{b^2} + \frac{b^2}{4a^2} - \frac{a}{b} + \frac{b}{2a} - \frac{3}{4}$

4. (a) Solve $x(y+z) = a^2(b^2+c^2)$
 $y(x+z) = b^2(a^2+c^2)$
 $z(x+y) = c^2(a^2+b^2)$

(b) The sum of three numbers is 25 and their product, 240. Given also that the difference of their differences is 7, find the numbers.

FREE CHURCH MISSION INSTITUTION.

ENGLISH—GENERAL.

1. Paraphrase:—

- (a) Shun delays, they breed remorse:
 Take thy time, while time is lent thee.
 Creeping snails have weakest force;
 Fly their fault lest thou repent thee;
 Good is best when soonest wrought,
 Lingering labours come to nought.
 (b) Those that fly may fight again,
 Which he can never do that's slain;
 Hence, timely running's no mean part
 Of conduct in the martial art.
 (c) Let not two friends together angry be,
 If one speak fire, t'other with water come;
 Is one provok'd? be t'other soft and dumb.

2. Parse each separate word in italics in (a) *Did* he or *justice* must.
 (b) Mark but my fall and *that that* ruined me. (c) They gave him such a reception *as* gratified him and such an answer *as* he wished.

3. State of what kind each phrase or clause within brackets is, and what is its construction in:—

(a) Him thought (he by the brook of Cherith stood)

And saw the ravens with their horny beaks.

(Food to Elijah bringing,) (even and morn.)

(b) (A few minutes' pause having been allowed) (that the combatants might recover breath), Prince John with his truncheon signed to the trumpets (to sound the onset.)

4. Combine the following into a single sentence, either complex or compound:—

1. His ears received the hopes of escape.

2. His friend's speech intimated these hopes.

3. Isaac then began to raise himself from the ground (*Principal*.)

4. He began to raise himself gradually.

5. He began to raise himself almost inch by inch.

6. At last he rested on his knees.

7. He was thus in the attitude of prayer.

5. Each of the following sentences is faulty, because it admits of two meanings:—Write each in two forms so as to express each of its possible meanings clearly.

(a) He ordered no one to leave the room.

(b) Common sense is what we want.

(c) I like to keep my book clean, but this is not what you do.

(d) I saw Narrainswamy when I came into the class yesterday in a very bad humour.

6. Write each of the following with all errors corrected:—

(a) Nelson was the bravest and distinguished of the navel heroes.

(b) The sentinel told there are 4 ships in the sight.

(c) I believe he would pass off this examination if he exerted more.

(d) Most of cotton manufactured in Britain are from South of United States.

7. Which letters are not pronounced in *debt*, *boat*, *receipt*, *psalm*, *neighbour*, *sovereign*, and how has each of these letters come to be used in spelling the word?

8. Abstract nouns sometimes have plural forms, but such plurals are not abstract in meaning. Give, and give the sense of, two examples of this.

9. State, with reasons, what should be the number of a verb agreeing with *scissors*, *riches*, *gentry* and *mathematics*, respectively.

10. State regarding each of the prefixes *anti*, *mis*, *dis*, *hemi*, (1) what is its significance, and (2) what language it belongs to?

11. State regarding each of the suffixes *ness*, *less*, *fy*, *ful*, *ary*, *ible*, (1) what part of speech it is employed to form, (2) from what language the word so formed is derived.

12. Write four sentences, the first exemplifying the use of *but* as a relative, the second its use as an adverb, the third its use as a preposition, and the fourth its use as a conjunction.

13. Distinguish in meaning (a) *later from latter*; (b) *to confide in* from *to confide to*; (c) *to correspond with* from *to correspond to*; (d) *if you be wise* you will do this from *if you are wise* you will do this.

14. Express:—

- (a) *He reasons in a circle, and the battle of Copenhagen crippled Denmark, as similes.*
- (b) *But for his inattention he could have answered me, as a complex sentence.*
- (c) *This is the shore on which I hoped to land, with the relative omitted.*
- (d) *He was so far from reverencing his teacher, that he actually insulted him, as a compound sentence beginning Not only.*
- (e) *He was as ready to attack his friends as his enemies, using the negative form of the comparative degree.*
- (f) *Your love was far greater than mine, in the positive degree.*
- (g) *In proportion as I am strict with the boys they like me better, using the form the.....the.*
- (h) *He was distinguished by being temperate, economical and even frugal, yet also by being hospitable, munificent and even profuse at proper times, with a noun substituted for each of the six adjectives here employed.*

INDIAN HISTORY.

- I. (a) Explain what is meant by:—Twice born, Vibaras, The Board of Control, and Lex Loci.
- (b) State what you know about the social and religious system of the Aryans. What are the sources from which we learn anything about them? What was the nature of their Government as inferred from the Code of Manu?
- II. Who were the Indo-Scythians? Where did they come from? What was the extent of their dominion during the time of Kanishka? Give the name, date and contending parties of the battle that decided their fate.
- III. Simply give the names of the different dynasties that reigned over the kingdom of Magadha with the approximate duration of their rule. What was the State religion of the kingdom for the most part? Who was the chief person that took great interest in it? What means did he adopt for spreading that religion? What was the cause and proof of its final fall?
- IV. (a) Give the dates, the contending parties, and one important result of the following battles:—The second battle of Peshawar, Kurushetra, Talikota, Assaye, and Kurda.
- (b) In what connection do the following persons appear in Indian History:—Ramdeo, Malik Ambar, Budha, Ferishta, Sir David Baird, and Lord Kimberly.
- (c) Give the approximate boundaries of the following places:—Maharashtra, the kingdom of Magadha during the time of Chandragupta, and the kingdom of Delhi about the end of the Khilji dynasty.
- V. Name:—
1. The first Mahomedan sovereign that reigned in India.
2. The chief points of difference between Buddhism and Jainism.
3. The successor of Altamsh.

4. The chief leader of the Rajputs during the time of Ala-u-deen Khilji.
5. The kingdoms that were conquered during the time of Aurungzeb.
6. The first and the last of the Sayyid dynasty.
7. The five kingdoms that arose out of the ruins of Bhamany kingdom.
8. The greatest of the Mahomedan rulers.
9. The Revenue and other reforms introduced by Todar Mall.
10. The Governor-General that removed all restrictions on the Public Press.
11. The "King makers."
- VI. (a) When and how did the English get possession of the following places:—Northern Circars, Malabar, Bombay, Sindh and Punjab?
- (b) What led to the annexation of Coorg? Give its date and a brief account of it.
- VII. (a) What was the origin of the first Burmese War? Name the principal Generals engaged. What were the most important results of the War?
- (b) Simply mention the leading events in the administration of Sir Charles Metcalfe, Lord Hardinge, and Lord Cornwallis.
- VIII. Briefly describe the plan of the last Mysore War, and the second Mahratta War, with the results of each.
- XI. What was the origin of the Nepaulesse War? By whom was it conducted? What were the terms of the treaty that concluded the War?

GEOGRAPHY.

1. Draw a neat map of the Mediterranean sea marking only the following:—The bays, the straits, the principal islands, the mouths of five of the principal rivers that flow into it and the important towns on its coast.
2. Define an *oasis*. A *degree of latitude*. The *frigid zone*. The *solstices*. A *lagoon*. A *Loch*, and a *watershed*.
3. What important places are in the same latitude as Naples?
4. Somebody speaking of a certain language says that it may with propriety be called a world language:—What is that language? Name the countries which have that as the court-language. What languages are spoken in *Iceland*,—*The Punjab*,—*The Isle of Man* and *Greece*?
5. Describe the shortest route of a P. & O. Mail Steamer from Madras to London.
6. Name:—
- (a) The most westerly point of Ireland.
- (b) The most northerly point of Africa.
- (c) The highest peaks of the Apennines, the Western Ghats and the Andes.
- (d) The largest fresh water lake and the largest salt water lake in Asia.
- (e) Two lakes in the basin of the Po.
- (f) The portions of land separated by the straits of Sunda and Babelmandeb.

7. Where and what are :—
Melbourne, Tchad, Texas, Buffah, Rubicon, Table Mountain, Malabar Point, Tamatave and Gobi?
8. (a) What countries are included under the Barbary States?
(b) How can we know the slope of a country from an inspection on the map?
(c) What is the *gulf-stream*? Describe its course.
9. State what you know of the position, climate, government and products of the Philippine Islands.
10. Where are the following animals, &c., chiefly found:—The reindeer, sulphur, the zebra, alpaca, nutmegs and flax?

PHYSICS AND CHEMISTRY.

1. A stone weighing 5 oz. weighs 3 oz. in water and 3.5 oz. in alcohol. What is the S. Gr. of alcohol?
2. (a) Define Motion, Force, Velocity, Cohesion, Adhesion, Capillarity and Work.
(b) What are the two laws which govern the bending of solids?
3. Describe an experiment to show that gases exert pressure, equally in all directions.
4. How does sound reach our ears? At what rate does it travel through the air? And explain why we do not hear *echoes* in small and low buildings.
5. (a) What is meant by "*Latent Heat of Liquefaction*." Explain what is meant by a *Freezing Mixture*.
(b) Explain why :—
1. Coins are stamped and not cast in moulds.
2. Charcoal floats in water, although when powdered it sinks easily.
(c) A needle gently placed in water floats.
(d) Water kept in earthen vessels is colder than water kept in metallic vessels.
6. (a) Fire, Air, Earth and Water were supposed by the ancients to be *elements*. What does Chemistry teach you about them?
(b) How is it that the substances produced by the burning of a candle are heavier than the candle itself?
7. (a) Name three ways of preparing *Hydrogen*.
(b) What is the composition of water by *weight*?
(c) What is the first great law of chemical combination?
(d) Name two compounds of Nitrogen and Hydrogen.
8. (a) When does Benson's Burner give out a colourless flame, and when a luminous one?
(b) Describe the structure of an ordinary candle flame.
9. (a) How may chlorine be prepared, and what are its properties?
(b) What is the chemical name of each of the following:—common salt, iron rust, smelling salt, oil of vitriol, gypsum, white vitriol and chalk.
10. What is *glass*? And how is it prepared?

ARITHMETIC.

N. B.—Algebraical methods are not allowed.

I.—Find the G. C. M. of 275275 and 565675 and the L. C. M. of 315, 1617, 1925, and 1615 by decomposing the numbers into their prime factors.

II.—In a clock showing the date of the month, the days are marked from 1 to 30; what is the exact time when the hands are opposite to each other between the 20th and 21st?

III.—Two men, three women and five children can do a piece of work in $1\frac{1}{2}$ days; but if there were one more man and one more woman the work would be done in $1\frac{1}{3}$ days; and if there were one child more only $\frac{1}{6}$ of the work would be done in one day; find in what time a man, a woman or a child can do the work separately.

IV.—There are two packages of books; the number of books in one package is to that in the other as 4 is to 7; but the price of a book of the first set is Rs. 2-8 and that of one of the second Rs. 1-8, and the price of all the books in the second package exceeds that of the first by Rs. 25. How many books are there?

V.—Find the number of which '02003 is the square root, and find the number which when squared gives '010164.

VI.—Estimate the cost of tiling a gable roof running lengthways over a hall 120 feet long, 24 feet broad and 15 feet high, the highest point of the roof being 24 feet from the floor. There is to be first a layer of flat tiles 5 inches square at Rs. 1-8 the thousand; then a layer of chunam $\frac{1}{2}$ inch thick at a cost of Rs. 3 a cubic yard, and over this, ordinary tiles, 9 for every square foot, at Rs. 2-4 per thousand.

VII.—In what time will 5,000 amount to Rs. 19,208 at 40 per cent., compound interest?

VIII.—A merchant buys two sorts of coffee, one at 12s. per maund more than the other; if he mixes them in equal quantities and sells the mixture at Rs. 7-4 per maund, he gains $2\frac{2}{3}$ per cent.; but if he mixes them in the ratio of 6:7 and sells the mixture at Rs. 7-2 per maund, he will gain Rs. 68-12 on the whole; find the cost price of each sort per maund and the quantity of coffee he buys.

IX.—A householder requires 14 markals of rice per month; but borrowing Rs. 165 (the cost of rice required for the whole year) at 5 per cent., he buys 336 markals of paddy for the whole year, and gets it pounded at 2 pies per markal. Besides rice, from every markal of paddy he gets 6 measures of husk, 2 ollocks of grits, and $1\frac{1}{2}$ measures of tower. He sells the husk at 4 p. a markal, the grits at 2 p. an ollock, and the tower at 3 p. a measure; and the surplus rice at cost price; he thus saves Rs. 46-2; find how much rice was made from the paddy?

X.—Two trains start to meet each other from A and B at the same time; and two others in opposite directions from C, (midway between A and B), each going 20 miles per hour. One of the trains from C meets the train from A 24 minutes sooner than the other meets the train from B, if the train from A goes 5 miles faster than the train from B;—find the rates of these two trains and also the distance between A and B.

ALGEBRA.

I.—Resolve into factors—

$$x^3 - 2ax^2 + x(a^2 - ab - b^2) + ab(a + b)$$

II.—If $x + a$, $y + b$, $z + c$ be respectively the factors of

$$x^3 + bx + c, y^3 + cy + a, z^3 + az + b$$

Shew that

$$a^3 + b^3 + c^3 + (a + b + c)^3 = 3abc.$$

III.—Simplify—

$$\frac{a^3 + 1}{(a - b)(a - c)} + \frac{b^3 + 1}{(b - a)(b - c)} + \frac{c^3 + 1}{(c - a)(c - b)}$$

IV.—Find the square root of

$$4abc(b - c) + \{ab - c(a + b)\}^2$$

V.—Solve—

$$1. \frac{x + a + b}{a + b} + \frac{y - a + b}{a - b} = 2a; \frac{x - y}{2ab} = \frac{x + y}{a^2 + b^2}$$

$$2. x + y + z = 0; \frac{x}{a + b} + \frac{y}{a + c} + \frac{z}{b + c} = 0$$

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

VI.—Two persons, A and B, played cards. After a certain number of games, A had won half as much as he had at first, and found that if he had 15 Rupees more, he would have had just three times as much as B. But B afterwards won 10 Rupees back, and he had then twice as much as A. What had each at first?

GEOMETRY.

- I. (a) Define a Trapezoid, an interior adjacent angle, a segment of a straight line, a tangent and an arc.
(b) Distinguish between equal triangles and equivalent triangles, and name the propositions that treat about them respectively.
(c) Name the three methods which Euclid adopts to prove converse propositions, with examples.
- II. (a) Parallelograms on equal bases and between the same parallels are equal to one another.
(b) L M N O is a parallelogram. Its diagonals L N and M O intersect at P. Prove that the four triangles thus formed are equivalent.
- III. (a) If the square described on one of the sides of a triangle be equal to the squares described on the other two sides of it, the angle contained by these two sides is a right angle.
(b) If the square described on one side of a triangle be less than the squares on the other two sides, the angle contained by these two sides is an acute angle.
- IV. (a) Express 11 in the form of an algebraical equation.
(b) From what proposition would you deduce $(a + b)(a - b) = a^2 - b^2$ and how?

- V. (a) Describe a square that shall be equal to a given rectilineal figure.
(b) Find a square which shall be equal to the sum of two given rectilineal figures.
- VI. (a) In a circle the angle in a semi-circle is a right angle, but the angle in a segment greater than a semi-circle is less than a right angle; and the angle in a segment less than a semi-circle is greater than a right angle.
(b) The middle point of the hypotenuse of a right-angled triangle is equally distant from the three angular points.
- VII. (a) If two straight lines, only one of which passes through the centre, cut one another within a circle, not at right angles, the rectangle contained by the segments of one of them shall be equal to the rectangle contained by the segments of the other.
(b) If any two chords be drawn in a circle perpendicular to each other, the sum of their squares is equal to twice the square of the diameter diminished by four times the square of the line joining the centre with their point of intersection.

PRESIDENCY COLLEGE.

ALGEBRA.

I. Solve—

$$1. x^3 + 8 = 2x^2 + 11x + 14.$$

$$2. x(x + y) = 225.$$

$$\sqrt{y} + \sqrt{x + y} = 9.$$

II. When has the expression $ax^2 + bx + c$ the same sign as a for all values of x .

For what value of x , is the fraction $\frac{(x^2 + 4x + 5)(6x^2 - 7x + 1)}{(x^2 - 5x + 6)(3x^2 + 2x + 1)}$ negative.

III. Shew $ax^2 + bx + c$ has the least value when x is equal to the semi-sum of the roots of $ax^2 + bx + c = 0$.

IV. a. In a G. P. if the p^{th} , q^{th} , r^{th} terms be in A. P., prove that the sums to the p^{th} , q^{th} , r^{th} terms are also in A. P.

b. If the m^{th} term of a H. P. be n and the n^{th} term m ; prove that the r^{th} term is $\frac{mn}{r}$.

V. Sum to n terms:—

$$1. \frac{1}{1 \cdot 3}, \frac{1}{3 \cdot 5}, \frac{1}{5 \cdot 7}, \frac{1}{7 \cdot 9}, \text{ \&c.}$$

$$2. 1^3, 4^3, 7^3, 10^3, \text{ \&c.}$$

VI. Find the number of combinations of n things r together, without assuming the formula for the number of permutations.

Find the number of combinations of $2n + 1$ things taken n together of which $n + 1$ are alike and n unlike.

VII. Find the number of permutations that can be formed of the letters in the words *Presidency College*, taken 4 together.

PSYCHOLOGY:

Examiner:—D. DUNCAN, M.A., D.S.C.

I. Is Belief a primitive faculty? What is its psychological character? What is its evidentiary value in connexion with the question of reality?

II. State and criticize the Aristotelio-Hamiltonian theory of Pleasure and Pain.

III. Point out the connexions, historical and logical, between the Theory of Vision and the Perception of an External World.

IV. What is Arnauld's theory of external perception? How do you explain Reid's difficulty in understanding Arnauld's doctrine? What use does Sir W. Hamilton make of Reid's difficulty?

V. Hume has been called a mere Phenomenalist and J. S. Mill a Cogitacionist. Compare the cosmological views of these two writers.

VI. Many of the difficulties alleged by Mr. Masson in connexion with Mill's cosmological theory are, it has been said, really difficulties connected with a thorough-going acceptance of the Relativity of Knowledge. Is this really the case? Justify your answer.

VII. What is meant by (a) the Positive Philosophy, (b) the Evolution Philosophy?

TRIGONOMETRY.

I. What is meant by saying that $180^\circ = \pi$.

The angles A, B, C, of a triangle ABC are such that the number of degrees in C is to the number of degrees in A as 7 : 20, and there are twice as many degrees in A as there are grades in B. Express the angles in circular measure.

II. Prove the following:—

1. $\sin(180^\circ + A) = -\sin A$ and $\cos A = \cos(-A)$ when A is in the third quadrant.

2. $\cos(90^\circ + A) = -\sin A$ when A is between 225° and 270° .

III. (a) Find the values of the following:—

$\tan(-945^\circ)$; $\cos(-1230^\circ)$; $\sec 930^\circ$.

(b) Find all the angles between 0° and 700° , which satisfy the equation $\tan^2 \theta = 1$.

IV. Trace the changes in the sign and value of $\cos^2 \theta - \sin^2 \theta$ as θ varies from 0 to 2π .

V. Find an expression for all the angles having a given sine. Write down the general value of θ which satisfies both $\operatorname{cosec} \theta = -\sqrt{2}$ and $\tan \theta = 1$.

Write down the general value of θ which satisfies $\sec^2 \theta = 2$.

VI. Prove that $\sin(A + B) = \sin A \cos B + \cos A \sin B$, when A is between 90° and 130° and (A + B) between 360° and 400° ; and hence express $\sin 2A$ in terms of $\sin A$ and $\cos A$; and solve the equation:—

$$2 \sin^2 x + \sin^2 2x = 2.$$

CENTRAL COLLEGE, BANGALORE.

HUXLEY'S PHYSIOLOGY, CHAPS. I—IV.

I. (1.) How does the mucous membrane differ from the outer integument?

(2.) In what forms, and where do you find the areolar or connective tissue in the human body?

(3.) What are articular cartilages, and how are they lined?

II. (1.) State the number of (a) separate bones in the human body; (b) of the separate vertebrae; (c) of the bones of the pelvis. Name the last.

(2.) What are the functions of oxygen in the living body? How does it act upon a dead body?

III. How can you show that the brain is the seat of all sensation and volition?

IV. In what parts of the body are lymphatic capillaries not found? State the sources of lymph. Where is it ultimately poured? How does it differ from the blood?

V. How can you demonstrate on a sheep's heart the action of the auriculo-ventricular valves, and the semi-lunar valves of the Aorta and the Pulmonary Artery?

VI. Explain fully the disappearance of the pulse in the capillaries.

VII. How does exposure to cold sometimes produce catarrh, inflammation of the lungs, or diarrhoea?

VIII. (1.) What is supposed to be the origin of the colourless corpuscles?

(2.) How does contact of the blood with living matter affect its coagulation? Give the proofs of your answer.

(3.) State the solid constituents of the blood together with their relative proportions.

- IX. (1.) Why is it more difficult to render pure blood venous than to arterialise impure blood?
 (2.) What is the cause of the change of colour when venous blood is changed into arterial?
 (3.) What are the effects of breathing impure air in which nearly one per cent. of the oxygen is replaced by other matters?
- X. What is the effect of expiration upon the circulation of the blood?

BAIN'S PSYCHOLOGY, pp. 80—192.

- I. (1.) Show that the Primary attributes of the Intellect cannot work in separation.
 (2.) What are the uses of a scientific knowledge of the Intellectual Powers?
- II. How does our body occupy an intermediate position between the subject mind and the object world at large.
- III. Show the working of the Association of contiguity—(1) in the love of money for its own sake; (2) in the growth of the Moral Sentiment; (3) in the experimental teaching of the scientific properties of natural objects.
- IV. Give clearly Bain's account of self-consciousness.
- V. How is *temporary adhesiveness* of use in daily life? What is the reproach implied in *cramming*?
- VI. Show what intellectual conditions were necessary—(1) for making the Linnæan classification of plants; (2) for discovering the homologies in the vertebrate kingdom; (3) for showing that the burning of coal and the rusting of iron are virtually the same process; (4) for Watt's discovery of the governor balls.
- VII. Explain the following facts:—(1) all the thoughts and expressions of a shylock bear the cast of his feelings; (2) a man's vocabulary shows the company he keeps; (3) the warm geniality of Shakespeare is apparent in his plays.
- VIII. Give all the meanings of 'necessity' and show that in none of them can 'necessity' be considered the typical character of intuitive truths.
- IX. Give the meaning of distance, and account for the existence in very early infancy of the power to judge distance.
- X. What appearances lead people to think erroneously that the abstract idea has an independent existence.
2. What were the sentimental notions regarding the language and plot of a comedy current in Goldsmith's days, and how did he try to correct them? Give Horace Walpole's estimate of 'She stoops to conquer' and criticize it.
 3. Give an account of the origin of Retaliation and the Haunch of Venison.

VIII. Quote:—

1. Garrick's humorous epitaph on Goldsmith.
2. Johnson's final verdict on Goldsmith's character.
3. The four lines added by Johnson to the *Deserted Village*.
4. The famous line in Johnson's epitaph on Goldsmith.

LOGIC.

- I. Is Logic both a science and an art? Give Jevons' definition of Logic and explain every part of it. Criticize Jevons' definition.
- II. Define Inference, and distinguish between Deductive and Inductive Inference. Give examples.
- III. State the different views regarding the nature of the General or Abstract Notion, and state which seems to you to be correct.
- IV. (1) How do *opposite* terms differ from *negatives* or *contradictories*? Give instances.
 (2) Classify the following terms: The Calcutta International Exhibition, a student of the Central College, revelation, the 12th Lancers, immortality, the University Senate, winter, ague, fastidious, Psychology.
- V. Give two instances of equivocal terms both in sound and spelling in each of the following cases:—(1) where the meaning is transferred by the association of ideas; (2) where the meaning is transferred by analogy. Explain in each instance the mode of the transference of meaning.
- VI. (1) What is meant by genus, property, accident? Give examples.
 (2) Divide *men, books, birds*, each class according to two *fundamenta divisionis*.
- VII. (1) Give the connotation and the denotation of the following terms: animal, the 14th Hussars, tiger, the greatest philosopher of the age, the Queen-Empress.
 (2) Discuss the opinion of Mill that a non-connotative term signifies a subject only, or an attribute only.
- VIII. (1) What are the different meanings of *some, all, all are not*?
 (2) What inferences can you draw by opposition from:—
 (a) The falsity of "Some men are not mortal."
 (b) The truth of "Some men are wise."
- IX. (1) Why can you not convert I. or O. by contraposition? Show by Euler's method that it is possible to convert E by contraposition.
 (2) Convert the following propositions:—
 (a) What I have written I have written.
 (b) All poets are not philosophers.
 (c) 'Tis only noble to be good.
 (3) Apply Inference by privative conception to "All men are mortal," then convert, and show that the converse is the contrapositive of the original proposition.

X. Show by examples—(1) that to deny the antecedent in a hypothetical syllogism is really to commit the fallacy of the illicit process; (2) that to affirm the consequent and hence to affirm the antecedent really amounts to the fallacy of the undistributed middle.

1. Define Logic according to Sir W. Hamilton and Mr. J. S. Mill, and explain the difference between the two definitions.

2. Explain the operations of the mind which are expressed by terms and propositions. What is the *copula*? Does it imply existence.

3. How did the scholastic Logicians distinguish between real and nominal definitions? Is there any foundation for such a distinction? Distinguish between definition and description. Define a table.

4. What is meant by opposition? Are A and I opposed? Are I and O opposed?

5. Prove the rule that two particular premises prove nothing. In which of the figures is the mood A I I legitimate? Shew that it is not legitimate in the other figures.

6. Reduce into syllogistic form and fully analyse the following arguments:—(1) To call you a graduate is to speak truth; to call you a Master of Arts is to call you a graduate; therefore to call you a Master of Arts is to speak truth; (2) A few books are worth reading; Mr. Mill's writings are a few books; therefore Mr. Mill's writings are worth reading.

7. What do you understand by the word "probable?" Show how the concurrence of two persons in making the same statement affects its probability.

- (1) When they are both truthful persons.
- (2) When they are both untruthful persons.

ENGLISH.

I. Describe the pleasures of society and the pleasures of solitude, or—enumerate the advantages to be gained by the study of History.

II. Give an outline of the plot or story of any English book you have read.

III. How far is the English language composed of words of foreign origin.

IV. Distinguish (giving illustrations) between self-conceit, pride, vanity, and arrogance; education and instruction; discover and invent; continuous, continual, and perpetual; allegiance and loyalty; modern and novel.

V. To what parts of speech do words belong that have the following endings:—ful, ize, ness, ible, ory, fy, ling, ism, and give the meanings of the following prefixes:—re, mis, with, pre, fore.

VI. Explain what is meant by the following extracts from English authors:—

- (a) In maiden meditation, fancy free.
- (b) For we that live to please must please to live.
- (c) Die if a rose in aromatic pain.
- (d) Brevity is the soul of wit.
- (e) For with it his soul fled all my worldly solace,
And seeing him, I see my life in death.
He raised a mortal to the skies,
She drew an angel down.

BOMBAY UNIVERSITY.

PREVIOUS EXAMINATION, 1883.

[The black figures to the right indicate full marks.]

ALGEBRA.

1. Prove that $(n + 1)(n + 2)(n + 3) \dots$ to n factors 7
 $2^n \times 1.3.5 \dots$ to n factors.
2. Shew that a factor may be found which will rationalize 8
by binomial.
Reduce $\frac{\sqrt{1+x} - \sqrt{1-x}}{\sqrt{1+x} \cdot \sqrt{1-x}}$ where $x = \frac{\sqrt{3}}{2}$.
3. Distinguish between a quadratic equation and a quadratic 12
expression and shew that a quadratic equation has two and
only two roots.
Solve the equation $\sqrt{x^2 - 3x + 8} = \frac{1}{2}(x^2 - 7x + 8)$.
4. Define ratio, variation, proportional, commensurable. 7
If A vary as B when C is constant and A vary as C when B is
constant, prove that A will vary as the product BC when both B
and C are variable. Give fully a geometrical illustration.
5. Sum the series:— 15
(1) $17\frac{1}{2}, 14\frac{1}{2}, 10\frac{1}{2}, \dots$ to 21 terms.
(2) $1, 3, 6, 10, 15, \dots$ to n terms.
(3) $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16}, \dots$ to infinity.
6. Investigate a formula for the number of permutations of 8
things taken all together which are not all different.
How many different numbers can be made out of all the
figures of 111223?
7. Enunciate the Binomial Theorem and prove it for a 18
rational integral exponent.
Write down the $r + 1$ th term in the expansion of $\sqrt{a^2 - x^2}$
(the coefficient of x^{10} in $\frac{1+x}{(1-x)^2}$).

SOLUTIONS TO THE ABOVE.

$$\begin{aligned}
 1. & (n+1)(n+2)(n+3) \dots \text{to } n \text{ factors} \\
 &= \frac{1 \cdot 2 \cdot 3 \dots n \times (n+1)(n+2)(n+3) \dots (2n)}{1 \cdot 2 \cdot 3 \dots n} \\
 &= \frac{1 \cdot 3 \cdot 5 \dots (2n-1) \times 2 \cdot 4 \cdot 6 \dots 2n}{1 \cdot 2 \cdot 3 \dots n} \\
 &= \frac{(1 \cdot 3 \cdot 5 \dots \text{to } n \text{ factors}) \times (2 \cdot 1)(2 \cdot 2)(2 \cdot 3) \dots (2 \cdot n)}{1 \cdot 2 \cdot 3 \dots n} \\
 &= \frac{(1 \cdot 3 \cdot 5 \dots \text{to } n \text{ factors}) \times 2^n \times 1 \cdot 2 \cdot 3 \dots n}{1 \cdot 2 \cdot 3 \dots n} \\
 &= 2^n \times 1 \cdot 3 \cdot 5 \dots \text{to } n \text{ factors.}
 \end{aligned}$$

2. Todhunter's Algebra, Section 295.

$$\text{Since } x = \frac{\sqrt{3}}{2}, \sqrt{1+x} = \sqrt{1 + \frac{\sqrt{3}}{2}}.$$

$$\text{Assume } \sqrt{1 + \frac{\sqrt{3}}{2}} = a + \sqrt{b}.$$

$$\therefore \sqrt{1 - \frac{\sqrt{3}}{2}} = a - \sqrt{b}.$$

$$\therefore \sqrt{1 - \frac{\sqrt{3}}{2}} = a^2 - b, \text{ by multiplication,}$$

$$\therefore a^2 - b = \sqrt{\frac{1}{2}} = \frac{1}{2} \dots \dots \dots (1.)$$

$$\text{Also, squaring, } 1 + \frac{\sqrt{3}}{2} = a^2 + b + 2a\sqrt{b}$$

$$\therefore a^2 + b = 1 \dots (ii), \text{ equating rational parts.}$$

$$\text{From (i) and (ii), } a^2 = \frac{3}{4}, b = \frac{1}{4}$$

$$\therefore \sqrt{1 + \frac{\sqrt{3}}{2}} = \frac{\sqrt{3}}{2} + \frac{1}{2}, \text{ and } \sqrt{1 - \frac{\sqrt{3}}{2}} = \frac{\sqrt{3}}{2} - \frac{1}{2}$$

Hence, numerator of fraction

$$= \frac{\sqrt{3}}{2} + \frac{1}{2} - \left(\frac{\sqrt{3}}{2} - \frac{1}{2} \right) = 1.$$

And, denominator

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

$$\therefore \text{Value of fraction} = 1 + \frac{1}{2} = \frac{3}{2}.$$

3. Todhunter's Algebra, Section 334, and Section 338.

$$\frac{1}{2}(x^2 - 7x + 8) = \sqrt{x^2 - 3x + 8}.$$

$$\text{Squaring, } \left\{ (x^2 - 7x)^2 + 16(x^2 - 7x) + 64 \right\} = 16(x^2 - 3x + 8)$$

$$\therefore 9(x^2 - 7x)^2 + 144(x^2 - 7x) + 576 - 16x^2 + 48x - 128 = 0$$

$$\therefore 9x^2(x-7)^2 + 144x(x-7) - (16x^2 - 48x - 448) = 0$$

$$\therefore 9x^2(x-7)^2 + 144x(x-7) - 16(x^2 - 3x - 28) = 0$$

$$\therefore 9x^2(x-7)^2 + 144x(x-7) - 16(x-7)(x+4) = 0$$

$$\therefore x-7=0, \text{ i.e., } x=7; \text{ or,}$$

$$9x^2(x-7) + 144x - 16(x+4) = 0$$

$$\therefore 9x^3 - 63x^2 + 128x - 64 = 0$$

$$\therefore 9x^3 - 24x^2 - 39x^2 + 104x + 24x - 64 = 0$$

$$\therefore 3x^2(3x-8) - 13x(3x-8) + 8(3x-8) = 0$$

$$\therefore 3x-8=0, \text{ i.e., } x=2\frac{2}{3}; \text{ or,}$$

$$3x^2 - 13x + 8 = 0, \text{ an ordinary quadratic.}$$

4. Todhunter's Algebra, Sections 369, 386, 406, 412, and 425.

5. (1) Since $17\frac{1}{2} - 14\frac{1}{2} = 3\frac{1}{2}$, and $14\frac{1}{2} - 10\frac{5}{8} = 3\frac{1}{2}$; the series given is an A. P.

$$\text{Hence, } s = \frac{24}{2} \left\{ 2 \times 17\frac{1}{2} + (24-1) \times 3\frac{1}{2} \right\}$$

$$= 12 \left\{ 35 + \frac{230}{2} \right\} = 12 \left\{ \frac{335}{2} \right\} = 4 \times 335 = 1340$$

$$(2) \text{ Let } s = 1 + 3 + 6 + 10 \dots \text{to } n \text{ terms.}$$

Now, $3 = 1 + 2$, an A. P. with 1 as first terms, and common dif. = 1, No. of terms = 2.

$$6 = 1 + 2 + 3, \text{ an A. P., first term} = 1,$$

$$\text{common dif.} = 1, \text{ No. of terms} = 3:$$

and so on. Thus, the n^{th} term

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

$$\therefore \text{first term} = \frac{1^2 + 1}{2}; \text{ second} = \frac{2^2 + 2}{2};$$

$$\text{third} = \frac{3^2 + 3}{2}, \text{ and so on.}$$

$$\therefore s = \frac{1^2 + 1}{2} + \frac{2^2 + 2}{2} + \frac{3^2 + 3}{2} \dots \frac{n^2 + n}{2}$$

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

$$= \frac{1}{2} \cdot \frac{n(n+1)(2n+1)}{6} + \frac{1}{2} \cdot \frac{n(n+1)}{2}, \text{ (Sections 459 \& 460).}$$

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

$$= \frac{1}{6} n(n+1)(n+2).$$

$$(3) \text{ Let } s = \frac{5}{7} + \frac{7}{21} + \frac{9}{63} + \frac{11}{189} + \dots \text{ad infinitum}$$

$$\therefore \frac{s}{3} = \frac{5}{21} + \frac{7}{63} + \frac{9}{189} + \dots \text{ad infinitum}$$

By subtraction, $\frac{2s}{3} = \frac{5}{7} + \frac{2}{21} + \frac{2}{63} + \frac{2}{189} + \dots \text{ad infinitum}$

$$= \frac{5}{7} + \frac{2}{1-\frac{1}{3}} = \frac{5}{7} + \frac{2}{21} \cdot \frac{3}{2} = \frac{5}{7} + \frac{1}{7} = \frac{6}{7}$$

6. Todhunter's Algebra, Section 497.

As three are six figures of which there are ones and two twos,

$$\text{No. required} = \frac{6}{3 \cdot 2}$$

7. Todhunter's Algebra, Section 504.

$$\sqrt{a^2 - x^2} = a \left(1 - \frac{x^2}{a^2}\right)^{\frac{1}{2}}$$

$$\therefore (r+1)^{\text{th}} \text{ term} = a \cdot \frac{\frac{1}{2}(\frac{1}{2}-1)(\frac{1}{2}-2)\dots(\frac{1}{2}-r+1)}{r!} \left(-\frac{x^2}{a^2}\right)^r$$

$$= a \cdot \frac{\frac{1}{2}(-\frac{1}{2})(-\frac{3}{2})(-\frac{5}{2})\dots\left(-\frac{2r-3}{2}\right)}{r!} \cdot (-1)^r \frac{x^{2r}}{a^{2r}}$$

$$= \frac{\frac{1}{2} \cdot \frac{1}{2} \cdot \frac{3}{2} \cdot \frac{5}{2} \dots \frac{2r-3}{2} (-1)^{r-1}}{r!} \cdot (-1)^r \cdot \frac{x^{2r}}{a^{2r-1}}$$

$$= \frac{1 \cdot 3 \cdot 5 \dots (2r-3)}{2^r r!} \cdot \frac{x^{2r}}{a^{2r-1}}$$

Since $\frac{1+x}{(1-x)^3} = (1+x)(1-x)^{-3}$, we are to find the coefficients of x^9 and x^{10} in the expansion of $(1-x)^{-3}$.

Now, $(r+1)^{\text{th}}$ term of $(1-x)^{-3}$

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

$$= \frac{(-1)^r \cdot 3 \cdot 4 \cdot 5 \dots (r+2)}{r!} (-1)^r x^r$$

$$= \frac{1 \cdot 2 \cdot 3 \cdot 4 \cdot 5 \dots (r+2)}{1 \cdot 2 \cdot r!} x^r$$

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

$$\therefore \text{coefficient of } x^9 = \frac{10 \cdot 11}{1 \cdot 2} = 55, \text{ and of } x^{10} = \frac{11 \cdot 12}{1 \cdot 2} = 66$$

$$\therefore \text{coefficient of } x^{10} \text{ in } \frac{1+x}{(1-x)^3} = 66 + 55 = 121.$$

HISTORY OF LANGUAGE.

By C. A. M. FENNELL, M. A.

THE term **language**, as used by students, means the expression of ideas and feelings by means of the human voice; while a *language* means a system of vocal signs used for such expression by a particular set of people. The cause of language, that is to say, the motive which leads to the first use and adoption of a new word, or the utterance of any word or words, is desire for communication; and articulate speech being by far the best method of communication, throws all others, such as pantomime, quite into the shade. As language is made up of words, the science of language is the study of the origin and history of words. As the utterance of a word is a voluntary act, and as every word has to be learnt, it is clear that *language is a human institution*, and that *the science of language is a historical or moral science*, notwithstanding that its methods of observation, comparison, and induction are to a great extent similar to those of the physical sciences.

Words are, as regards their use or function, particular signs, which, either in connection with other signs, or owing to structure or restricted use, denote particular ideas. If you choose to say *plurru*, as far as sound goes, you utter a word as much as if you said *claret*; but owing to the lack of sense, the sounds of *plurru* do not constitute a word, though they might come to do so if you could persuade a discoverer or inventor to call a new machine or a newly-found plant the *plurru*, instead of using an old word in a new sense, or borrowing a foreign word, or putting two or more words together, or using a person's name, which are the most common ways of naming new things or ideas. But even the discoverer or inventor would fail to make your nonsense a word if the public rejected it.

Compounds and Derivatives.—When two or more words are continually used together in the same order to denote the same idea, it often happens that they come to be regarded as one compound word, as *grandmother*, *redbreast*, *long-eared*, *bull-necked*, *looking-glass*, *tea-pot*, *steam-boat*, *cut-throat*, *hang-man*, *ill-natured*, *well-bred*, *long-suffering*, *pen-holder*, *fire-proof*, *lock-smith*. In English compounds, the first element is generally accented, or pronounced more loudly and clearly than the others, which are pronounced less loudly and clearly than if they were used independently—that is, they are unaccented. The elements of a compound, especially the latter element, often lose the full meaning, or even alter the meaning which they have when they are used out of the compound. Thus, *table-spoon*, does not suggest *table*, and *landlady* suggests neither *land* nor *lady*; *warlike* does not mean *like war*; a single sentence may make a large book *harmful*; when we say *fulfil a duty*, we do not mean *fill a duty full*. Were it not for one or both of these two processes, the formation of the compound would never come about. The first, the subordination of one or more unaccented words to an accented word, is the chief

outward means of composition. The second process, the change or loss of independent meaning, causes compound words to be regarded as simple words; and while it completes the unity of the elements, tends to the change and shortening of the united whole. *Walnut*, from A.S. *wælnutt* = *foreign nut*; *orchard*, from A.S. *ortgard* = *root-garden*; *daisy*, from A.S. *dageseage* = *day's eye*, are examples of new words formed by fusion of the elements of a compound. It is a necessary step in the conversion of a member of a compound from a word into what is called a formative element, such as the last syllable of *fear-less*, *care-ful*, *live-ly*, *righteous* for *right-wise* (*wise* = *mode, manner*). The *-less* of *fear-less* is the A.S. *leas* = *free from*; so that we could scarcely talk of *supper-less* if we recollected its meaning. The *-ly* of *live-ly* is the Old English *-lich*, A.S. *lic* = *like*. So in past tenses the *-d* of *saw-d*, the *-ed* of *end-ed*, the *-t* of *lost*, is the relic of six forms meaning, *I did, thou did, etc.*, which appear in Mæso-Gothic as *-da, -des, -du, -dédum, -déduth, -dédun*. Observe that the loss of the personal endings necessitates the use of *I, thou (you), we, ye, you*. In participles, the *-ed, -d, or -t* corresponds to the *-tus, -ta, -tum, -ti, -tae, -ti, etc.*, of Latin passive participles formed from a very old suffix *-ta*, which is found separately in the English pronouns *the, that*. The nominative dual of the 1st and 2nd personal pronoun is in A.S. *wit, git* = *we two, ye two*. The French *aimerai* is the Latin *amare habeo*. The French adverbial termination *-ment* is from *mente*, abl. of *mens*. The Latin *amari* is *ama + fui*. The Latin *-bus*, as in *regi-bus* dat. and abl. plur., is probably connected with our *by*. As the examples show, forgetfulness of meaning is almost sure to be accompanied by change of form. Loss of independent meaning is not confined to parts of compounds, but affects auxiliary words.

The element of a compound to which the suffixes or prefixes are attached, and which conveys the central or fundamental idea of the word, is called the *root*. We get at the root by stripping off all the formative elements of a word, and making allowance for incidental changes of the root. To do this correctly and thoroughly requires often a considerable acquaintance with the old forms of a word, and with allied words in other languages. For instance, *head* is not a root, as may be seen from the A.S. *heaf-od*, Goth. *haub-ith*, Germ. *haup-t*, Lat. *cap-ut*, in which *-od, -ith, -t, -ut*, are suffixes, and the rest different forms of the same root, which means *to heave, to raise*, of which *cap* is the oldest. By comparing *father, mother, brother*, we may infer that *fa-, mo-, bro-*, represent roots which in their original form and sense, denoted states, qualities, or actions peculiar to parents or brothers; while from comparison of allied words in other languages, we learn that *-ther* is a suffix denoting one who does what is indicated by the root, i.e., an agent. This relation, except in words denoting kinship, is generally conveyed in English by the suffix *-er*, as *teacher, bowler*.

N.B.—We call words containing formative elements derivatives, and keep the term *compound* for the junction of words.

The importance of understanding the nature of suffixes, and the way in which they are generated, can be at once illustrated and enforced by the consideration that they enter so very largely into the constitution of all languages, except the Chinese, Siamese, and Burmanese, that all the rest have been called suffix-forming languages, in which nearly all the changes of words are due to the influence of suffixes upon each other and on the root.

From the number of instances in which we can trace a suffix back to an independent word, it is reasonably inferred that those which we cannot so trace such as the case suffixes, were originally independent words or primitive roots. The primitive roots of which grammatical roots are relics, differ in meaning from those of which the oldest suffixes are relics. The first are called verbal or **predicative roots**, and denote *state, quality, or action*. The second are called demonstrative or **pronominal roots**, and were used to express relation. Whether these last were ever verbal or predicative is uncertain. The term *verbal* is at this point somewhat misleading, because a *verb* is a *part of speech*, while, when language consists of uncompound roots, the distinction of parts of speech are unneeded and unknown. This can easily be illustrated by examples from English. Substantives are used as adjectives, as *gold watch, stone wall*; adjectives for substantives, as *our betters, the green*. Participles are adjectives, and get their special name because they agree to some extent, both in form and sense, with different verb-forms; this at once shows that the distinction between verb and adjective is not essential. In English, we form words from nouns on the analogy of participles, as *bearded, lettered, left-handed*; which illustrates the fact that the connection of participle and verb is not essential. We can even use verbs as participles, e.g., *put, shut, red*, having lost the old means of distinction; while in *to learn* and *to blast*, old participles from *lere* and *blaes* are used as verbs. Verbs can be used as nouns, as *a lift, a cut, a drive, a run, a walk*; while, again, nouns are freely used as verbs, as, *to worst a foe, to better oneself, to head an army, to cork a bottle, to water a garden, to pen a letter, to ice wine*. As for adverbs, conjunctions, and prepositions, most of them can actually be traced back to verbal or nominal forms, and interjections are so unimportant that they may be neglected. Thus, by the aid of the above illustrations, we can understand that there was a time when languages consisted only of verbs and nouns, without any formal distinction between the two classes. Either position in the sentence, or use of auxiliary words, or both, i.e. use, determined the part of speech, as is too frequently the case in English to need illustration.

What we call a verb can in several languages be divided into a noun and an existing pronoun; e.g. in Sanskrit, the language of which we have the oldest records except the Chinese, the third person of one of the future tenses is a verbal noun denoting an agent, while in—

tudā-mi, tudā-si, tudā-ti, *strike*;
yā-mi, yā-si, yā-ti, *go*;

we can infer that *-mi*, *-si*, *-ti*, are relics of pronouns used in an oblique case. So that the verb was originally—

{ striking of, or to, or at, me, thee, him, her, it, etc.; or }	
{ stroke	" " " " }
going	" " " " }

So far as the predicative roots are concerned, it is supposed that they originally were signs for indeterminate ideas, which were specifically limited and applied, first by position amongst other roots, as still in Chinese; afterwards by composition, especially with pronominal elements. I think, with Dr. Linclater, that the so-called verbal roots were originally names given to objects, and that subsequently the name of the object was used to imply its distinguishing property or action, or else its use.

Whatever was the origin of pronominal elements, we find, if we confine our attention to the group of kindred languages to which English and Latin belong, that the oldest and commonest suffixes which represent them indicate relative position; as, *ma*, *here* or *me*; *tra*, *near here* or *thee*; *ta*, *there* or *that*. From *ta* it is not easy to separate, as to original meaning, *a*, *an*, *as*, *ka*, *kra*, *na*, *ya*, *sa*, *sta*. A very few demonstrative words would be sufficient to express every variety of relation in space or time. Perhaps these could not be used as verbs, except for the verb *to be*, as in old Egyptian (Dr. R. Morris) and Coptic (Link. p. 63); but they were used as pronouns, adverbs, and conjunctions, according to their position and function in the sentence of which they formed a part. Again, the part of speech to which a predicative root corresponded would be determined by its position and function in the sentence. Students of Latin, however, are accustomed to other distinctions, namely, those of case, number, gender, mood, tense, and person. In English we have only one case, the genitive, only one person, the 3rd singular, and only one tense, the past, distinguished by change of the actual noun or verb, and we seldom indicate gender or mood in this way; so that we are prepared to hear that all grammatical relations can be expressed by independent, unchanged words. This is the case almost entirely in old Chinese, and it is all but certain that it has been the case in all languages.

But most languages have left this stage, which is called the isolating stage, and consequently three stages of language have to be distinguished.

The Isolating Stage, often called monosyllabic, from the monosyllabic character of old Chinese. In this stage roots may be used as words, each root preserving its full independence. In the second stage, called the **Agglutinative** (agglutino, *to glue on to*) or **Parathetic** (*παράθησις*, *I place side by side*), words are formed by an independent root, which retains its meaning, having one or more roots attached to it, so that they lose their independence. In the third stage, called **Inflectional** or **Synthetic**, words are formed by the

union of two or more roots, in which words all the roots lose their independence. *N.B.*—The power of forming compounds of whole words is always preserved.

Two families of languages are in this stage, the Indo-European and the Semitic. The grammatical structure of the two families is very different. It must be understood, that all roots have for their primary meaning some act or condition perceptible to the senses. All intellectual and moral ideas were expressed by using sensuous terms metaphorically. When we compare the inferred early meaning of roots with those of their different derivatives, most roots appear to have been very general in the notion signified, as well as indeterminate as to relation. This is natural, as the object of composition is the limitation of the ideas expressed by the principal element, and as the meaning of verbs and adjectives often changes from general to special, while names of objects are of course specialized. However, there are cases of both words and roots exchanging a special for a general meaning; e.g., *spac* is proved by Greek and German to have meant *to look out for*, but in Latin and Sanskrit its descendants = *see*.

It has been already mentioned that the predicative roots of the Indo-European languages are, as far as we can trace them, monosyllabic, while Semitic roots are dissyllabic; but there is a further difference, not comprehended in the above classification. The Semitic languages are distinguished for mainly employing internal variation of the root to indicate variation of meaning, while the Indo-European languages mainly employ suffixes, though they too exhibit internal variation of root in conjunction with suffixes; so that it is not yet settled whether the change of the root-vowel be intended to indicate change of meaning, or be due to the influence of the suffix on the sound. It is certain that reduplication of the whole or part of the root is significant, e.g. the Latin perfects, as, *dedi*, *I have given*.

Confining our attention now to the Indo-European family, we find that the languages which constitute it not only agree in general structure, but also in the most characteristic points of vocabulary.

We argue from the existence of different dialects among a people that once spoke one language (as known by historic evidence), from the greater similarity of the old forms than the young forms of like languages, and from two dialects of the same language occasionally exhibiting greater differences than dialects of different languages, that the likeness between languages is due to original unity of form, which implies common origin. That is to say, that the remote ancestors of the speakers of like languages must once have lived together in a limited area, since in early times the tendency to divergence of language was not limited by extended political union, facility of commercial and general intercourse, and literature.

Note that the term dialect cannot be rigidly distinguished from language, and that in the eyes of the student of language the speech of outlying districts is purer than, or at least as pure as, literary or standard language, which is itself a dialect.

The differences in other languages are partly due to variation in the construction of words, partly to loss of different words originally possessed in common, partly to each pursuing divergent paths in the transformation of words, which we have seen is inevitable. We cannot give reasons for the choice of different forms, and seldom for the loss of words. We cannot say why *axe* is *axis* in Latin, *ἄξων* in Greek, or why *month* is *mensis* in Latin, *maht* in O.H.G., or why *great* is *magnus* in Latin, *mikils* in Gothic. Again, we can seldom, except in the case of mixed languages, tell why a word has been dropt; but we may be sure that whenever a word is lost, unless the idea which it expressed were lost with it, its place must be supplied in some way.

Thus we cannot say why the Italians dropt the old words for *son* and *daughter*, and used *filius* and *filia* instead; or why the Greeks dropt the old form of *brother* and *sister*, and took to *adelphos*, *adelphē*; or why, again, the Romans dropt the 2nd person plural pass., and used a participle instead, as *legimini (estis)*; or dropt the old future, and either used the old optative or a new form in *-bo*, *-bis*, etc., from the root *bhu*, whence comes English *be*. We can give no reason why whole classes of forms have fallen into disuse, as English substantives in *-hed* or *-hood*, adjectives in *-some*, only leaving a few specimens, but we may be certain that the loss has been compensated. There may have been cases in which the process of alteration was felt to be overdone, and words dropt out of use owing to their being confused with other words; yet we can seldom be sure that this is so in any particular instance, as few languages scruple to retain in use several words of widely different meaning which have been reduced to the same form. Again, the sound may have become distasteful, and the word may have been superseded instead of being changed. Loss of words, then, is not necessarily due to the change in their form which has been illustrated. It is one result of the general tendency to change, and the result which is least susceptible of general explanation or classification.

Change in words, technically called phonetic change, is, roughly speaking, regular and uniform, not only in separate languages and dialects, but even throughout whole groups of languages. The observation and classification of such uniformities is a very important function of comparative philology, and, as will be seen, has established beyond doubt the relationship of languages so different as Welsh, German, Bohemian, Latin, and Sanskrit, and enabled us to distinguish families of languages which imply the common origin of the speakers. Thus philology renders important service to ethnology.

The question may naturally arise, how it is that we could illustrate the Isolating and Agglutinative stages by English examples. It is because English has lost nearly all its old suffixes, and thus has almost passed out of the Synthetic or Inflectional stage, so far as the expression of grammatical relation goes.

In order to make up for losses and to provide for new requirements, it has made a number of comparatively new compounds, many

of which have not got beyond the Agglutinative stage; while, owing to the loss of suffixes, it has to use auxiliary words and to confuse its parts of speech, etc., as if in the Isolating stage.

The English is called an analytical language, because it has replaced old synthetic forms by two or more separate words, for which analysis of the idea was once necessary; although now, 'to the man,' 'of the child,' 'I will go,' 'I should think,' are by habit joined in thought as completely as the idea of *viro*, *pueri*, *ibō*, *cogitem* or *cogitare*.

We have been using reconstructive processes to illustrate constructive processes. We can again employ English to furnish very conspicuous examples of destruction and change—of phonetic decay, as it is called. These we can detect by comparing modern English words with the corresponding Old English forms, and the forms of other tongues of which we have older records than of English, viz., Mæso-Gothic, Latin, Greek, Zend, and Sanskrit. *E.g.*, English *not* is for *naught*, Anglo-Saxon *na-wiht*; English *held* is for Anglo-Saxon *heold*, cf. Gothic *haihalb*; English *four*, Anglo-Saxon *feower*, Gothic *fidvor*; English *alm*, Anglo-Saxon *ælmesse*, borrowed from Greek *ἐλεημοσύνη*. The distinction between agglutination and inflection is not very definitely marked, but perhaps the most striking point of contrast is the much greater liability of inflectional words to unlimited mutilation.

In agglutinative words the root may change its form, but is tolerably safe from being confused with formative elements. This is to be explained by the fact that inflectional derivatives have come in to a greater degree than agglutinatives to be regarded as indivisible signs for integral conceptions. But, though to the greatest degree in inflectional languages, yet in all polysyllabic languages, and even in isolating languages, we find the reciprocal influence of a tendency to fuse in thought the ideas expressed by several signs into one determinate idea, and of a parallel tendency to fuse in utterance the several signs into one sign. It is just this unification of composite signs which makes the preservation of its form a matter of indifference, so long as the shortened form still suggests the idea, and which thus gives full play to the natural and the rational tendency of man to save breath, nervous energy, and time, gives scope for the indulgence of national or individual idiosyncrasies, and facilitates transference of meaning.

As words are made up of articulate sounds, and as change in words is very often the substitution of one sound for another, according to tolerably regular tendencies, the statements of which are called phonetic laws, it is necessary to know something of the nature of sounds in order to understand these laws satisfactorily.

Articulate sounds are produced by the emission of breath from the lungs, which passes up the trachea or windpipe through an opening in the larynx called the glottis, and so through the mouth, nose, or both. The glottis, in its normal state, and for hard

consonants, is, roughly speaking, a narrow, triangular opening, with its point to the front, just behind and below the Adam's apple. The sides are formed by elastic chords (covered with membrane). These chords, called the vocal chords, can be brought together so as to close the opening, in which case breath cannot pass without the chords vibrating, as for **soft** consonants; and when brought together they can also be stretched so as to vibrate regularly, and thus produce the musical sounds called **vowels**.

The articulatory organs are (a) fixed, namely, hard palate, upper teeth, and nose; (b) moveable—soft palate (which shuts off the back of the nose from the mouth), tongue, lower teeth (moveable with lower jaw), and lips. **Vowels** are formed by passing breath through the shut and stretched glottis, when there is an open position of the articulatory organs. **Consonants** are formed, if **momentary**, by an opening action of the articulatory organs previously closed so as to prevent the passage of breath; they are completed, if **continuous**, by an opening action of the articulatory organs, previously so far closed that the friction of breath passing through them is audible. If a momentary consonant is formed, and then a little breath escapes before another distinct sound is uttered, or before cessation of sound, the combined sound is called an **aspirate**, as KH, TH, PH. All consonants, except nasals, as M, N, are formed with the nose shut off by the soft palate. Nasals are formed by shutting up some part of the mouth and passing breath through the nose. **Consonants** which are formed in the same manner are **co-ordinate**; those that are formed with the same articulatory organs, or parts thereof, are called **cognate**. The tongue and palate are divided into three parts, for purposes of classification, namely, back, middle, and front. By bringing into contact or proximity the back of the tongue and the back palate, **gutturals** are formed,—K (Latin C) hard, KH hard aspirate, G soft, GH soft aspirate (all momentary), and the vowel A. With the middle of the tongue and middle of the palate, the English **ch** hard, J soft, momentary; with the front (tip) of the tongue and front palate, the English T hard, D soft, momentary, N nasal, and the true R and L. With both middle and front of each, S, Z, *sh*, Y, and vowel I. With the tip of the tongue and upper teeth, continental (Indo-European) T hard, D soft, DH soft aspirate, momentary, N nasal, English *th* (as in *thatch*, *thin*) hard, or (as in *than*, *then*) soft. The above are respectively **Back**, **Mid-Mixed**, and **Front** **Palatals**. With the lips, P hard, PH hard aspirate, B soft, BH soft aspirate (all momentary), M nasal, also labial F hard, V soft, and vowel U. These are **Labials**. With upper teeth and lower lip, the **Labio-Dentals**, English F and V. With lips and tongue, the **Labio-Linguals**, W (Latin consonantal V) soft, and HW or WH hard.

Phonetic change in words consists principally in **loss**, which needs no definition, and has been abundantly illustrated; and **assimilation**, by which a sound is changed so as to become like a neighbouring sound.

Assimilation is found very frequently when, in the formation of words, or owing to loss of intervening sounds, dissimilar sounds are brought into contact.

If the first sound is altered to suit the latter, it is called anticipatory or regressive assimilation, as *lectus* for *leg-tus*, *somnus* for *sop-nus*, *sella* for *sed-la*, *impotens* for *in-potens*.

If the latter sound be altered to suit the former, it is called progressive assimilation, as in *ossis* for *os-tis*, *facillimus* for *facil-timus*, *probbissimus* for *probis-timus*.

If both sounds are altered, it is called reciprocal assimilation, as in *suggillatio* for *sub-cilatio*, *jussus* for *jub-tus*.

Not only do consonants attract each other, but consonants attract vowels, as *vomo* by Greek *ἵπω*, *velle* for *volle*, *verto* for *vorto*, *hominis* for *homōnis*; vowels attract vowels, even over consonants, as *siam* for *siam*, *bene* for *bone*, *soluo* for *seluo*; and vowels attract consonants so far as to change hard consonants to soft, as in *viginti*, *fligitus*.

The influence of L, and N followed by another consonant, in changing a preceding vowel to U in Latin, cannot be satisfactorily explained, as in *papuli*, *pulsum*, *legunt*, *feriundi*, *homunculus*.

Dissimilation avoids recurrence of the same sound by changing one of them, as *cæruleus* for *cæluleus*, *equester* for *equet-ter*, *missus* for *mittus*. With respect to other changes, it is found that languages which have aspirates, as Greek, change non-aspirated consonants to aspirates, but not the reverse; that momentary sounds become continuous, but not the reverse, as is seen in English words taken from Latin, e.g. *recent*, *patient*, pronounced *räsent*, *pāshent*. That sounds pronounced at the back of the mouth are changed for sounds pronounced more in the front, as *popina* for *coquina*, *bos* for *gaus*, English *cow*. The guttural vowel A is changed to E, I, O, and U, but not the reverse. The Greeks changed the soft aspirates to the hard aspirates χ , θ , ϕ ; the Latins to H or F, or in the middle of words to the cognate soft unaspirated mutes G, D, B respectively.

The Teutons (like the Kelts and Persians) changed them to G, O, B, the mention of which change explains the whole set of Teutonic changes, and the consequent correspondences of Teutonic languages with other kindred tongues, the statement of which is known as **Grimm's Law**.

Students are warned that at present comparative philology offers no satisfactory evidence in favour of the original unity of all languages; on the other hand, the dissimilarity of various groups does not constitute a proof that all forms of speech have not sprung from one common source.

COLLEGE-EDUCATION AND SELF-EDUCATION.

A LECTURE

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I MAY take it for granted that all here present have thoroughly freed their minds from that narrow view of education which would make the word signify merely a customary course of training, during a certain period of life, in schools, academies, and colleges. We all know that the business of education, in its widest sense, is co-extensive with a man's life—that it begins with the first moment of life, and ends with the last; and that it goes on not alone in buildings like that in which we are now assembled, but in every combination of place, company, and circumstance, in which a man may voluntarily station himself, or into which he may be casually thrust. I may take it for granted, also, that we are all agreed that education, to be complete, must involve not only the process of the acquisition of knowledge or ideas, but also that of the formation of habits. Thus secure against misconception, I have the less hesitation in asking you to let go, for the while, these more comprehensive notions of what is meant by education, and to accept the word with me in a somewhat restricted sense. With your leave, I will here understand education as a process extending only over that preparatory period of life which, with young men, may be supposed to close about the twentieth or twenty-fifth year; and I will also understand the word as referring chiefly to those means, whether organized or casual, by which, during that period of life, knowledge is acquired and accumulated.

My question then, is, Can we classify those means? Can we enumerate and distinguish the various influences or agencies to the operation of which, successfully or contemporaneously, during the first twenty or twenty-five years of life, most of us owe the acquirements with which at the end of that time we find ourselves furnished, and to the varying power and proportion of which in different lives are owing the amazing differences, both in style and in strength of intellect, which we observe among men of the same age, and belonging, as it were, to the same wave? I think we can; and, availing myself of some former thoughts on the subject, which I have had occasion to express in another place and form,* I will make the attempt.

First of all, however, let us distinctly bargain that it is not *all* education. Supposing that at this moment I had before me, on these benches, three hundred young men, collected from different parts of the country and the world, all between the ages of sixteen and twenty-five, it would require but a glance round among them to convince me, that, however accurately and completely I might classify the miscellaneous educational influences to which they had been subjected up to the moment of my seeing them together, I should still have to fall back upon a solid substratum of assumed original difference upon which all subsequent differences had been built. I should see, in such an assemblage, great varieties of stature, form, physiognomy, complexion, and temperament. I should see some tall and strongly knit,

* The reference here is to an article contributed to a recent number of the *North British Review*, between which and the present Lecture there are occasional coincidences of thought.

others more delicate and nervous; some I should find of the dark or swarthy type, others blue-eyed and fair-haired, and others of intermediate shades of dark, ruddy, and fair. If I attended to minute differences, I should find no two in the assemblage at all alike. Now all this, with every allowance for the factitious nature of these differences, would be but a pictorial representation of the fact that, of all those three hundred youths, no two had come into the world with precisely the same faculties, possibilities, and tendencies. I might settle as I chose the question of *how* much, but that *so* much of the mass of intellectual difference before me was constitutional and prior to all education, I should be obliged to admit. In those three hundred youths I should have to recognize, so to speak, three hundred distinct fragments of a vanished and immeasurable past, deriving their peculiarities of shape and colour from trains of circumstances ascending inscrutably through the depths of that past, and, in virtue of those derived peculiarities, pre-related in various ways to the present and the future. In the swarthier visage and more flashing eyes of one I might discern southern or oriental birth and blood; in the fairer features of another I might be reminded of the colder north. The large bone of one might mark him out as a Scandinavian of the east coast; the fuller and less rugged outline of another might connect him, in my fancy, with the rich and sylvan English inlands. One might have more, another less, of natural force and grasp of mind. The constitutional aptitude of one might be for the harder exercises of the understanding; another might be ardent, impassioned, and imaginative. The disposition of one, born of a genial and affluent lineage, might be joyous, mild, and mirthful; another, carrying in him the uncanceled remains of ancestral crime or ancestral suffering, might be foredoomed to a life of irritability, gloom, and pain.

Once, however, having allowed for this substratum of constitutional difference among the three hundred objects of my curiosity, I should behold in them, with all their diversities of character, power, and accomplishment, at the moment of my first acquaintance with them, only the various results of certain processes of schooling to which all of them had been differently subjected from their infancy onwards, and which, working upon the foundation supplied by nature, had gradually formed them into what they were.

I should know, for example, that all those youths had, in the first place, received a certain portion of their most effective education, whether for good or evil, in what I will call the school of the family. The first school in which a man is bound to learn, and in which every man does, in spite of himself, learn more or less, is the school of his own ancestry, parentage, and kindred. There is no man, however strong his character, and however migratory his life, in whose mature manner of thought there are not traces of impressions produced on him by the family faces amid which he first opened his eyes, the family joys or griefs with which his childhood laughed or sobbed, the family stories and traditions to which his childhood listened. Happy they to whom this has been a kindly school—the homes of whose infancy have been homes of peace, order, and courtesy; over whose early years just fatherly authority and careful motherly gentleness have watched; in whose experience there has been no contradiction between the sense of right and the ties of blood; and who can look back upon progenitors remembered for probity, courage, and good citizenship, and round among living kinsmen well placed and well respected in the world. This is not the common notion of pedigree. That man were, indeed, little better than a liar, who, counting high historic names among his ancestors, should pretend to be careless of the fact; but the kind of pedigree of which we speak is to be found in the humblest lineage of the

land; and at this hour, over broad Britain, there are, as we all know, families neither rich nor noble, to have sprung from which and to have been nursed on their unrecorded fireside legends would for the purposes of real outfit in life, be better than to have been born in a castle and had the blood of all the Plantagenets. And yet, on the other hand, even those—and they are many—to whom this school of family and kindred has been a hard school, may there also have received many a powerful and useful lesson. Men do learn very variously, and there is an education of revolt and reaction, as well as of acquiescence and imitation. The training received in the school of family and kindred may not have been a genial or promising one; it may not be from the past in his own lineage that one can derive any direct stimulus or inspiration; the home of the early education may have been one of penury, chill, and contention—a veritable picture of a household with its household gods broken; and yet, even so, the culture may have been great and varied—albeit, sometimes, a culture of strength at the expense of symmetry.

From this school of family and kindred, all pass on to another school, still more extensive and influential—the school of what I will call native local circumstance. I have always felt disposed to attach a peculiar reverence and a peculiar sense of value to that arrangement, institution, or whatever you choose to call it, common to most societies, which we in Great Britain designate by the term, neighbourhood or parish. That every man should be related, and should feel himself related, in a particular manner, to that tract of earth which he is taught to regard as his parish, the assigned local scene of his habitation and activity on this side the grave, seems to me a natural and beautiful arrangement, which our political system would do well to respect, use, and consecrate. The limits of this smallest and most natural of territorial divisions may be variously defined. You may figure a parish as a tract of earth containing and supporting 2000 inhabitants—the ideal of a rural parish; or you may figure it as a tract of earth underlying the sound of a particular church-bell. That this smallest of territorial divisions should merge and fit into larger and still larger divisions—the district, the county, and so on—is also necessary and natural; but that a man's closest relations ought to be with his own parish and neighbourhood, that it is with the natural and social phenomena lying round him on this piece of earth that he is bound primarily to make himself acquainted, and that all the elementary requirements of his life ought to be provided for by apparatus there set up, seems to me sound doctrine. For a man not to be so locally related during at least a portion of his life—for a man to be shifted about in his youth from place to place, not remaining long enough in any to root his affections among its objects and details—seems to me a misfortune. In point of fact, however, few are in this predicament. Removal from one's native place is common enough, and is becoming more common; but almost all—including even those exceptional persons who, having been born at sea, are reputed to belong to the parish of Stepney—are located, during some part of their lives, in some one district, with the whole aspect and circumstance of which they become familiar, and which they learn to regard as native ground. Now, it is important to remark that there is no district, no patch of the habitable earth, in which a man can be placed and bred but there are within that spot the materials and inducements towards a very considerable natural education. Nay, more, there is, to all ordinary intents and purposes, no one district in the natural and artificial circumstance of which there is not a tolerable representation and epitome of all that is general and fundamental in nature and life everywhere. Take Great Britain itself. Every British parish has

its mineralogy; every British parish has its geology; every British parish has its botany; every British parish has its zoology; every British parish has its rains, its storms, its streams, and consequently its meteorology and hydrology; every British parish has its wonders of nature and art, impressive on the local imagination, and, in some cases, actually exerting a physical influence over the local nerve: and though these objects and wonders vary immensely, though in one parish geological circumstance may predominate, in another botanical, and in a third hydrological or architectural—though in one the local wonder may be a marsh, in another a rocky cavern, and in a third an old fort or a bit of Roman wall—yet in each there is a sufficient touch of what is generic in all. Over every British parish, at least, when night comes, there hangs—splendid image of our identity at the highest—the same nocturnal glory, a sapphire concave of nearly the same stars. Descend to the life and living circumstance of the community, and it is still the same. There is no British parish in which all the essential processes, passions, and social ongoings of British humanity, from the chaffering of the marketplace up to madness and murderous revenge, are not proportionately illustrated and epitomised. There is no British parish that has not its gossip, its humours, its customs, its oracular and remarkable individuals, its oddities and whimsicalities, all of which can be made objects of study. Finally, there is no British parish that has not its traditions, its legends, and histories, connecting the generation present upon it with the world of the antique. And, with some modification, it is the same, if, passing the limits of Britain, we extend our view to foreign lands and climes. The circumstance, physical, artificial, social and historical, of a district in Italy or in Spain, is largely different from the corresponding circumstance of a district in Britain; much more so the circumstance of a district in South America or Hindostan; and yet, generically, there is so much that is common, that, after all, a person educated in the midst of Italian or Spanish circumstance, has about the same stock of fundamental notions of things as an Englishman has, and that a Hindoo jest will pass current in Middlesex. Every man, then, learns a vast deal—a large proportion of all our surest knowledge is derived—from this education, which we all have, in spite of ourselves, in the school of native local circumstance. It appears to me that, in our educational theories, we do not sufficiently attend to this. It appears to me that, among all our schemes of educational reform, perhaps the most desirable would be one for the organization and systematic development of this education of local circumstance, which is, at any rate, everywhere going on. This, I conceive, is the true theory of the “teaching of common things.” Every child born in a parish and resident in it ought to have, as his intellectual outfit in life, a tolerably complete acquaintance with the concrete facts of nature and life presented by that parish; and in every parish there ought to be a systematic means for accomplishing this object. Every child ought to carry with him into life, as a little encyclopædia, a stock of facts and pictures collected from the scene of his earliest habitations and associations; ought to be familiar with that miscellany of natural and artificial circumstance which first solicited his observation in the locality where he was brought up—from its minerals and wild plants, and birds and molluscs, up to its manufactures, its economics, its privileges and bye-laws, and its local mythology or legends. A reformed system of parochial education ought to take this in charge, and to secure to the young some instruction in local natural history, local antiquities, local manufactures and economics, and local institutions and customs. Meanwhile, in the absence of any systematic means of accomplishing the object, we see that everywhere healthy boys do, by their own locomotion and inquisitiveness, contrive to acquire a stock of concrete local fact and

imagery. We see them roaming over the circle of their neighbourhoods singly and in bands—ascending hills, climbing trees and precipices, peeping into foundries, workshops, and police offices—peering, in short, into everything open or forbidden to them, and in the most literal sense of the phrase, pursuing knowledge under difficulties. And here, accordingly, in addition to constitutional difference and the difference of family schooling, is another source of the intellectual diversity we find among grown-up men. The education of local circumstance, as we have said, is by no means necessarily a narrow education; all that is general and essential everywhere, whether as respects the main facts of nature or the habits and laws of the human mind, is repeated in miniature in every spot. Kant never slept out of Königsberg; and Socrates never wished to go beyond the walls of Athens. Yet, on the other hand, difference of local educating circumstance is one of the causes of difference of intellectual taste and style in mature life. No two districts or parishes are precisely alike in their suggestions and intellectual inducements. Some localities, as we have said, allure to geology, others to botany, others to fondness for landscape and colour, others to mechanics and engineering, others to archaeology and historical lore. Of those supposed three hundred youths, for example—even omitting such of them as had been born and brought up abroad, amid scenes, and a vegetation, and costumes, and customs, ay, and under constellations different from our own—hardly any two of the British-born would be found trading intellectually, so to speak, on the same stock of recollected facts and images. Some might have been born on the sea-coast, and the images most familiar to their memories would be those of rocks, and shingle, and a breaking surf, and brown fishing boats, and gulls dipping in the waves, and heavy clouds gathering for a storm.

"I see a wretched isle that ghost-like stands,
Wrapt in its mist-shroud in the wintry main;
And now a cheerless gleam of red-ploughed lands,
O'er which a crow flies heavy in the rain."

Others might have been born and bred in sweet pastoral districts, and the images most kindly to their fancy would be those of still green valleys, and little streams flowing through them, and flocks, led by tinkling sheep-bells, cropping the uplands. Others might be natives of rich English wheat flats; others of barren tracts of hill and torrent. Some might have been born in provincial towns, where the kinds of circumstance peculiar to street-life would preponderate over the purely agricultural or rural; others might be denizens of the great metropolis itself, with its endless extent of shops, warehouses, wharves, churches, and chimneys. In large towns, and, above all, in London, it is needless to say, the fact to be noted is the infinite preponderance of artificial and social circumstance over that of natural landscape, and its infinitely close intertexture. The spontaneous education there, accordingly, is chiefly in what is socially various, curious, highly developed, comic, and characteristic. So strong, however, is the instinct of local attachment, that natives of London do contract an affection for their own parishes and neighbourhoods, and an acquaintance with their details and humours, over and above their general regard for those objects which claim the common worship of all. In short, however we turn the matter over, we still find that a large proportion of the most substantial education of every one, consists of this unconscious and inevitable education of local circumstance; and that, in fact, much of the original capital on which we all trade intellectually during life, is that mass of miscellaneous fact and imagery which our senses have taken in busily and imperceptibly amid the

scenes of their first exercise. In the lives of most men who have become eminent, whether in speculative science or in imaginative literature, a tinge of characteristic local colour may be traced to the last. Adam Smith meditated his "Wealth of Nations" on the sands of a strip of Fifeshire sea-coast, and drew the instances which suggested the doctrines of that work to his own mind, and by which he expounded them to others, from the petty circumstance of a small fishing and weaving community close by. And in Shakespeare himself, widely as his imagination ranged, it will be found that, in his descriptions of natural scenery at least, large use is made of the native circumstance of his woody Warwickshire, with its elms, its willows, its crow-flowers, daisies, and long-purples. However migratory a man has been, and however thickly, by his migrations, he may have covered the tablets of his memory with successive coatings of imagery, there are times when, as he shuts his eyes, all these seem washed away, and the original photographs of his early years—the hill, the moor, the village-spire, the very turn of the road where he met the solitary horseman—start out fresh as ever. Nay more, it will be found (and this is a fact of which Hartley and his laws of the association of ideas have never made anything to the purpose) that perpetually, underneath our formal processes of thinking, apparently independent of these processes, and yet somehow playing into them and qualifying them, there is passing through our minds a series of such unbidden reappearing photographs, a flow of such recollected imagery.

So much for this school, on which I have dwelt so long simply because, in doing so, I have accomplished half my exposition. I will now name together three other schools, which come next in theoretical order, though, in fact, they and the last are often attended simultaneously. These are—the school of travel, the school of books, and the school of friendship. Under the head of the education of travel I include, as you may guess, all that comes of migration or change of residence; and my remarks under the former head will have enabled you to see that all this, important and varied as it may seem, consists simply in the extension of the field of observed fact and circumstance. All the celebrated effects of travel, purely as such, in enlarging the mind, breaking down prejudice, and what not, will be found to resolve themselves into this. If I pass now to the education of books, here also I find that the same phrase—extension of the field of circumstance—answers to a good deal of what this education accomplishes. Books are travel, so to speak, reversed—they bring supplies of otherwise inaccessible fact and imagery to the feet of the reader. Books, too, have this advantage over travel, that they convey information from remote times as well as from distant places. "If the invention of the ship," says Bacon, "was thought so noble, which carrieth riches and commodities from place to place, and consociateth the most remote regions in participation of their fruits, how much more are letters to be magnified, which, as ships, pass the vast seas of time, and make ages so distant to participate of the wisdom, illuminations, and inventions, the one of the other!" In these words, however, there is a suggestion that the education of books consists not alone in the mere extension of the field of the concrete. Books admit us to the accumulated past thought, as well as to the accumulated past fact and incident of the human race; and, though much of that thought—as, for example, what comes to us in poetry—consists but of a new form of concrete (the concrete of the fantastic or ideal), yet a large proportion of it consists of something totally different—abstract or generalized science. It is in the school of books, more particularly, that that great step in education takes place—the translation of the concrete into the abstract;

the organization of mere fact and imagery into science. It is in conversation with books, more particularly, that one first sees unfolded one by one, that splendid roll of the so-called sciences—mathematics, astronomy, mechanics, chemistry, physiology, moral science, and politics, with all their attached sciences and sub-divisions—in which the aggregate thought of the human race on all subjects has been systematized; and that one first sees all knowledge laid out into certain great orders of ideas, any one of which will furnish occupation for a life. This great function, we say, peculiarly belongs to books. And what shall we say of the education of *friendship*? In what does this consist, and what does it peculiarly achieve? It consists, evidently, in all that can result, in the way of culture, from a closer relation than ordinary with certain selected individuals out of the throng through which one passes in the course of one's life. It is given to every one to form such close sentimental relations with perhaps six or seven individuals in the course of the early period of life: and these relationships—far easier at this time of life than afterwards—are among the most powerful educating influences to which youth can be subjected. Friendship educates mainly in two ways. In the first place, it educates by disposing and enabling one to make certain individual specimens of human character, and all that is connected with them, objects of more serious and minute study than is bestowed on men at large; and, in the second place, it takes a man out of his own personality, and doubles, triples, or quintuples his natural powers of insight, by compelling him to look at nature and life through the eyes of others, each of whom is, for the time being, another self. This second function of friendship, as an influence of intellectual culture, is by far the most important. There are, of course, various degrees of friendship, and various exercises of it in the same degree. There is friendship with equals, friendship with inferiors, and friendship with superiors. Of all forms of friendship in youth, by far the most effective, as a means of education, is that species of enthusiastic veneration which young men of loyal and well-conditioned minds are apt to contract for men of intellectual eminence within their own circles. The educating effect of such an attachment is prodigious; and happy the youth who forms one. We all know the advice given to young men to "think for themselves;" and there is sense and soundness in that advice; but if I were to select what I account perhaps the most fortunate thing that can befall a young man during the early period of his life—the most fortunate too, in the end, for his intellectual independence—it would be his being voluntarily subjected, for a time, to some powerful intellectual tyranny.

Having thus sufficiently illustrated the idea that it is not in one school, but in a plurality of schools, each having a characteristic effect, that a man receives his education, and having named some of these schools, I am in a position to consider more particularly the nature of that education which is supplied by one of the schools mentioned—the school of books. I have already said enough to show that, of all the varieties of education capable of being separately regarded, this education of books, in the matter of intellectual cultivation at least, deserves to stand paramount. As the depositories of the past thought and experience of the human race, books do yield us our largest supplies of knowledge. It is chiefly in books, too, as we have said, that we find that immense operation already performed to our hands—the distribution of knowledge into certain grand orders or progressions of ideas, called sciences. But, besides this, it will be found, I think, that the school of books performs a collateral function in regard to the other schools, and that only those who have been pupils in it can enjoy the higher education furnished by the others. It will be found, I

think, that it is not the illiterate but the instructed inhabitants of a parish that have the full benefit of intimacy with its physical, its social, or even its legendary circumstance. An illiterate native of Stratford-on-Avon is dead to almost all that education which lies over and around the town in virtue of its having been the birthplace of Shakespeare; a boor dwelling by Stonehenge drinks no instruction from its mysterious monuments; and the human beings that nestle in the clefts of the Alps themselves are among the most mean and soulless of their kind. So with the school of travel. You know the hero of Wordsworth's tale,—

He, two and thirty years or more,
Had been a wild and woodland rover;
Had heard the Atlantic surges roar
On farthest Cornwall's rocky shore,
And trod the cliffs of Dover.

He had travelled twenty times over all Britain, in fact; and what was the result?—

He roved among the vales and streams,
In the green wood and hollow dell:
They were his dwellings night and day—
But Nature ne'er could find the way
Into the heart of Peter Bell.

So, also, with the school of friendship—here, too the illiterate are bad pupils. No wonder, then, that the word education has come to be applied, peculiarly, to the education of books, and that what is called the educational apparatus in every modern society is, in the main, an apparatus set up to facilitate and systematize the study of books. As we have said, we are, perhaps, wrong in this; and it may well be made a question in the highest view of education, whether in our educational system, we do not attend too exclusively to literary and scientific accomplishment. Still we see that our instinct, in this respect, has some defence in reason.

Let me repeat what I have just said. In point of fact, in this and every other civilized country at the present moment, all our educational apparatus, recognized as such, is an apparatus for systematizing and facilitating the study of books. All our schools, all our colleges, all our libraries—almost everything, in fact, that we recognize as an educational institution, with the partial exception of recently founded industrial schools and schools of practical art—are but a machinery for forwarding what may be called book-education. Here, however, we must make a distinction. This extensive machinery of book-education, which is set up amongst us, consists of two portions. One portion has for its object simply the effective teaching of the art of reading, with its usual adjuncts; another has for its object the guidance of the community in the use of that art, when it has been acquired. Let us say that the first function is performed by the *schools* of the country, and that the second is reserved for the *colleges* of the country. This does not exactly accord with the fact—many of our so-called schools going far beyond the mere teaching of reading and writing, and undertaking part of the duty we have assigned to colleges; and many of our so-called colleges, alas! having devolved upon them too much of the proper drudgery of schools. For our purposes, however, the distinction may very well be so expressed.

It is the business of the schools of a country, then, let us say, to impart to the youth of that country the accomplishment of perfect and easy reading in the vernacular, with the correlative of writing in the same. This, if an elementary, is a grand function. Teach a man to read and write per-

fectly, and the rest, generally speaking, is in his own power. He is no longer a Helot; you have put him in possession of the franchise of books. With this possession, and with such access as he may have to libraries, he may be anything he pleases and has faculty for. By reading in one direction he may make himself a mathematician; by reading in another he may become an adept in political economy; by reading in many he may become a variously cultured man. The accomplishment of perfect and easy reading in one's own language is, after all, the grand distinction between the educated and the non-educated. There are, indeed, degrees and differences among those above this line; but between those above it and those below it, there is a great gulf. And here we come in sight of a notion which seems to me of immenso importance in connection with our schemes of national education. If we will have no concern with a national school system which does not secure that all the young members of a community shall be instructed in certain orders of ideas, then we may be engaged in a very noble labour; but, it seems to me, we are engaged in a very vast and very long one. But if we pitch our ideal lower, if we will be contented, in the first instance, with a national school system pretending to be nothing more than an apparatus for thoroughly accomplishing the one good object of teaching all the boys and girls in the community to read and write—then I see hope. I would proclaim it, in fact, as the primary function of a national school system—other things, of course, reserved—to impart to all the children in a community the full franchise of books. How far we are from even this moderate attainment in our land, who does not know? And yet we debate, and delay, and wrangle; we will have this, we will have that; we will have so many things, that we do nothing. It is our disgrace as a nation. Again and again, and again, I think that, if but twelve of our leading men were to give themselves up to this as the work of their lives—the setting up in our parishes of such an apparatus as would render it impossible for any child born on British ground to grow up untaught to read and write—the thing would be done before twelve years were over. O! is it come to this, that a nation which, by its cash and courage exported to the ends of the earth, can blow up a colossal citadel, and reorganize a foreign peninsula, cannot educate its own little ones?

Once in possession of the franchise of books, a man, as we have said, has, generally speaking, the rest in his own power. There is no limit to what, with talent and perseverance, he may attain. He may become a classical scholar and a linguist; or he may grow eminent in speculation and the sciences. We have instances in abundance of such perseverance; and we have a name for those who so distinguish themselves. A person who, availing himself of the spontaneous means of education afforded by the other great schools which we have enumerated—the school of family, the school of native local circumstance, the school of travel, and the school of friendship; and having, also, somehow or other, been put in possession of the franchise of books—conducts the rest of his book-education himself, and conducts it so successfully as to become eminent, is called a self-educated man. Society often distinguishes between self-educated men and men who are college-bred—that is, who have not only been taught to read and write in plain schools, but have had the benefit, for a certain period of their more advanced youth, of that higher pedagogic apparatus, which directs and systematizes reading, and, to some extent supersedes its use by imparting its results in an oral form. Now the question has been raised, whether this higher pedagogic apparatus—whether colleges, in fact—are really of so much use as has been fancied; and whether it would not be enough if, in these days, pedagogy were to stop at the first stage, that of thoroughly

teaching the mechanical art of reading, and were then to turn the youth of a community so instructed loose upon the libraries and the miscellaneous teaching of life. This question is gaining ground, and not without apparent reason. Of the men of our own day who are eminent in station, influential in society, and distinguished in art, science, and letters, there are many who have not received what is generally called an academic education. I have only to glance round among those who are at present conspicuous in the various departments of British literature, and I find not a few who never studied in any university. And so if I look back upon the past. The very king, the unapproachable monarch, of our literature, was a Warwickshire man, who had little Latin, less Greek, and, perhaps, no mathematics. True, the larger number of those examples of intellectual eminence attained without academic education, would be found to be not properly self-educated men, in the precise sense in which we are now using the term, but, to some extent, college-bred. Over Great Britain, and in England, in particular, there are hundreds of public schools and private seminaries which do, though not to the same length as the great universities, perform the functions, as we have defined them, of colleges; and it is in these that by far the largest proportion of young men even of well-circumstanced families are educated. Shakespeare was taught at the grammar-school of his native town, where the boys at this day wear square academic caps, whatever they did in his; so that the proper measure of Shakespeare's education, even scholastically, is that he was carried as far on by the pedagogy of his time as at least ninety-nine per cent. of his contemporaries. Perhaps the number of self-educated prodigies, in the present restricted sense of the term, is not so great as supposed. Still, there are examples of eminent men self-educated even in this extreme sense of the term—that is, of men who having received absolutely nothing from formal pedagogy but the plain faculty of reading and writing, if always that, have acquired all their subsequent book-education privately for themselves. Seeing that there are such men—seeing that, by simple perseverance in reading books, results seem to be arrived at about equal in the main to what a regular college-education would bring about, the question may again be asked, whether, after all, a college-education merits the respect so long accorded to it? Your presence here presumes, I believe, that you are convinced it does; I will conclude my lecture, however, with one or two remarks which may, perhaps, express more particularly your views on the subject.

Observe, the question is not whether certain more prominent institutions of the country, styled and chartered as colleges—those included in the Universities of Oxford, Cambridge, and London, for example—deserve the respect accorded to them. The question does, indeed, refer to those great chartered institutions, but not exclusively. Observe, also, the question is not as to the present system of these or any cognate institutions—the nature and course of the studies pursued in them, or the adaptation of these studies to the wants of the age. The question simply is whether, when a community has, by one set of educational apparatus, called schools, put its young men in possession of that faculty of reading and taste for the same, which are the key to all the knowledge contained in books, it may then leave them to their own private perseverance, according to their inclinations and opportunities; or whether finer results may not be attained by handing them over, at this point, to another and a higher kind of educational apparatus, called colleges, which will take charge of them a few years longer, assist them in their first inroads upon the vast mass of thought and knowledge accumulated in books, and, in part, supersede and supplement that method of acquiring knowledge by oral instruction.

In the first place, then, colleges fulfil this important function—that they guarantee to society a certain amount of competency in certain professions in which previously guaranteed competency is necessary. The professions most ostensibly in this predicament are those of law, theology, and medicine; but there are numberless other professions for the efficiency and respectability of which a certain amount of attested general acquirement, as well as of special professional training, in those who engage in them, is absolutely requisite. This function of insuring society against the intrusion of quacks and ignorant pretenders into important professions, is performed, as well as it admits of being performed, by colleges. Before a man can legally practice medicine, for example, it is required that he shall have attended courses of lectures, not only in what appertains to medical science, but also in those general subjects which enter into a liberal education. And so, in various ways, and under various forms of regulation, with other professions. Now, it is certainly possible that the same result might be attained by other means. The professions might be thrown open to all comers; they might cease, so far, to be corporations; all men might be admitted to practice medicine or any other profession, provided they gave evidence of ability for such practice, anyhow attained; and this might be tested by a system of examinations calculated to ascertain the competency of candidates without inquiring by what means they had become competent. I think I see a tendency in this direction; I know not how far it will go, but, as matters now are, I believe no security for professional qualification could be devised that could wholly dispense with the plan of college certificates—the principle of which is that they attest that candidates have been at least physically detained, for a certain period of time, in places where the required knowledge was to be had, so that they must have been impervious indeed not to have imbibed some of it.

This suggests an extension of the same argument. It is not only with a view to professional qualification that persons are the better for being detained, whether they will or not, in places where knowledge is systematically administered. Indolence, love of amusement, preference for the pleasant, the trivial, and the immediate, over what is important, substantial, and lasting, are besetting sins even in manhood; but in youth they are especially natural. If a body of young men, fresh from school, were turned loose upon the huge library of printed literature to find their way into it and through it, as they like, many of them, doubtless, would prove insatiable readers; but it is questionable whether many of them, of their own accord, would choose the right directions, or would pursue their reading beyond that point where toil and patience began to be requisite. The spirit of competition, the chance of those prizes which society confers on attainment, might, indeed, spur the ardent to exertion, and make them exchange the pleasant for the difficult; and the mere progressive search after interesting books, would lead others, by a zig-zag course, from the lower to the higher kinds of literature—from Rosa Matilda novels to the novels of Scott and Richardson; from Anacreon and Peter Pindar to Sophocles and Milton; from jest books to Swift and Addison; from the daily or weekly newspapers to Gibbon or Macaulay. But what is clearly wanted is a kind of intellectual generalship, if we may so speak, that shall muster youth in front of the masses of literature which have to be pierced through and conquered; drill them; infuse a bold spirit into them; point out to them the proper points of attack; the redoubts where glory is to be won; and, while leaving them as much scope as possible for individual energy and inclination, lead them on, according to a plan, in regular order and column. This duty is undertaken by colleges. There young men are assembled in classes, the business of which has been arranged, however imperfectly, according to an idea of the best manner in which

knowledge may be partitioned; they are obliged to be present so many hours a-day in the selected classes, and there to hear lectures on various subjects deliberately read to them, whether they will or not: and thus, as well as by the discipline of examinations and the like, certain orders of ideas as well as certain intellectual tendencies are worked into them, which they could not otherwise have acquired, and which place them at an advantage, all the rest of their lives. That I have not exaggerated this use of colleges, I believe observation will prove. I believe it will be found that many of our first speculative and scientific minds have derived the special tendencies which have made their lives famous from impulses communicated in colleges. I think also it will be found that strictly self-educated men—of course I except the higher and more illustrious instances—do not, as a body, exhibit the same tenacity and perseverance in pushing knowledge to its farthest limits as academic men of equal power. Their disposition, in most instances, is to be content with what I will call proximate knowledge—that which lies about them and can be turned to immediate account. It is in current politics, in general literature, and in popular matter of thought, that they move and have their being; upon the laborious tracks of abstract science, or of difficult and extreme speculation, they do not so often enter. Or, if occasionally, we do see a self-taught geologist, a self-taught botanist, or a self-taught mathematician—then, not unfrequently, there is an egotistic exultation over the labour gone through, and an exaggerated estimation of the particular science overtaken in its relations to the whole field of knowledge. There is too much, so to speak, of the spirit of the private soldier, whose idea of the field is but the recollection of his own movements. There are, I repeat, examples of self-educated men of so high an order as to be free from these faults. Still I believe what I have said will be found, in the main, correct. Nay, abroad in society generally there is, I believe, too much of that spirit of contempt for the high, the profound, and the elaborate, in the way of speculation, which the worldly success of half-taught men of good natural abilities is calculated to foster. You will meet in society many really clever and ingenious men, who have a spruce way of talking of what is to them behind the curtain. Formal Logic, High Art, Conic Sections, Syllogisms, Aristotle's Categories, the Objective and the Subjective, the Theory of Hurricanes, the Philosophy of the Unconditioned—these and other such phrases they sneer at in the most decisive manner. Why cannot men say what they have got to say in plain English? is their usual way of putting the question. Now, from persons who understand what they thus sneer at—who know a syllogism when they see it, and could repeat Aristotle's Categories—all this is very well; but from those who do not, it is intolerable. It is the mere conceit of ignorance. Plain English! "The asymptote of a hyperbola"—put *that* into plain, English! "The square of a semiordinate to any diameter is equal to the rectangle under the parameter of that diameter and the corresponding absciss"—express *that* in plain English, if you can! These are examples from one science: but they teach the general lesson, that every science must be allowed its own language, and it is not for those who are outside the temple of Philosophy to settle the terms on which its votaries shall be initiated. To pedantry or mystification let there be no mercy; and whoever, in talking to a child, cannot use words of one syllable, by all means let him pay the penalty. But men do not always talk to children; and when they talk to each other at their highest strain on great subjects, they will best settle their own mode of procedure. This, accordingly, is one use of colleges—that, by accustoming young men to the forms of high science, they kill in them this unseemly conceit in proximate knowledge, and foster in its stead a reverence for the lofty, the difficult, and

the elaborate; and that, by training them in various courses of knowledge at the same time, they cultivate in them also a spirit of intellectual generality. And so, irrespective of their effects on the professions, colleges tend to keep up a high intellectual standard in a community, and to increase the number of strictly and variously cultivated men.

Again, even supposing that men could map out the field of knowledge for themselves, determine at a glance into what great orders of ideas the past thought of the human race could be best distributed for the purposes of study, and spontaneously go to work upon these in the right spirit, still, in the detailed prosecution of any study by means of books, assistance would be necessary. Accordingly, one use of colleges is that they direct and systematize reading. The art of recommending good books, and of leading on from one book to another, is one of the most useful qualifications of a teacher, and it may be carried to extraordinary perfection. Perhaps, indeed, we do not sufficiently attend to this function of colleges; perhaps we do not sufficiently attend to the fact that, since colleges were first instituted, their place in the general system of education has been greatly changed. When colleges were first instituted, books were scarce and difficult of access; men were then their own encyclopædias; and every Thomas Aquinas, Duns Scotus, or other ornament of a university, was bound to be a walking incarnation of the *totum scibile*. Hence a course of lectures in those days was expected to be—whatever might be its other merits—a digest of all accessible information on the subject treated. Now, however, that there exist, on all subjects, books, which it is impossible for even the best living thinker wholly to supersede, such lectures of a mere digest and detail are out of place; and the business of teachers is rather to direct the reading of the pupils, and to reserve their original disquisitions for those points where they can hope to modify and extend what has been previously advanced. I am not sure, as I have said, that we take this fact of the changed function of our colleges, consequent upon the enormous increase of books, sufficiently along with us in our practice.

If, in this respect, however, colleges have undergone a change of position, there is another respect in which they offer the same advantage as ever. Quite as much now, as in those remote times when colleges were first set up in Europe, they afford to youth that highest of all educational privileges—the chance of coming into personal contact with men either of original speculative power in their several departments, or of unusual fervour and enthusiasm, kindling into zeal all that come near them, and imparting life and fire to all that they touch. I have spoken of the wonderful efficacy of this influence casually encountered in society; but it is the very nature of colleges to concentrate it and make it accessible. Besides, the preceptorial relation is undoubtedly that in which this influence acts most intensely. What a privilege to have listened to the disquisitions of Reid or Adam Smith! What a stream of men, notable in the intellectual and political world, some of them still alive, came forth from the class-room of Dugald Stewart! I speak feelingly on this matter; for, in my own experience, I have had occasion to know the singular power of this element of education. I could count up and name at this moment some four or five men, to whose personal influence, experienced as a student, I owe more than to any books, and of whom, while life lasts, I will always think with gratitude. The image of one silver-haired old man, in particular, now rises before me—a man not unknown in the history of his country—to whose memory, amid changing forms of fact and thought, I pay my poor tribute of undying veneration. Never, never to be forgotten, that face, that form, gazed on so long! Cold now he lies in a northern grave; and abroad over the British earth, walk

thousands who, with me, once listened to his voice; and who, when they too are old and move heavily, will look back, back through the mist of years, fondly towards him, and the distant time.

Finally, I believe there is something in the oral method of conveying knowledge, whether after the tutorial or after the professorial fashion, but, perhaps, most effective in the latter, which fits it to perform certain offices of instruction far better than they could be performed by private communion with books. I will not enlarge on this topic. I will only say, that it appears to me that the forms and circumstantialities of oral teaching are such, that anything in the shape of a general doctrine or principle is far more expeditiously and impressively inculcated in this mode, through the ear, than it can usually be taken in through the eye; and that, consequently, any science, such as political economy, the proper teaching of which consists in the slow infiltration into the minds of the pupils of a series of such general doctrines, one by one, as well as those parts of all science which consist of massive single propositions, can be best taught by lectures and examinations. Curiously enough, this is precisely that function of colleges which, after the revolution in our educational system caused by the increase of books, would still, at any rate, be reserved for them.

It were wrong, however, to end on this key. One of my colleagues, as many of you know, is in the habit of inserting in the prospectus of his classes, a caution that he cannot guarantee the proficiency of his students, unless the work done in the classes is supplemented by diligent and continuous reading at home. I am sure we all endorse this caution. And what does it mean but this, that, after all, self-education is the main work, and college education but a help to it? And so, Gentlemen-students, whatever advantages your connection with this institution may give to you, you are still cast back, with the rest of the world, on your own energy and resources, your own docility and quickness in those great schools which are open to all—the school of family, the school of surrounding nature and life, the school of travel, the school of friendship, and the school of books. Even in direct connection with this college, you have some special facilities for self-education, of which you will do well to avail yourselves. There is a library, where means and appliances for private study are not wanting; and in your literary and debating societies you have opportunities for calling forth an influence of reciprocal action, to which I, for one, assign great value—that of emulous, yet genial intellectual companionship. Use these means in their degree and place. Let us enter on the duties of this session with zeal; and may its results prove that, though there never was a man of any intellectual worth who was not, in the truest sense, self-educated, yet colleges are of some use!

APPOINTMENTS

Sanctioned by the Director of Public Instruction, during the month of June 1883.

Krishnamaswami Aiyar, 2nd Clerk, to be *Sub pro tem*, Head Clerk of the Office of the Inspector of Schools, 3rd Division.

T. M. Appu Nedungudi, B.A., to act as 2nd Assistant, High School, Cannanore, vice A. Anantakrishna Aiyar, on other duty.

M. G. Kannan Nambiyar, B.A., to be *Sub pro tem*, 4th Assistant of the Tellicherry High School.

K. Singara Chari, 3rd Assistant, High School, Saidapet, to act as Deputy Inspector of Schools, Ongole Range, during the absence of C. Kotayya Chetti, on leave.

S. V. Melagiri Rau, 3rd Assistant, Kurnool High School, to act as Deputy Inspector of Schools, Cuddapah Range, during the absence of V. Krishnayya, on leave.

U. Raghavendra Rau, 3rd Assistant, Mangalore College, and *Sub pro tem*, 2nd Assistant, Bellary College, to be *Sub pro tem*, Head Master, High School, Cannanore.

LEAVE.

Extension of two months leave to E. Jagannayakulu, Head Master, Middle School, Kasimkot.

Privilege leave for 1 month to T. Sitaramaswami Pantulu, Deputy Inspector of Schools, Northern Range, Vizagapatam.

Privilege leave for 3 months, to M. Gopala Rau, Deputy Inspector of Schools, Bezwada Range.

Leave on Medical Certificate for 45 days, to V. Krishnamurti Pantulu, *Sub pro tem*, 4th Assistant of the Berhampore College.

Privilege leave for 3 months, to V. Krishnayya, Deputy Inspector of Schools, Cuddapah Range.

Extension of 10 days leave to T. Srinivasa Chari, Deputy Inspector of Schools, Masulipatam Range.

Leave on private affairs for 4 months, to P. Appalanarasayya, Head Master, Bimlipatam Middle School.

July 1883.

R. V. Srinivasa Aiyar, B.A., 3rd Assistant, to be 2nd Assistant, Kumbakonam College.

B. Hanumanta Rau, B.A., 4th Assistant, to be 3rd Assistant.

N. Vaidyanatha Aiyar, M.A., 5th Assistant, to be 4th Assistant, and Acting 2nd Assistant.

S. Ramadas Aiyar, B.A., 1st Assistant, Salem College, to be 5th Assistant, and Acting 3rd Assistant, Kumbakonam.

K. Sundararama Aiyar, M.A., to be 6th Assistant, and Acting 4th Assistant.

S. Narayanaswami Aiyar, B.A., 2nd Assistant, Calicut College, to be 7th Assistant, and Acting 5th Assistant.

R. Chakravarti Aiyangar, B.A., 1st Assistant, High School, Saidapet, to act as 6th Assistant, Kumbakonam.

K. R. Duraiswami Aiyar, B.A., 3rd Assistant, Cuddalore College, to act as 7th Assistant.

S. Mangesha Rau, B.A., 1st Assistant, Mangalore College, to act as Head Master, High School, Cuddapah, during the absence of Dr. Burroughs, on other duty.

U. Krishnayya, B.A., 2nd Assistant, Mangalore College, to be 1st Assistant, Salem College, but to act as 1st Assistant, Mangalore.

N. R. Subba Rau, B.A., 1st Assistant, Palghat High School, to be 2nd Assistant, Mangalore College, but to continue to act at Tellicherry.

K. Visweswara Rau, B.A., 4th Assistant, Mangalore College, to act as 2nd Assistant.

Mr. J. M. Hensman, B.A., Head Master of the Berhampore College, to act as Head Master, Cuddalore College.

Mr. D. Joseph, B.A., 1st Assistant, Calicut College, to act as Head Master, Tellicherry High School.

N. Vencoba Rau, 4th Assistant, to act as 3rd Assistant, Salem College.

S. Kallapiran Pillai, 6th Assistant, to act as 4th Assistant.

R. Koneti Aiyar, to act as 6th Assistant do.

M. Deba Rau, 2nd Assistant, High School, Chittoor, and Acting 1st Assistant, High School, Cuddapah, to act as 2nd Assistant, Bellary College.

A. David, B.A., 2nd Assistant, to act as 1st Assistant, High School, Cuddapah.

B. Venkata Rau, B.A., *Sub pro tem*, 3rd Assistant, to act as 2nd Assistant, vice A. David.

C. Ramachandra Aiyar, B.A., to be *Sub pro tem*, 3rd Assistant.

B. Raghavendra Rau, B.A., to be *Sub pro tem*, 3rd Assistant, Mangalore College.

Mr. Skelley, to be Instructor of Calisthenics, in the Government Female Normal School, Madras, on Rupees 15.

A. Subba Rau, Deputy Inspector of Schools, South Tanjore, to act as 1st Assistant, Calicut College, vice Mr. Joseph, on other duty.

S. Rangaswami Aiyangar, Head Master, Srirangam Middle School, to act as Deputy Inspector of Schools, South Tanjore.

P. Seshaiyengar, 1st Assistant, Middle School, Arni, to act as Head Master, Srirangam Middle School.

G. Venkateswara Nayudoo, to act as Head Master, Middle School, Bimlipatam.

LEAVE.

Leave on Medical Certificate for 6 days, to Singaravelu Mudali, Deputy Inspector of Schools, North Coimbatore.

Leave on Medical Certificate for 1 month, to Miss H. Bernard of the Government Female Normal School, Madras.

Privilege leave for 1 month, to M. A. Swaminatha Aiyar, Head Master of the Namakal Middle School.

Leave on Medical Certificate for 14 days, to R. Swaminatha Aiyar, Acting 1st Assistant, of the Bellary College.

Privilege leave for 6 weeks, to Mr. Elsworthy, Head Master of the Palghat High School.

Privilege leave for 1 month, to K. Dakshnamurti Sastri, Deputy Inspector of Schools, Cocanada Range.

(By order)

D. S. WHITE,

Asst. to the Director of Public Instruction.

"Gladly would he learn and gladly teach."

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NOTES ON PSYCHOLOGY.

THE TERMS "MIND" AND "CONSCIOUSNESS."

MIND.—It is impossible* to give any satisfactory definition of Mind. Professor Bain says, "the only account of Mind strictly admissible in Scientific Psychology consists in specifying three properties or functions—Feeling, Will or Volition, and Thought or Intellect—through which all our experience, as well objective as subjective, is built up. This positive enumeration is what must stand for a definition." This mode of defining a word by enumerating its properties or functions is called defining by complete enumeration. All Philosophers have more or less distinguished between Mind, Ego, Self, Subject, on the one hand, and Matter, Non-Ego, Not-self or Object on the other. These terms, however, are not exactly equivalent.*

We may give a negative definition of Mind as the *Non-extended*. Matter has extension, Mind has no extension, it is known essentially as out of space; but the external world is known as existing in space.

"Mind," according to Hamilton "is to be understood as the subject of the various internal phenomena of which we are conscious, or that subject of which consciousness is the general phenomenon. Consciousness is, in fact, to the mind what extension is to matter or body. Both are essential qualities and we can neither conceive mind without consciousness, nor body without extension." Mental phenomena, therefore, by a reference to consciousness, may be defined to be those phenomena which are manifested through the medium of self-consciousness.

Before proceeding to the classification of mental phenomena, let us turn our attention to the word *consciousness*.

CONSCIOUSNESS.—This is the leading term of psychology. "The sum of all consciousnesses is the sum of all existences." The popular significations of the term, Bain notices:—"In one class of applications, consciousness is mental life as opposed to torpor or insensibility; while on the other hand, a more than ordinary wakefulness and excitement is a heightened form of consciousness. In a second class of meanings the subjective

* Read carefully Hamilton's *Metaphysics*, Lecture IX.

state, as opposed to the objective is more particularly intended; when a person is said to be morbidly or excessively conscious, there is indicated an excessive attention to the feelings and the thoughts, and slender amount of occupation with outward things."

We may bring the main uses of this word under three heads:—The first and the most important use would be to include under consciousness *all mental phenomena in as far as they are not latent with or without explicit reference to the Ego*. Professor Ribot has the following definition, which clearly explains this use of the word consciousness:—"Consciousness is the word which expresses, in the most general way, the various manifestations of psychological life. It consists of a continuous current of sensations, ideas, volitions, feelings, etc." Secondly, the term consciousness is used to denote only the *recognition of the mind of its own states, i.e., self-consciousness*. Thirdly, we must notice the peculiar use of this term by Hamilton. According to him, *consciousness is equivalent to immediate knowledge or intuition, whether of the Ego or Non-Ego*. "Consciousness and immediate knowledge are terms inversibly convertible."

Hence tabulating we see:—

Consciousness = { (1.) The manifestations of Psychological life:—the attributes of mental phenomena as opposed to unconsciousness.
(2.) Self-consciousness.
(3.) Immediate knowledge either of the Ego or Non-Ego.

Bain, using the word in the first sense, divides it into two great departments:—"The object consciousness and the subject consciousness when putting forth energy, as in muscular exertion, and in the activity of the senses, we are objectively conscious; in pleasure or pain, and in memory, we are subjectively conscious."

CONDITIONS OF CONSCIOUSNESS.—Hamilton enumerates five special conditions of consciousness—(1), It is actual not potential (a man is said to know that $3+3=6$ when he is not thinking of it, but this is only potential knowledge, not actual knowledge) (2), It is immediate knowledge; (3), Implies discrimination (we are conscious only so far as we distinguish the thing from what it is not); (4) Involves judgment; (5), Memory. Some Psychologists make attention also a necessary condition of consciousness. But is not attention, on the other hand, merely concentrated or intensified consciousness? Herbert Spencer's excellent contribution to the subject of consciousness will not be out of place here. He lays down two definite conditions and we shall quote here his very words †:—"The condition on which alone consciousness can begin to exist is the occurrence of a change of state." That is to say, consciousness can only be maintained while changes take place. There must be a continuous change from one state into a different state. In other words, there must be a "continuous differentiation" of its states. "Consciousness can neither arise nor be maintained without the occurrence of difference in its state." But he also makes out that this alone is insufficient. "If no note be taken of the different states as they occur. If they pass through consciousness simply as images passed over a mind; there can be no intelligence, however long the process be continued. Intelligence can arise only by the classification of these states. The act of knowing them

* Mill in his "Examination of Hamilton" brings out clearly the several uses of the term consciousness, and discusses fully Hamilton's odd use of the term.

† Principles of Psychology, Vol. II, Chap. XXVII.

is impossible except by classing them with those of the same nature—assimilating them to those of the same nature. In being known, then, *each state must become one with certain previous states*. Each successive act of knowing must be an act of integrating. That is to say, there must be a *continuous integration of states of consciousness*. And summing up, he says "All mental action whatever is definite as the *continuous, differentiatism and integration of states of consciousness*."

LATENT MENTAL MODIFICATIONS.—An interesting question, in connection with consciousness which Hamilton discusses at full length, is this:—Whether the mind exerts energies and is the subject of modifications, of neither of which it is conscious? He answers this question in the affirmative and establishes the theory by appealing to facts of external Perception of Association. "When we look at a distant forest, we perceive a certain expanse of green. Of this as an affection of our organism, we are clearly and distinctly conscious. Now, the expanse of which we are conscious is evidently made up of parts of which we are not conscious. No leaf, perhaps, no tree, may be separately visible. But the greenness of the forest is made up of the greenness of the leaves, that is, the *total impression of which we are conscious is made up of an infinite number of small impressions of which we are not conscious*. The same thing is exemplified in Association of Ideas. Now it sometimes happens, that we find one thought sometimes rising immediately after another in consciousness, but whose consecution we can reduce to no laws of association. In these cases we can generally discover by an attentive observation, that these two thoughts, though not themselves associated are each associated with certain other thoughts; so that the whole consecution would have been regular, had these intermediate thoughts come into consciousness, between the two which are not immediately associated. Here is an instance, which Hamilton brings forward:—"Thinking of Ben Lomond, this thought was immediately followed by the thought of the Prussian system of education. Now, conceivable connection between these two ideas in themselves there was none. A little reflection, however, explained the anomaly. On my last visit to the mountain, I had met upon its summit a German gentleman, and though I had no consciousness of the intermediate and awakened links between Ben Lomond, they were undoubtedly these: the German,—Germany,—Prussia,—and, these media being admitted, the connection between the extremes was manifest." Mill, referring to Hamilton's Theory of Latent Modifications, speaks as follows:—"I am myself inclined to agree with Sir William Hamilton, and to admit unconscious mental modifications in the only shape I attach any very distinct meaning to them, viz., *unconscious modifications of the nerves*." Every Psychologist now admits that to every modification of brain and nerves there corresponds a mental modification, which however does not rise into consciousness unless the neutral modification is of certain appreciable intensity. Hamilton, though evading as much as possible, physiological explanations of psychical phenomena, still is forced to admit, not openly of course, the unconscious modification of nerves. We here quote his own words:—"The taste or smell of a dish, be it agreeable or disagreeable, is composed of a multitude of severally imperceptible effects which the stimulating particles of the viand cause on different points of the nervous expansion of the gustatory and olfactory organs; and the pleasant or painful feeling of softness or roughness is the result of an infinity of *unfelt modifications*, which the body handled determines on the countless papillae of the nerves of touch." Is this not admitting the *unconscious modifications of nerves*?

* Hamilton's Metaphysics, Vol. I., Lecture XVIII.

RELATION OF EGO AND NON-EGO.

COSMOLOGICAL CONCEPTION.

Hamilton finds six theories held by Philosophers as regards the relation of ego and non-ego, which he tabulates as follows:—

Arguing that consciousness gives us as an ultimate fact—which we could only dispute by making consciousness contradict itself—as primitive duality, a knowledge of the ego in relation and contrast to the non-ego and a knowledge of the non-ego in relation and contrast to the ego, both equally dependent owing to their mutual relation, but both equally independent as neither can be resolved into the other, he first divides Philosophers into

A. Those who accept this fact fully = Natural Dualists.

B. Those who do not accept the whole fact.

CLASS B.—Those who look on this fact (the immediate consciousness of a duality) as a deception, affirm or deny the authority of consciousness in guaranteeing a substratum or substance to the manifestations of the ego and non-ego.

a. Those who deny = Nihilists.

b. Those who affirm = Substantialists.

b. Substantialists may accept or deny the testimony of consciousness to an ultimate duality of subject and object in perception. These dualists denying an immediate consciousness of duality maintain on various hypotheses the existence of an external unknown world and may be called

a' Hypothetical Dualists or Cosmothetic Idealists.

b' To this class modern Philosophers belong, all of course holding the doctrine of *mediate* or *representative perception*, but in different forms.

(a) Some hold the immediate object of perception to be a *distinct entity* present in the mind. Tucker's illustrations are "wafers in a box," and "fish in water."

(b) Others regard the immediate object as merely a *modification or state of mind*, the act of perception and the perceived object being the same thing regarded from different points of view—of these latter, some hold the modification to be *non-existent when we are not conscious of it*; others to *still exist, but then in a latent form*.

b' Opposed to Cosmothetic Idealists or Hypothetical Dualists are Unitarians, who hold a *unity of the Subject and Object* and fall into three classes.

(1.) Some accept the testimony of consciousness to be the equipose of mental and material phenomena, but reject its testimony to their antithesis and look on both as *phenomenal modifications of the same common substance* = Absolute Idealists.

(2.) Others denying the equipose, evolve material phenomena from Mind = Pure Idealists.

or (3.) Evolve mental phenomena from matter, make Mind a *function of matter* = Materialists.

Thus we have the following table:—

A. Those who accept immediate consciousness of Duality = Natural Dualists.

B. Those who deny this. { a. Wholly = Nihilists.
b. Partly = Substantialists.

Substantialists. { a' = Hypothetical Dualists.
b' = Unitarians.

Hypothetical Dualists. { (1) Immediate object = distinct entity
= non-mental modification.
(2) { (a) Non-existent when we are unconscious of it.
(b) Existent when in a latent form.

Unitarians. { 1. Those who hold Absolute Ideality
of Subject and Object.
2. Pure Idealists.
3. Materialists.

How do Matter and Mind act on each other?

Four theories:—

A. That of *Divine Assistance* or *Occasional Causes* propounded by Malebranche and the Cartesian School.

According to it the Deity on the occasion of motions in bodily organism excites in Mind corresponding representations or thoughts and on the occasion of thoughts or representations in the Mind produces corresponding movements in the body. Mind cannot act on Matter nor Matter on Mind, but God on occasion of affections in either, excites corresponding affections in the other. God is thus the necessary cause of every modification, whether of body or of Mind.

B. Leibnitz regarded this theory as unphilosophical, as requiring constant intervention of Deity and propounded in its place the Theory of *Pre-established Harmony*. God knowing all souls and bodies formed each man out of a soul, whose series of modifications corresponded exactly to the series of modifications, which a certain body was destined to perform and of this body whose successive movements corresponded to the successive modifications of the soul. Thus each go through its series of modifications independently, yet both are in union like two clocks, which point to the same hour though moved by independent springs.

C. Next comes the *Plastic Medium* of Cudworth.—A device to account for the operations of physical laws without the continued agency of the Deity. Between soul and body is a medium which participates the nature of both, being partly material, and partly spiritual. As material it can be acted on by, or act on, matter, as spiritual it can be acted on by, or act on, Mind.

D. Lastly we have Hobbes' theory of *Physical Influence*.—External objects affect our senses and the organic motion they determine is communicated to the brain by means of nerves. The brain acts on the soul and the soul has a perception. The mind thus possessed of a perception is affected for good or ill. If it suffers it seeks to be relieved of pain. It acts in its turn on the brain in which it causes a movement in the nervous system, which causes a muscular movement in the limbs directed to remove or avoid the object which occasions the sensation of pain.

This theory recognizes the real efficiency of mind in acting on body and *vice versa* without professing to explain it.

The others are all unphilosophical as attempting to establish something beyond the sphere of observation and consequently lying outside the domain of genuine philosophy.

LIFE AND WRITINGS OF JOHN MILTON,

(COMPILED FROM 'VARIOUS SOURCES.)

John Milton was the son of a respectable and well-to-do scrivener, who resided in Bread Street, London, where our poet was born, 9th December 1608. No pains and expense were spared by his parents in giving him a liberal education. He was 'coached' at home, at first, by a private tutor named Thomas Young, a Puritan divine, and was afterwards sent to St. Paul's School, then under the principalship of a Mr. Gill. At the age of seventeen he entered Christ's College, Cambridge, where he distinguished himself by his classical and poetical talents. In 1628, he took his B. A., and in the following year produced his noble ode "*On the morning of Christ's Nativity*", one of the finest lyrics in our language. In 1632, he was admitted M. A., and leaving College he removed to his father's villa at Horton in Buckinghamshire, where he spent five years in studying the Greek and Latin classics, mathematics and music. During this interval he composed his *Comus* (1634) *L'Allegro*, *Il Penseroso*, *Arcades* (1637) *Lycidas* as well as several other poems. Two sad events however, marred his placid life at Horton. His mother died in 1637, and in August of the same year his College chum, Edward King, was drowned in the Irish seas. This latter circumstance the poet bemoaned in his *Lycidas*. To complete the training he had voluntarily undertaken, Milton set out in 1638, at the instance of his father, on an extended plan of continental travel. He visited France, Switzerland and Italy and in the last named country cultivated the personal friendship of Manso (the friend and patron of Tasso,) Diodati and other leading Italian literati. While at Naples tidings reached him of the revolutionary troubles in England, which caused him to retrace his steps, for he thought it base to be travelling for pleasure abroad, while his fellow countrymen were contending for liberty at home. He accordingly returned in 1639, but did not find an opportunity for defending liberty; so he occupied himself peaceably in tuition, establishing a seminary in Aldersgate Street, London. Here he heard the news of the death of his friend Diodati which drew from him his Latin pastoral, *Epithamium Damonis* after which the muse was silent for many years. This brings to a close the first part of Milton's career—his early verse period.

About this time (1640) the controversy respecting Episcopacy was raging, and the poet's first prose efforts were directed against the Anglican Church Establishment, opening fire in 1641 with a pamphlet on the *Reformation in England* and concluding with his *Apology for Smectymnus* (1642). In 1643, he married Mary Powell, daughter of a Justice of the Peace of Oxfordshire, but owing to differences of opinion, his wife deserted him. It was under these painful circumstances that he published successively his *Doctrine and Discipline of Divorce*, 1643. *Judgment of Martin Bucer concerning Divorce*, 1644; *Tetrachordon* and *Colasterion*, 1644-5. Mrs. Milton, returned in 1645, and became reconciled to her husband. To the year 1644 also belong two important works.

The *Tract on Education* and the *Areopagitica* a speech in defence of the freedom of the Press. In 1647, his father died; after which he removed into a small house in Holborn. Here he published in 1649 his bold *Tenure of Kings and Magistrates*, in which he vindicated what the Parliament had done in 1648, in the execution of King Charles I. Such a champion was not to be overlooked: and accordingly in 1649, he was appointed Latin Secretary to the Council of State and in this capacity published his *Eikonoclastes* in answer to the *Eikon Basilike*, a work ascribed to Dr. Gauden; and in 1651, his celebrated *Defence of the English people* against the great Leyden scholar, Sahmasius, who had been employed by Charles II to write a defence of his father. Such indeed was the zeal and industry with which he carried on his literary warfare that his eyes soon began to be affected, and by degrees a *gutta serena* totally deprived him of vision. This was about 1652-3. At this juncture, he lost his first wife and some time after (1656) married a second, the daughter of Captain Woodcock of Hackney, who died within a year of their marriage. This brings us to the eve of the Restoration and to the close of the second period of Milton's career, viz., that of a political pamphleteer and prose writer.

At the Restoration being apprehensive of danger, he withdrew into retirement and with the exception of a short imprisonment, escaped molestation. The passing of the Indemnity Act, however, made his person and property secure and he removed to Jewin Street where he married for the third and last time—Elizabeth Minshull who survived him. From Jewin Street he removed into Artillery-walk, Bunhill-fields and thence to Chalfont in Buckinghamshire. Blind, aged and poor, he now set to work at his great epic, his *Paradise Lost*, the outlines of which he had sketched many years before, and completed it in 1665, though it was not published till 1667. Its sequel *Paradise Regained* was probably composed between 1666 and 1667, though it did not see the light of day till 1671, and in the same year published his *Samson Agonistes*, a choral drama after the Greek model. These were his last poetical works, and on these alone his fame chiefly rests. In 1674 (Nov. 8th) he died, worn out with repeated attacks of gout and was buried in St. Giles' Church, Cripplegate.

I cannot conclude this brief sketch of Milton's life without reproducing those famous lines of Dryden.

Three poets in three distant ages born,
Greece, Italy and England did adorn.
The first in loftiness of thought surpassed;
The next in majesty; in both the last.
The force of Nature could no further go
To make a third, she joined the former two.

W. A. M.

ESSAY ON POETRY.

(Extracted.)

CHAPTER IV.

OF ENGLISH VERSIFICATION.

(Continued from page 218.)

IN the English language, versification depends not on the quantities, or the length and shortness, of the syllables: but on the modulation of the accents, and the disposition of the pauses; to which is generally added the recurrence of rhyme. The heroic verse consists of ten syllables: its harmony is produced by a certain proportionate distribution of accented and unaccented syllables; and its specific character, whether lively or solemn, soft or slow, is determined by their order and arrangement. When unaccented and accented syllables are regularly alternated, it is called the iambic verse; as,

"A shepherd's boy, he seeks no higher name,
Led forth his flock beside the silver Thame."

When this order is inverted, and the unaccented is preceded by the accented syllable, it is called a trochaic verse; as,

"Ambition first sprung from the blest abodes."
"Take, holy earth, all that my soul holds dear."

The frequent intervention of the trochaic is apt to produce harshness. The monotony which it might be expected would result from a succession of iambic lines, is obviated by the freedom with which the pause is transferred from one syllable to another; a freedom which constitutes the charm, and produces all the variety, of English verse. The pause of cæsura is that interval of suspension which must naturally arise in every verse, but the position of which the English poet is allowed to change and diversify at pleasure. When the pause falls on the fourth syllable, the strain is smooth and airy; as,

"Soft is the strain | when Zephyr gently blows,
And the smooth stream | in smoother numbers flows."

When it falls on the second it is commonly accelerated; as,
"Not so | when swift Camilla scours the plain."

Occasionally the pause dwells on the first, second, or penultimate syllable:

"O friend!—may each domestic bliss be thine:
Be no unpleasing melancholy | mine.
Me | let the tender office long engage,
To rock the cradle of declining age."

A second pause is sometimes happily introduced:

"O everauteous | ever lovely! | tell,
Is it in heaven a crime to love too well?"

In the following examples, the first passage has all the spirit and energy of the ode; the second, the slow and plaintive melody of the elegiac strain:

"Come then, my friend, my Genius, come along,
O master of the poet and the song!"

And while the muse now stoops, | and now ascends,
To man's low passions, | or their glorious ends,
Teach me, like thee, | in various nature wise,
To fall with dignity, | with temper rise;
Form'd by thy converse, | happily to steer
From grave to gay, | from lively to severe;
Correct with spirit, | eloquent with ease,
Intent to reason, | or polite to please."
"In these deep solitudes, | and awful cells,
Where heavenly-pensive contemplation | dwells,
And ever-musing melancholy reigns."

The heroic verse is often diversified by the intervention of an Alexandrine line of twelve syllables, which is liberally used by Dryden: its abuse is pointedly censured by Pope:

"A needless Alexandrine ends the song,
Which, like a wounded snake, drags its slow length along."

It forms a noble termination:

"Teach me to love and to forgive;
Exact my own defects to scan,
What others are to feel, and know myself a man."

Triplets often occur in heroic verse; a practice to which Dryden was strongly addicted, but which is now generally avoided by correct writers.

The stanza of nine lines, the imitation of the Italian, was introduced by Spenser. Of this verse (which, if not impracticable, was at least repugnant, to the English language) the following extract is a favourable specimen:

"A gentle knight was pricking on the plaine,
Yclad in mightie arms, and silver shield,
Wherein old dintes of deep woundes did remain,
The cruel marks of many a bloody field;
Yet armes, till that time did he never wield,
His angry steed did chide his foaming bitt,
As much disdainig to the curb to yield:
A jolly knight he seem'd, and faire did sit,
As one for knightly gests and fierce encounters fitt."

A stanza more polished in its structure is adopted by Mr. Sotheby in his admirable translation of Wieland's Oberon. The following passage describes Rezia's first interview with the Hermit:

"Rezia, at once entranced in holy bliss,
Aw'd by his look, that beams celestial grace,
Bows, as before the Genius of the place,
And prints his wrinkled hand with pious kiss.
Touched by his gracious mien or friendly air,
His beard that swept his breast with silver hair,
Her soul this stranger as her sire reveres;
A second look has banish'd all her fears:
Each reads the other's heart, nor finds a stranger there."

The most popular stanza is that appropriate to the ballad, which is composed of four lines with interchanging rhymes. Such is the measure of Goldsmith's beautiful tale of Edwin and Angelina:

"Turn, gentle hermit of the dale,
And guide my lonely way
To where yon taper cheers the vale
With hospitable ray."

And such, with the remission of rhyme in the first and third lines, is the measure of Chevy Chase:

"God save the king, and bless the land,
In plenty, joy, and peace;
And grant henceforth that foul debate
'Twixt noblemen may cease."

The elegiac stanza consists of four alternately responsive lines of ten syllables each: it is well adapted to short poems; but in compositions of any length, its slow monotonous cadence becomes oppressive to the ear. In the celebrated elegy of Gray, its defects, however, are concealed by a profusion of poetical beauties; and by the graceful muse of Hammond its fetters are rendered elegant and ornamental:

"Why should the lover quit his pleasing home,
In search of danger on some foreign ground?
Or from his weeping fair ungrateful roam,
And risk in every stroke a double wound?
Ah! better far, beneath the spreading shade,
With cheerful friends to drain the sprightly bowl,
To sing the beauties of my darling maid,
And on the sweet idea feast my soul."

The common anapestic verse, of eleven and twelve syllables, in which the accent falls on every third syllable, has generally been appropriated to humorous subjects: when formed into the stanza, it assumes a different character. In the noble war-song of Burns it is however a strain truly sublime; and in the following passage flows with equal sweetness and pathos:

"Tis night, and the landscape is lovely no more:
I mourn, but, ye woodlands, I mourn not for you;
For morn is approaching, your charms to restore,
Perfum'd with fresh fragrance, and glittering with dew.
Nor yet for the ravage of winter I mourn;
Kind nature the embryo blossom will save:
But when shall spring visit the mouldering urn?
Oh! when shall it dawn on the night of the grave?"

This stanza is, from the intractable nature of the anapestic measure, of difficult execution. In that employed by Cowper in the following instance, constructed on similar principles, the syllables are less numerous, and the cadence is in general more harmonious:

"I am monarch of all I survey,
My right there is none to dispute;
From the centre, all round to the sea,
I am lord of the fowl and the brute.
O Solitude! where are the charms
That sages have found in thy face?
Better dwell in the midst of alarms,
Than reign in this desolate place."

The occurrence of double rhymes is neither very frequent nor very easy in English verse; they are chiefly employed in songs, and are seldom admitted in the higher order of lyrical composition. The following passage from Dryden's ode on St. Cecilia's day, affords the most happy example of this kind of verse in our language:

"Softly sweet in Lydian measures,
Soon he sooth'd his soul to pleasures,
War, he sung, is toil and trouble,

Honour but an empty bubble;
Never ending, still beginning,
Fighting still, and still destroying:
If the world be worth thy winning,
Think, oh! think it, worth enjoying."

The simplest and most fluent of all verse is the couplet of eight syllables. In this measure Milton has written his two exquisite poems, the *L'Allegro* and *Il Penseroso*:

"And may at length my weary age
Find out the peaceful hermitage,
The hairy gown and mossy cell,
Where I may sit, and rightly tell
Of every star that heaven doth shew,
And every herb that sips the dew,
Till old experience do attain
To something like prophetic strain!"

Pope and Gray are generally considered as the most correct writers of rhyme; and Dryden, who knew the affluence of the English language, has in his own compositions exhibited all its various capacities of harmony and versification.

Besides the iambic and the trochaic, there is another kind of verse very common in English poetry, called the anapestic. In this the accent falls on every third syllable: it is a quick and lively measure, and therefore very often used in songs. Sometimes the first accent of a line is made to rest on its first or second syllable. The following lines are examples of this verse:

At the close of the day, when the hamlet is still,
And mortals the sweets of forgetfulness prove.

A very curious and not unpleasing structure of verse existed in the early age of English poetry, during the fourteenth century. The principles of this were, that each line should consist of four poetical feet, in the anapestic measure; and instead of rhyming the ends of the lines, it was required that in each line the same letter should occur three times; twice in the first half of the line, and once in the last. Sometimes however the alliteration extended to only two instances, or to four; and sometimes, where there were three, two of them occurred in the last half-line: the corresponding letters were generally at the beginning of a word, but sometimes not. The following is an example of this versification: we have reduced the words, as much as possible, to the modern orthography, to make them more intelligible; but have been obliged to retain the superfluous letters, when these were either accented, or necessary to the alliteration. The corresponding letters are printed in Italics; and where an accent is marked, the instance must be pronounced as a separate syllable. The passage here quoted is from an old poem called the *Visions of Pierce Plowman*, of which an interesting account is given in Mr. Godwin's *Life of Chaucer*: it is a sublime and energetic description of Nature obeying the call of Conscience, to afflict mankind with punishments for their crimes.

Kind¹ Conscience then heard, and came out of the planets,²
And sent forth his foragers. Fevers and fluxes,
Coughs and cardiacles,³ cramps and tooth-aches,
Rheums and radgondes⁴ and rainous scalles,⁵
Biles and botches and burning agues,
Frenzies and foul evil, foragers of Kind,

Had picked and preyed⁶ polles of the people,⁷
 That⁸ largely a legion lost⁹ their lives soon.
 There was "Harow!"¹⁰ and help! here cometh Kind,
 With Death that is dreadful, to undo us all."
 The lord that liv'¹¹th after lust¹¹ then aloud cried
 After Comfort, a knight, to come and bear his banner.
 "Alarm, alarm!" quoth that lord, "each life keep his own!"¹²
 And then met these men: their minstrels might¹³ pipe,
 And their heralds of arms had descried lords.¹⁴
 Agé the hoar he was in the vaw-ward,¹⁵
 And bare the banner before Death; by right he it claim'd.
 Kindé came after, with many keen sores,
 As plagues and pestilences, and much people shent.¹⁶
 So Kind through corruptions killed full many.
 Death came driving after; and all to dust pushed¹⁷
 Kingés and Caísers,¹⁸ knightés and popes.

¹ Kind is an old word for *Nature*: the passage here is, *Nature then heard Conscience. K and c were considered as the same letter in this versification; even when the k was silent, as in the twelfth and the last lines.* ² The planets were anciently supposed to be the sources of diseases. ³ Heart-aches. ⁴ The piles. ⁵ Gnawing leprosy. ⁶ Marked out and preyed upon. ⁷ That is, so many *polls* (or heads) of the people; as we say a poll-tax. ⁸ So that. ⁹ Lost. ¹⁰ An old French word for *help*. ¹¹ *After lust* means *in luxury*. ¹² Let each preserve his own life! ¹³ Did. ¹⁴ *Lords* here means the hostile leaders. ¹⁵ Van. ¹⁶ Hurt. ¹⁷ Dashed with the paw or hoof. ¹⁸ Césars, or emperors.

Blank verse is composed of lines which flow into each other without the intervention of rhymes; its metrical principle resides in its pauses, which should be so judiciously spread as never to suffer the want of rhyme to be felt. Of the few poets who have attempted this species of composition, Milton first, and after him Thomson, Armstrong, Akenside, and Cowper, are pre-eminent. The amplitude of Milton's verse is unequalled: it dilates with the author's thought, it harmonizes with the reader's sentiment, and its varied cadence alternately rolls with majesty, or falls in a mellifluous strain of melody on the unwearied and unsated ear. The principle of this exquisite mechanism has been lately referred by a judicious critic (the Rev. Mr. Crowe, in his Lectures at the Royal Institution) to Milton's bold practice of distributing in different lines, words so nearly connected (such as the preposition governing the noun, and the pronoun attached to the verb) as almost to appear inseparable. That this practice, which Mr. Crowe calls *breaking the natural joint of the sentence*, is favourable to the freedom of blank verse, cannot be disputed; but it may be questioned whether the poet was himself conscious of the mechanism which he employed, or was directed by any other principle than his own acute sensibility to harmony. The following short extracts may illustrate the difference of style perceptible in the various writers of blank verse.

"Of man's first disobedience, and the fruit
 Of that forbidden tree whose mortal taste
 Brought death into the world, and all our woe,
 With loss of Eden till one greater Man
 Restore us, and regain the blissful seat,
 Sing, heavenly muse that on the secret top
 Of Oreb, or of Sinai, didst inspire
 The shepherd who first taught the chosen seed,
 In the beginning how the heavens and earth
 Rose out of chaos; or if Sion hill

Delight thee more, and Siloa's brook that flowed
 Fast by the oracle of God, I thence
 Invoke thy aid to my adventurous song;
 That with no middle flight intended to soar
 Above the Aonian mount, while it pursues
 Things unattempted yet in prose or rhyme."

MILTON.

"He comes! he comes! in every breeze, the power
 Of Philosophic Melancholy comes.
 His near approach the sudden-starting tear,
 The glowing cheek, the mild dejected air,
 The soften'd feature, and the beating heart
 Pierc'd deep with many a virtuous pang, declare.
 O'er all the soul his sacred influence breathes,
 Inflames imagination, through the breast
 Infuses every tenderness, and far
 Beyond dim earth exalts the swelling thought."

THOMSON.

"From heaven my strains begin; from heaven descends
 The flame of genius to the chosen heart,
 And beauty with poetic wonder join'd
 And inspiration. Ere the rising sun
 Shone o'er the deep, or mid the vault of night
 The moon her silver lamp suspended; ere
 The vales with spring were water'd, or with groves
 Of oak or pine the ancient hills were crown'd;
 Then the great Spirit whom his works adore,
 Within his own deep essence view'd the forms,
 The forms eternal, of created things:
 The radiant sun, the moon's nocturnal lamp,
 The mountains and the streams, the ample stores
 Of earth, of heaven, of nature. From the first,
 On that full scene his love divine he fix'd,
 His admiration; till in time complete,
 What he admired and lov'd, his vital power
 Unfolded into being."

AKENSIDE.

"O ye whose souls relentless love has tamed
 To soft distress, or friend untimely fallen!
 Court not the luxury of tender thought;
 Nor deem it impious to forget those pains
 That hurt the living, nought avail the dead.
 Go, soft enthusiast, quit the cypress groves;
 Nor to the rivulet's lonely moanings tune
 Your sad complaint. Go, seek the cheerful haunts
 Of men, and mingle with the bustling crowd;
 Lay schemes for wealth, or power, or fame—the wish
 Of nobler minds, and push them night and day;
 Or join the caravan, in quest of scenes
 New to your eyes, and shifting every hour,
 Beyond the Alps, beyond the Appenines."
 "O winter, ruler of the inverted year,
 Thy scatter'd hair with sleet-like ashes fill'd,
 Thy breath congeal'd upon thy lips, thy cheeks
 Fringed with a beard made white with other snows
 Than those of age, thy forehead wrapt in clouds,

ARMSTRONG.

A leafless branch thy sceptre, and thy throne
 A sliding car indebted, to no wheels,
 But urged by storms along its slippery way !
 I love thee, all unlovely as thou seem'st,
 And dreaded as thou art. Thou hold'st the sun
 A pris'ner in the yet undawning east,
 Short'ning his journey between morn and noon,
 And hurrying him, impatient of his stay,
 Down to the rosy west ; but kindly still
 Compensating his loss with added hours
 Of social converse, and instructive ease."

COWPER.

The defect of Young's blank verse is, that the sense commonly closes with the line ; and that it has too much of the systematical uniformity, without the musical varieties, of rhyme. Whether rhyme or blank verse is entitled to pre-eminence, is a question which must ultimately be determined by individual taste. In the choice of his measure, the poet must obviously be influenced by the nature of his subject ; and rhyme, and blank verse, will alternately obtain his preference. In all the gay and airy excursions of fancy, or the lighter touches of feeling, he will find in rhyme an auxiliary equally pleasing and important. To such compositions as require a measure of spirited and vivacious movement, rhyme is an indispensable appendage. To satire it adds poignancy, to humour it gives elegance : it imparts renovation to old ideas, and lends attraction to trivial sentiments : it renders familiar illustration graceful, and plain sense eloquent. In all but the Alpine regions of poetry, rhyme is a fence no less useful than ornamental, enriching and enlivening every object. In the *Allegro* and *Penseroso*, even Milton conceived it no dereliction of poetical freedom, to pursue the path traced out by his predecessors : but in his *Paradise Lost*, when he soared "beyond the visible diurnal sphere," his deviation into blank verse was as judicious as fortunate ; because his subject was then too sublime, his conceptions were too gigantic, for the narrow limits and demarcations of rhyme. Wherever much originality of thought exists, this metrical charm is unnecessary ; and where imagination reigns in wild luxuriance, it is impertinent. In some of his juvenile poems, Milton appears to have been incumbered with the dignity of his thoughts ; and Shakespeare, perplexed by the richness and variety of his combinations, is apt to become affected when he quits blank verse. Attempts have been made to enlarge the limits of blank verse, by the introduction of various measures analogous to those employed in rhyme : but to all these efforts the genius of our language discovers an invincible repugnance ; vainly are varieties presented to the eye, which are imperceptible to the mind, and untasted by the ear. All rhymeless numbers either flow into good blank verse, or form lines harsh and intractable ; a succession of abrupt sounds and mutilated sentences, which by no art of typography, by no imposition of nomenclature, can be made to constitute any metre at all.

CHAPTER V.

Origin and Progress of Poetry.

HISTORY not only informs us, that Moses and Miriam, the first authors that are known to mankind, sung, on the borders of the Red Sea, a song of divine praise, to celebrate the deliverance which the Almighty had vouchsafed to the people of Israel, by opening a passage to them through the waters ; but it has also transmitted to us the song itself, which is at once the most ancient monument, and a masterpiece, of poetic composition.

The Greeks, a people the most ingenious, the most animated, and in every sense the most accomplished, that the world ever produced, strove to ravish from the Hebrews the precious gift of poetry, which was vouchsafed them by the Supreme Author of all nature, that they might ascribe it to their false deities. According to their ingenious fictions, Apollo became the god of poetry ; and dwelt on the hills of Phocis, Parnassus, and Helicon, whose feet were washed by the waters of Hippocrene, of which each mortal that ever drank was seized with a sacred delirium. The immortal swans floated on its waves. Apollo was accompanied by the muses, those nine learned sisters, the daughters of Memory ; and he was constantly attended by the Graces. Pegasus, his winged courser, transported him with a rapid flight into every region of the universe.

The literary annals of all nations afford vestiges of poetry from the remotest ages. They are found among the most savage of the ancient barbarians, and the most desolate of all the Americans. Nature asserts her rights in every country and every age. Tacitus mentions the verses and the hymns of the Germans, at the time when that rough people yet inhabited the woods, and while their manners were still savage. The first inhabitants of Runia, and the other northern countries, those of Gaul, Albion, Iberia, Ausonia, and other nations of Europe, and their poetry ; as well as the ancient people of Asia, and of the known borders of Africa.

That the higher order of poetry is not unattainable in an uncultivated age, is a truth eminently illustrated by the example of the Hebrew people. Admitting language to be, as Mr. Richardson ingeniously observes, the barometer of society, by which its comparative barbarism or civilization is indicated, it will be obvious that the bards of Sion composed their lofty songs for a primitive nation, tenacious of its customs and opinions, unenlightened by science, uncorrected by taste, and as little acquainted with the arts as the refinements of polished life.

The simplicity and energy of the Hebrew language, accorded happily with the sublime nature of sacred poetry ; and to the peculiarities in its constitution it is perhaps owing, that the simple character of its composition is inseparably preserved, to whatever language transferred, or with whatever idioms assimilated. The musical harmony of the Hebrew language is now but imperfectly known ; its prosody is, however, sufficiently understood to suggest a comparison between its rhymes, and the wild measures familiar to the Scandinavian nation. Alliteration was freely admitted in its verse, as were identical terminations and other artificial embellishments ; but its distinctive feature was a symmetrical disposition of the sentences, which were cast into parallel verses of equal length, and correspondent in sense and sound : the sentiment expressed in the first distich being repeated and amplified in the second, as in the following examples : "The Lord rewardeth me according to my righteousness : according to the cleanness of my hand he hath recompensed me. The statutes of the Lord are right, rejoicing the heart : the commandment of the Lord is pure, and enlighteneth the eyes. The fear of the Lord is clean, enduring for ever : the judgments of the Lord are pure and righteous altogether." This practice, which appears to have been peculiar to the Hebrews, was derived from their manner of worship ; in which the sacred hymns were chanted by bands of singers, who answered each other.

The Hebrew bards employ few epithets. The brevity of their style renders its sublimity conspicuous. Their imagery is bold and energetic ; their magnificent conceptions issue from the mind in native majesty and

strength; their imagination is ever rich and exuberant; and to them, metaphors spontaneously arise on every subject, in inexhaustible beauty and fertility.

Though Hebrew poetry presents nothing that in critical language can be classed with epic or dramatic composition, it affords innumerable examples of the lyric, the elegiac, and the didactic styles. In the Prophecies, the favourite figure is allegory: the Hebrews having, in common with other Oriental nations, a decided predilection for the parabolic species of writing. It would be injustice to the sacred bard, not to remember in what country he wrote, and with what people he lived. On examination, his images will be found to have been faithfully transcribed from nature, and beautifully to have harmonized with the scenes and manners familiar to his observation and experience; but the pure and uncorrupted theism maintained by the inspired poet, in his most exalted attribute, and is evidently the cause of his pre-eminence in sublimity over all other Oriental writers.

The Arabs were not, like the Hebrews, a stationary people, insulated from the rest of mankind. Alternately engaged in commerce and in war, their erratic chiefs visited distant regions; and in their intervals of leisure, were no less ambitious to obtain poetical distinction, than they had been to secure military fame.

Poetry, which constituted the sacred science of the Hebrews, became with the Arabs a polite accomplishment; and as the copiousness of their language supplied all the aptitudes of numbers, it is not surprising that *improvisatori* bards should have been found in their deserts. The distich, and many other forms of metrical composition adapted to familiar occasions, were of Arabian invention; and it is the plausible suggestion of Sir William Jones, that rhymes were borrowed from Eastern literature by the Provençal and Castilian poets, through whose influence they were naturalized to Europe. With all the copiousness and flexibility of the Arabic, the Persian language is found to possess an amenity and an elegance which render it eminently susceptible of poetical beauty. Its poets, like those of ancient Greece, have the power of rendering language subservient to their pleasure, and of clothing original conceptions in a new-created word.

Several Arabic and Persian poems are of the epic and dramatic cast; but the compositions most inviting to the European for translation, are those of an amatory, elegiac, or lyric character. In general, Oriental poetry deviates from the primitive simplicity so conspicuous in Hebrew compositions, and often degenerates into affectation and bombast. In its most admired authors indeed, a passion for the gaudy and gorgeous is ever predominant. The magnificence of their materials is disguised by their fantastic arrangement; and the eye which has dwelt with delight on the chaste graces of classical literature, soon turns with disgust from the jewelled turban and the "barbaric gold." There are however some passages, particularly in braminical poetry, which are perfectly simple and sublime: of these a noble specimen is given by Sir William Jones in the Hymn to Narayana, or the Spirit of God; of which the following is the conclusion:

Omniscient Spirit, whose all-ruling power
Bids from each sense bright emanations beam;
Glow in the rainbow, sparkles in the stream,
Smiles in the bud, and glistens in the flower
That crowns each vernal bower;
Sighs in the gale, and warbles in the throat
Of every bird that hails the bloomy Spring.

Or tells his love in many a liquid note,
Whilst envious artists touch the rival string,
Till rocks and forests ring;
Breathes in rich fragrance from the sandal grove,
Or where the precious musk-deer playful rove;
In dulcet juice from clustering fruit distils,
And burns salubrious in the tasteful clove!
Soft banks and verdurous hills
Thy present influence fills;
In air, in floods, in caverns, woods, and plains,
Thy will inspirits all, thy sovereign Maya* reigns.
Blue crystal vault, and elemental fires,
That in th' ethereal fluid blaze and breathe;
Thou tossing main, whose snaky branches wreath
This pensile orb with inter-twisted gyres;
Mountains whose radiant spires
Presumptuous rear their summits to the skies,
And blend their emerald hue with sapphire light;
Smooth meads and lawns that glow with varying dyes
Of dew-bespangled leaves and blossoms bright;
Hence! vanish from my sight,
Delusive pictures, unsubstantial shows!
My soul absorb'd One only Being knows,
Of all perceptions One abundant source,
Whence every object every moment flows.
Suns hence derive their force,
Hence planets learn their course:
But suns and fading worlds I view no more;
God only I perceive, God only I adore.
* An Indian name for the operation of the Divine Spirit.

The germs of genius scattered through Oriental compositions, with wild luxuriance, appear in classical poetry displayed in full perfection and beauty. To what causes the pre-eminence of ancient Greece in this department of literature is to be attributed, it would here be futile to conjecture. From the susceptibility of his language, the poet was enabled to exhibit the same idea under a new aspect, and to give to every fluctuation of feeling a permanent expression. If the vivacity of his descriptions fascinated the imagination, his numbers dwelt with no less enchantment on the ear. The length and shortness of syllables in the Greek and Roman languages, which constituted their quantities, was determined by rules no less accurate than those of the notes in music; and on the proper distribution and adjustment of the quantities, the harmony of their metre depended. A stated interval of time was allowed to the pronunciation of every verse. To facilitate the labour of composition, artificial combinations of syllables (called feet) were invented; and by the number of these, and the quantities included in them, the character of the verse was ascertained.

To these combinations various names were given: the most important were the spondee, composed of two long syllables; and the dactyl, formed by one long and two short syllables. These were solely employed in the construction of the hexameter verse, of which an imitation has been vainly attempted in the English language. The pronunciation of the Greek and Latin languages, is, indeed, almost as much lost to us, as that of the Hebrew; but such is the exquisite mechanism of their metre, that their verses cannot be read without producing a rich and often a melodious intonation, perceptible even to the unlettered ear.

In the happy regions of Greece, it is uncertain what species of poetry was first cultivated. Fables were compositions of great antiquity; the ode formed a part of religious worship; and the pastoral must have been introduced in an age sufficiently refined to relish simplicity. The immortal poems of Homer were composed at an early epoch of Grecian literature; and, as is well known, transmitted by oral tradition to a more polished age. Of this extraordinary man so much has been said, that it appears difficult to add anything which would not now be trivial or impertinent. This arduous task the perseverance of modern criticism has, however, achieved; and a scholastic sect is now known to exist who would sacrilegiously remove the shrine of Homer from the temple of Fame, and abandon as if to superstitious credulity a name sanctified by the enthusiasm and veneration of preceding ages.

It is pretended that the *Iliad* and *Odyssey* were composed at different eras, by various authors; and that these desultory tales of Troy were at length collocated and edited by some ingenious critic, who might possibly have been distinguished by the appellation of Homer. The novelty, and perhaps the extravagance, of this hypothesis, have obtained for it partisans among those professed sceptics and separatists who can perceive no difference between vulgar errors and popular opinions, and whose ambition it is to recede as far as possible from all participation in the sentiments or conviction of other men. It is generally admitted that the excellence in which Homer stands unrivalled, is the energy of his conceptions, which gives to his personages, his scenes, and his descriptions, a real and individual existence. With such felicity are his characters cast, that no reader of feeling can be at a loss to conceive how Achilles would look, or Nestor speak, or Ulysses act on any imaginary occasion. The unprejudiced will decide whether such exquisite harmony of design could have been the result of chance, or whether each book had its separate Homer, or whether they were all planned and executed by one.

In lyrical composition, the most popular was the heroic ode. The name of Pindar has descended to us with honour; but the poems which inspired in his compatriots the most exalted enthusiasm, are but imperfectly understood by the student, and are almost impracticable to translation. The public recitation of the ode was accompanied by both music and dancing, a circumstance to which its structure was obviously adapted. The first two stanzas, called the strophe and the antistrophe, were of equal length. In the first part the performers approached the altars of the god; in the latter, the dance being inverted, they retraced each their steps to their former place, where, while they sung the epode, they stood still. It appears that this form was peculiar to the heroic ode. There were other lyrical compositions of a different cast. Sappho's poems breathe only tender impassioned sentiment: those of Anacreon, whether amatory or convivial, are equally remote from the sublimity of Pindar, and the melting softness of Sappho. The fervid imagination of Pindar is compared by Horace to the impetuosity of a mountain-torrent.

The heroic ode is evidently of dramatic character, and was the primitive source from which the regular drama was produced. Tragedy originated in the hymns sung in honour of Bacchus; and its name was derived from a Greek word signifying a goat, which was the victim consecrated to that deity. The invention of dialogue and action belongs to Eschylus. The original ode was preserved in the chorus, which constituted the popular part of the entertainment. The chorus, like the band of a modern orchestra, was composed of several persons who recited in a different manner from the other performers. We learn from Horace

that their business was to deduce from the passing scene some lesson of morality, or to inculcate on the spectator some religious precept. The intervention of the chorus, which is now rejected by even the most zealous votaries of Greece, is not more repugnant however to our ideas of propriety, than many other usages of the ancient stage: for the performers appeared in masks; and in their recitations they were constantly accompanied by musical instruments, by which the voice was sustained, and the melody of the verse rendered sensible to an immense audience. The rules of the ancient drama were suited to its institution. The unities of time and place were necessary in a performance to which the auxiliary resources of modern machinery were wanting, and from which all the magical illusions of the modern scene were precluded. The tragedies of Euripides and Sophocles were masterpieces in their kind, but would now probably be little relished even by scholars and scholastic enthusiasts.

Comedy, like tragedy, originally consisted of a chorus, which derived its name from the god Comus. The rudiments of the comic art may perhaps be detected in the satyrs, a sort of interlude annexed to tragedies, in which the scene was rural, and the personages were Satyrs, or sylvan deities. In the plays of Aristophanes, living characters were introduced, and Socrates beheld himself ridiculed on the stage. This abuse a better taste corrected; and the comedies of Menander, which were imitated by Terence, exhibited only interesting pictures of domestic life. The chorus at first appendant on comedy, was gradually changed into the Prologue; a personage who carefully apprized the spectators of all they were to see on the stage.

The Roman writers modelled themselves on those of Greece, and it was long before they attempted to emulate their masters; yet Ennius, one of their elder poets, produced the satire, a species of miscellaneous poetry purely Roman, which was destined to receive perfection from Horace. With equal originality, Lucretius wrote his metaphysical poem, in which are developed the philosophical systems of his age; but it was not till the era of Augustus that the Latian bards established their equality with the Grecian. It was then that Horace, not satisfied with having transplanted all the lyric beauties to his odes, opened a rich vein of satiric poetry; and Virgil, having equalled Theocritus, without temerity aspired to emulate Homer. In the *Eneid*, it may be acknowledged that he sometimes fell short of his master; his characters possess not the same features of durability and grandeur, nor are his scenes equally animated and dramatic. But to atone for these defects, he unites every charm that gives interest to narrative or lends enchantment to description: occasionally he rises to the sublime, but the beautiful is his natural element; he can excite terror, but he is more prone to inspire tenderness and pity. In the delicate touches of nature and pathos, he seems to have grown enamoured of his subject, and to have lingered affectionately on the endearing scenes and charities of domestic life. The first four books of the *Eneid* contain a tale so sweetly told, that if it were transferred to a rude language totally unsusceptible of the literary graces, it would still be read and remembered by all who had capacities for sympathy and tenderness.

In the *Georgics*, Virgil has left a model of didactic composition, ennobled by a strain of philosophical sentiment, pure, graceful, and persuasive. Ovid, whose talents were not less versatile than those of his contemporaries, adorned the fables of mythology with description, and illustrated in his *Epistles* almost every romantic story of antiquity. The style of his *Elegies* is not unlike that of his *Epistles*: he paints to the eye, but has often too much wit and fancy to touch the heart.

Tibullus has exceeded every other elegiac writer in simplicity and tenderness. Lucan and Statius were also epic poets; but they are seldom quoted, and not often read. Lucan possessed a genius of an exalted order: but his subject was peculiarly unfortunate; and his beauties are now neglected, because they are found in scenes repulsive to the imagination, and uncongenial to the feelings.

Among the last poets of Rome, appeared Juvenal and Persius, of whom the former was one of the most original writers she produced. He professes to exhibit a picture of his times; and there is in his manner an undissembled and almost a holy fervour that atones for his occasional ruggedness and asperity.

The primitive sources of modern poetry may be traced to the old Romance; whence was derived the simple Ballad so popular in England and Scotland, and under various names and forms universally adopted in Europe. On the revival of letters, when the study and imitation of the classics became the passion of literary men, their nomenclature was eagerly assumed; and volumes of poetry were soon composed, which the high-sounding names of odes, pastorals, satires, and epic poems, have not saved from oblivion: volumes of criticism were also compiled, to show how pastorals, odes, and satires, ought to be written.

The Gothic nations who overran Rome, though ignorant of the polite arts, were not insensible to the charms of poetry. Their bards were no less venerated than their priests; and whatever instruction they received, whatever knowledge they possessed, were communicated in metre, and probably in rhyme.

In the age of Charlemagne, the minstrels of Provence (or, as they were called, the troubadours) introduced the metrical tales or ballads; which, from the dialect in which they were written, acquired the name of romances. Their poems were all composed in rhyme; but whether this practice was borrowed from the Arabs or the Goths, is uncertain. The Italian language (which, of all the corrupt dialects introduced by the barbarians, most assimilated with the Roman) soon acquired a tincture of elegance. In the middle ages Dante wrote; Ariosto followed; and Petrarch, the enthusiastical votary of classical genius, appeared among the first founders of modern literature. The passion for allegory, so long the characteristic of the Italian school, was by Chaucer rendered as prevalent in England as it had previously been on the continent. During several ages, Italy continued to be the Poets' land of Europe; and in that interval was produced the Jerusalem Delivered, a poem not unworthy of a Roman bard, or an Augustan age.

In Spain, poetry was early cultivated, but with little attention to classical taste. In France, it emerged not from barbarism till the reign of Francis the First, and arrived at its ultimate point of perfection in the era of Louis the Fourteenth. La Fontaine and Boileau, Corneille and Racine, had then lived, and produced works destined to immortalize their names. Unfortunately for French poets, criticism was then almost coeval with poetry; and a pedantic attention to rules was soon permitted to repress the native energies of genius.

The modern drama, it is well known, originated in the Mysteries; a sort of religious farce, imported from the East. To the Mysteries succeeded allegorical plays, called Moralities: these produced the Masque, which became the favourite amusement of the court in the time of Charles the First, and is redeemed from opprobrium and oblivion by Milton's

Comus. Gondibert, written by Lord Sackville, was the first tragedy represented on English stage. Till the commencement of the eighteenth century, the German language was almost a stranger to poetry. Klopstock invented hexameter verse, in which the mechanism of classical numbers is rather perceived than felt by the reader. From that era, Germany has been more productive of books than all the rest of Europe; and during this period, many fine writers have arisen of real and original genius: but the literary commerce of the country is chiefly supported by translation.—*Finis.*

QUESTIONS IN ALGEBRA.

1. Solve $\left(\frac{x^2 - 13x + 31}{x^2 - x - 11}\right)^2 + \frac{3(x-3)}{x+1} = 0$.

(a) To solve a cubic equation of the form $ax^3 + bx + c = 0$.
Ex: $8x^3 + 16x = 9$.

2. If the roots of $ax^2 + 2bx + c = 0$, are possible and different, the roots of the equation $(c^2 - 2bc)(x - 1)^2 - ac(x + 1)^2 + (x^2 + 1)2b^2 = 0$, are impossible.

3. If $y^2 - 2xy + 5x^2 - 2x + 10y + 4 = 0$, find the limits between which x must lie, that y may be real.

4. Divide an odd integer $(2p + 1)$ into two whole numbers, so that their product may be the greatest possible.

5. If the roots of $ax^2 + 2bx + c = 0$, are α and β ; and the roots of $Ax^2 + 2Bx + C = 0$, are γ and δ ; prove that, if $\beta - \alpha$ is a harmonic mean between $\gamma - \alpha$ and $\delta - \alpha$, then $Ac + Ca = 2bB$.

6. Prove that the expression $\frac{ax^2 + bx + c}{cx^2 + bx + a}$ will be capable of all values if $b^2 > (a + c)^2$; there will be two values between which it cannot lie if $b^2 < (a + c)^2 > 4ac$; two values between which it must lie if $b^2 < 4ac$.

7. The roots of the equation $(x + a - c)(x + b + c)(x + a - d)(x + b + d) = e$ will be real, if $16e < (a - b - 2c)^2(a - b - 2d)^2 - 4(c - d)^2(b + c + d - a)$.

8. $c < a$ and $a < b$, prove that

$$a + b + c < \sqrt{ab} + \sqrt{ac} + \sqrt{bc}.$$

9. If n globes of gold of radii $r_1, r_2, r_3, \dots, r_n$ are melted and formed into a single globe, find its radius.

10. If 13 men earn £7 in 15 days of 8 hours each, find (by the principles of variation) the wages of 52 men for $12\frac{1}{2}$ days of 9 hours each.

11. The general term of a series is $(2p^2 + 1)(2p + 3)$. Find the sum to n terms.

12. Find the n^{th} term and the sum to n terms, of the series,
 $1 + 18 + 75 + 196 + 405 + 726 \dots$

13. The series of natural numbers are divided into groups, 1;
 2, 3, 4; 5, 6, 7, 8, 9; 10, 11, 12, 13, 14, 15, 16; and so on. Find the
 sum of the terms of the n^{th} group.

(To be continued.)

SOLUTIONS.

$$\left\{ \frac{x^2 - 13x + 31}{x^2 - x - 11} \right\}^2 + 3 \cdot \frac{x - 3}{x + 1} = 0.$$

Put $x = y + 2$.

$$\text{Then } \left\{ \frac{(y+2)^2 - 13(y+2) + 31}{(y+2)^2 - (y+2) - 11} \right\}^2 + 3 \cdot \frac{y+2-3}{y+2+1} = 0.$$

$$\therefore \frac{(y^2 - 9y + 9)^2}{(y^2 + 3y - 9)^2} = \frac{3(1-y)}{y+3}$$

$$\therefore 1 - \frac{(y^2 - 9y + 9)^2}{(y^2 + 3y - 9)^2} = 1 - \frac{3(1-y)}{y+3}$$

$$(i. e.) \frac{(y^2 + 3y - 9)^2 - (y^2 - 9y + 9)^2}{(y^2 + 3y - 9)^2} = \frac{(y+3) - 3(1-y)}{y+3}$$

$$(i. e.) \frac{(2y^2 - 6y)(12y - 18)}{(y^2 + 3y - 9)^2} = \frac{4y}{y+3}$$

$$\therefore \frac{12y(y-3)(2y-3)}{(y^2 + 3y - 9)^2} = \frac{4y}{y+3}$$

$$\therefore y = 0. \text{ But } x = y + 2 \therefore x = 0 + 2 = 2 \dots \dots (1)$$

$$\text{Again, } 3(y^2 - 9)(2y - 3) = (y^2 - 9 + 3y)^2$$

$$\therefore (y^2 - 9)^2 + 9y^2 + 6y(y^2 - 9) = 6y(y^2 - 9) - 9(y^2 - 9).$$

$$\therefore (y^2 - 9)^2 + 9(y^2 - 9) = -9y^2$$

$$(i. e.) (y^2 - 9)y^2 = -9y^2 \therefore y^2 = 0 \therefore y = 0 \therefore x = 2 \dots (2)$$

$$\text{Again, } y^2 - 9 = -9 \therefore y^2 = 0 \therefore y = 0 \therefore x = 2 \dots (3)$$

This equation has five roots, all of which are equal to one another.

$$(a) ax^3 + bx + c = 0$$

$$\therefore x^3 + \frac{b}{a}x + \frac{c}{a} = 0$$

$$\text{Put } x = y - \frac{\text{co-efficient of } x}{3 \cdot y} \text{ (i. e.) } y - \frac{b}{3ay}$$

Substituting this value of x in the given equation we get,

$$\left(y - \frac{b}{3ay}\right)^3 + \frac{b}{a}x + \frac{c}{a} = 0$$

$$(i. e.) y^3 - \frac{b^3}{27a^3y^3} - 3 \cdot y \cdot \frac{b}{3ay} \left(y - \frac{b}{3ay}\right) + \frac{b}{a}x + \frac{c}{a} = 0.$$

$$(i. e.) y^3 - \frac{b^3}{27a^3y^3} - \frac{b}{a}x + \frac{b}{a}x + \frac{c}{a} = 0.$$

$$\therefore 27a^3y^3 + 27a^2cy^3 - b^3 = 0.$$

$$\therefore y^3 = \frac{-27a^2c + \sqrt{27^2 \cdot a^4 \cdot c^2 + 4 \cdot 27 \cdot a^3 \cdot b^3}}{2 \cdot 27 \cdot a^3}$$

Hence y is found. Substituting the value of y thus found in the
 expression $y - \frac{b}{3ay}$, the value of x is obtained.

Solve for instance the equation $27x^3 - 54x = 35$.

The rule is to bring all the terms to one side and reduce the
 co-efficient of x^3 to unity.

SOLUTION.

$$27x^3 - 54x - 35 = 0 \therefore x^3 - 2x - \frac{35}{27} = 0.$$

$$\text{Put } x = y + \frac{\text{co-efficient of } x}{3 \cdot y} = y + \frac{2}{3y}$$

$$\therefore \left(y + \frac{2}{3y}\right)^3 - 2x - \frac{35}{27} = 0. \therefore y^3 + \frac{8}{27y^3} + 2x - 2x - \frac{35}{27} = 0.$$

$$\therefore 27y^6 - 35y^3 + 8 = 0. \therefore y^3 = \frac{35 \pm \sqrt{35^2 - 4 \cdot 8 \cdot 27}}{2 \cdot 27}$$

$$= \frac{35 \pm 19}{2 \cdot 27} = 1 \text{ or } \frac{8}{27}.$$

$$\therefore y = 1 \text{ or } \frac{2}{3} \therefore x = 1 + \frac{2}{3 \cdot 1} \text{ or } \frac{2}{3} + \frac{2}{3 \cdot \frac{2}{3}} \text{ (i. e.) } \frac{5}{3}.$$

Example.

$$8x^3 + 16x = 9.$$

$$\therefore 8x^3 + 16x - 9 = 0$$

$$\therefore x^3 + 2x - \frac{9}{8} = 0.$$

$$\text{Put } x = y - \frac{2}{3y}$$

$$\text{Then } y^3 - \frac{8}{27y^3} - 2x + 2x - \frac{9}{8} = 0$$

$$\therefore 27 \cdot 8 \cdot y^6 - 9 \cdot 27 \cdot y^3 - 64 = 0.$$

$$\therefore y^3 = \frac{9 \cdot 27 + \sqrt{9^2 \cdot 27^2 + 4 \cdot 64 \cdot 8 \cdot 27}}{2 \cdot 27 \cdot 8}$$

$$= \frac{9 \cdot 27 + 11 \cdot 3 \sqrt{105}}{2 \cdot 27 \cdot 8}$$

$$= \frac{9}{16} + \frac{11 \sqrt{105}}{144}$$

$$= \frac{81 + \sqrt{105} \cdot 11}{144}$$

$$= \left(\frac{3 + \sqrt{105}}{12} \right)^3$$

$$\therefore y = \frac{3 + \sqrt{105}}{12}$$

$$\therefore x = y - \frac{2}{3y} = \frac{3 + \sqrt{105}}{12} - \frac{8}{3 + \sqrt{105}}$$

$$= \frac{9 + 105 + 6\sqrt{105} - 8 \cdot 12}{12(3 + \sqrt{105})} = \frac{18 + \sqrt{105} \cdot 6}{12(3 + \sqrt{105})}$$

$$= \frac{6(3 + \sqrt{105})}{12(3 + \sqrt{105})} = \frac{1}{2}$$

$$2. \quad ax^2 + 2bx + c = 0.$$

Since the roots of this equation are possible and different, $(2b)^2 - 4 \cdot a \cdot c$ is positive.*

$$(i. e.) \quad b^2 > ac.$$

$$(c^2 - 2bc)(x - 1)^2 - ac(x + 1)^2 + (x^2 + 1)2b^2 = 0.$$

$$\therefore x^2 \{ (c^2 - 2bc) - ac + 2b^2 \} - 2x \{ (c^2 - 2bc) + ac \} + \{ (c^2 - 2bc) - ac + 2b^2 \} = 0.$$

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

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

But $b^2 > ac \therefore ac - b^2$ is negative $\therefore 2(c - b)^2(2ac - 2b^2)$ is $-ve$

$\therefore$ The roots of the 2nd equation are evidently impossible.

$$3. \quad y^2 - 2xy + 5x^2 - 2x + 10y + 4 = 0.$$

$$\therefore y^2 - 2y(x - 5) + 5x^2 - 2x + 4 = 0.$$

Therefore the condition of the possibility of y is

$$4(x - 5)^2 - 4(5x^2 - 2x + 4) \text{ is } +ve$$

$$(i. e.) \quad x^2 - 10x + 25 - 5x^2 + 2x - 4 \text{ is } +ve$$

$$(i. e.) \quad -4x^2 - 8x + 21 \text{ is } +ve$$

$$(i. e.) \quad 4x^2 + 8x - 21 \text{ is } -ve$$

(i. e.) x lies between the roots of the equation $4x^2 + 8x - 21 = 0$.

But if $4x^2 + 8x - 21 = 0$

$$x = \frac{-8 \pm \sqrt{64 + 16 \cdot 21}}{8}$$

$$= \frac{-8 \pm 20}{8} = \frac{3}{2} \text{ and } -\frac{7}{2}$$

$\therefore x$ lies between the limits $\frac{3}{2}$ and $-\frac{7}{2}$.

4. Let $x =$ one part; then the other part is $2p + 1 - x$.

The product of the two parts $= x(2p + 1 - x)$.

Let $x(2p + 1 - x) = y$.

Then, $x^2 - (2p + 1)x + y = 0$.

$$\therefore x = \frac{2p + 1 \pm \sqrt{(2p + 1)^2 - 4y}}{2}$$

Now since x is real, the quantity under the root is positive.

$$\therefore (2p + 1)^2 - 4y \text{ is } +ve$$

$$\therefore 4y > (2p + 1)^2$$

$$\therefore y > \left(\frac{2p + 1}{2} \right)^2$$

$$\therefore \text{The greatest value of } y \text{ is } \left(\frac{2p + 1}{2} \right)^2 = p^2 + p + \frac{1}{4}$$

But x must be a whole number.

$$\therefore \text{The greatest value of } y \text{ is } p^2 + p \therefore x = \frac{2p + 1 \pm \sqrt{1}}{2}$$

$= p$ or $p + 1$. Therefore the two numbers are p and $p + 1$.

$$5. \quad ax^2 + 2bx + c = 0 \dots\dots\dots (1)$$

$$Ax^2 + 2Bx + C = 0 \dots\dots\dots (2)$$

Since the roots of (1) are α and β , we get $\alpha + \beta = -\frac{2b}{a}$ and

$\alpha\beta = \frac{c}{a}$. Similarly since the roots of (2) are γ and δ , we get $\gamma + \delta$

$$= -\frac{2B}{A} \text{ and } \gamma\delta = \frac{C}{A}.$$

Now it is given that $\beta - \alpha$ is a harmonic mean between $\gamma - \alpha$ and $\delta - \alpha$.

$$\therefore \frac{1}{\gamma - \alpha} + \frac{1}{\delta - \alpha} = \frac{2}{\beta - \alpha}$$

$$\therefore \frac{1}{\gamma - \alpha} - \frac{1}{\beta - \alpha} = \frac{1}{\beta - \alpha} - \frac{1}{\delta - \alpha}$$

$$(i. e.) \quad \frac{\beta - \gamma}{\gamma - \alpha} = \frac{\delta - \beta}{\delta - \alpha}$$

$$\therefore \beta\delta - \gamma\delta - a\beta + a\gamma = \gamma\delta - \gamma\beta - a\delta + a\beta$$

$$\therefore 2a\beta + 2\gamma\delta = \beta(\delta + \gamma) + a(\delta + \gamma) = (a + \beta)(\gamma + \delta)$$

$$\therefore \frac{2c}{a} + \frac{2C}{A} = \left(-\frac{2b}{a}\right) \left(-\frac{2B}{A}\right)$$

$$(i. e.) \frac{2c}{a} + \frac{2C}{A} = \frac{4bB}{aA}$$

$$\therefore 2cA + 2aC = 4bB.$$

$$6. \text{ Put the expression } \frac{ax^2 + bx + c}{cx^2 + bx + a} = y.$$

$$\text{Then, } x^2(a - cy) + bx(1 - y) + c - ay = 0.$$

$$\therefore x = \frac{-b(1 - y) \pm \sqrt{b^2(1 - y)^2 - 4(a - cy)(c - ay)}}{2(a - cy)}.$$

Now in order that x may be possible, the quantity under the root must be positive.

$$\therefore b^2(1 - y)^2 - 4(a - cy)(c - ay) \text{ is } +ve$$

$$(i. e.) y^2(b^2 - 4ac) - 2y(b^2 - 2a^2 - 2c^2) + (b^2 - 4ac) \text{ is } +ve$$

$$(i. e.) (b^2 - 4ac) \left\{ y^2 - 2y \cdot \frac{b^2 - 2a^2 - 2c^2}{b^2 - 4ac} \right\}$$

$$+ \left\{ \left(\frac{b^2 - 2a^2 - 2c^2}{b^2 - 4ac} \right)^2 - \left(\frac{b^2 - 2a^2 - 2c^2}{b^2 - 4ac} \right)^2 + 1 \right\} \text{ is } +ve$$

$$(i. e.) (b^2 - 4ac) \left\{ \left(y - \frac{b^2 - 2a^2 - 2c^2}{b^2 - 4ac} \right)^2 \right.$$

$$\left. + \frac{2(b^2 - a^2 - c^2)(a - c)^2 \cdot 2}{(b^2 - 4ac)^2} \right\} \text{ is } +ve$$

Now if b^2 is greater than $(a + c)^2$, it is also greater than $4ac$. Therefore $b^2 - 4ac$ and $b^2 - (a + c)^2$ are each positive. Therefore the expression above given is evidently positive; and y in that case, will be capable of all values.

$$(b^2 - 4ac) \left\{ \left(y - \frac{b^2 - 2a^2 - 2c^2}{b^2 - 4ac} \right)^2 - \frac{4(a + c)^2(a - c)^2}{(b^2 - 4ac)^2} \right\}$$

$$= (b^2 - 4ac) \left\{ y - \frac{b^2 - 2a^2 - 2c^2}{b^2 - 4ac} + \frac{2(a - c)\sqrt{a + c^2 - b^2}}{b^2 - 4ac} \right\}$$

$$\left\{ y - \frac{b^2 - 2a^2 - 2c^2}{b^2 - 4ac} - \frac{2(a - c)\sqrt{(a + c)^2 - b^2}}{b^2 - 4ac} \right\}$$

If $b^2 < (a + c)^2 > 4ac$

$b^2 - 4ac$ and $(a + c)^2 - b^2$ are both positive.

The above expression is equal to

$$(b^2 - 4ac) \left\{ y - \frac{b^2 - 2a^2 - 2c^2 - 2(a - c)\sqrt{(a + c)^2 - b^2}}{b^2 - 4ac} \right\}$$

$$\left\{ y - \frac{b^2 - 2a^2 - 2c^2 + 2(a - c)\sqrt{(a + c)^2 - b^2}}{b^2 - 4ac} \right\}$$

$$= (b^2 - 4ac)(y - a)(y - \beta), \text{ say.}$$

We have shown that $b^2 - 4ac$ is positive; it is obvious that a and β are possible quantities, because $(a + c)^2 - b^2$ has been also shown to be positive.

Therefore in order that x may be possible, the expression $(b^2 - 4ac)(y - a)(y - \beta)$ must be positive. But since $b^2 - 4ac$ is positive, $(y - a)(y - \beta)$ must be positive.

y in the second case cannot lie between the limits a and β , for if it does, one of $y - a$ and $y - \beta$ will be positive and the other negative, and consequently the expression $(y - a)(y - \beta)$ will be negative. Therefore the two values between which it cannot lie are

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

Thirdly, if $b^2 < 4ac$, we must have $(y - a)(y - \beta)$ negative. In this case y must lie between the limits a and β (i.e.) the two values within which y must lie are a and β .

$$7. (x + a - c)(x + b + c)(x + a - d)(x + b + d) = e.$$

$$\therefore \left\{ x^2 + (a + b)x + (a - c)(b + c) \right\}$$

$$\left\{ x^2 + (a + b)x + (a - d)(b + d) \right\} = e$$

$$\text{Let } x^2 + (a + b)x = y.$$

$$\therefore \left\{ y + (a - c)(b + c) \right\} \left\{ y + (a - d)(b + d) \right\} - e = 0$$

$$\therefore y^2 + y \left\{ (a - c)(b + c) + (a - d)(b + d) \right\}$$

$$+ (a - c)(b + c)(a - d)(b + d) - e = 0$$

$$\therefore y = -\frac{1}{2} \left\{ (a - c)(b + c) + (a - d)(b + d) \right\}$$

$$\sqrt{\left\{ (a - c)(b + c) + (a - d)(b + d) \right\}^2 - 4(a - c)(b + c)(a - d)(b + d) + 4e}$$

$$= \frac{1}{2} \left\{ (c - a)(b + c) + (d - a)(b + d) \right\}$$

$$\sqrt{\left\{ (a - c)(b + c) - (a - d)(b + d) \right\}^2 + 4e}$$

That y may be real, the expression under the root must be positive.

$$\therefore \left\{ (a - c)(b + c) - (a - d)(b + d) \right\}^2 + 4e \text{ is } +ve$$

$$(i. e.) (c-d)^2 (a-b-c-d)^2 + 4e \text{ is } +ve$$

$$(i. e.) 4e < -(c-d)^2 (b+c+d-a)^2$$

$$\text{Again, } x^2 + (a+b)x - y = 0$$

$$(i. e.) x^2 + (a+b)x + \frac{1}{2} \{ (a-c)(b+c) + (a-d)(b+d) \}$$

$$\pm \frac{\sqrt{(a-c)(b+c) - (a-d)(b+d) + 4e}}{2} = 0$$

The condition of the possibility of x is

$$(a+b)^2 - 2(a-c)(b+c) - 2(a-d)(b+d) + 2$$

$$\cdot \sqrt{\{ (a-c)(b+c) - (a-d)(b+d) \}^2 + 4e} \text{ is positive.}$$

$$\therefore (a+b)^2 - 2(a-c)(b+c) - 2(a-d)(b+d) >$$

$$\pm 2 \sqrt{\{ (a-c)(b+c) - (a-d)(b+d) \}^2 + 4e}$$

$$\therefore \{ (a+b)^2 - 2(a-c)(b+c) - 2(a-d)(b+d) \}^2$$

$$> 4 \{ (a-c)(b+c) - (a-d)(b+d) \}^2 + 16e$$

$$\therefore \{ (a+b)^2 - 2(a-c)(b+c) - 2(a-d)(b+d) \}^2$$

$$> \{ 2(a-c)(b+c) - 2(a-d)(b+d) \}^2 + 16e$$

$$(i. e.) \{ (a+b)^2 - 4(a-d)(b+d) \}.$$

$$\{ (a+b)^2 - 4(a-c)(b+c) \} > 16e$$

$$(i. e.) \left[\{ (a-d) + (b+d) \}^2 - 4(a-d)(b+d) \right]$$

$$\left[\{ (a-c) + (b+c) \}^2 - 4(a-c)(b+c) \right] > 16e$$

$$(i. e.) \{ (a-d) - (b+d) \}^2 \{ (a-c) - (b+c) \}^2 > 16e$$

$$(i. e.) (a-b-2d)^2 (a-b-2c)^2 > 16e$$

$$\therefore 16e < (a-b-2d)^2 (a-b-2c)^2$$

But we have shown that

$$4e > -(c-d)^2 (b+c+d-a)^2$$

$$\therefore 16e > -4(c-d)^2 (b+c+d-a)^2$$

$$\therefore 16e > -4(c-d)^2 (b+c+d-a)^2 < (a-b-2c)^2 (a-b-2d)^2$$

$$8. \quad c < b \text{ and } b < a$$

$$\therefore c = pb \text{ and } b = qa, \text{ where } p \text{ and } q \text{ are constant quantities.}$$

$$\text{Since } b = qa, \quad c = p.qa$$

$$\therefore a + b + c = a + qa + pqa = a(1 + q + pq)$$

$$\text{Now } ab = qa^2 \quad \therefore \sqrt{ab} = a \sqrt{q}$$

$$ac = pqa^2 \quad \therefore \sqrt{ac} = a \sqrt{pq}$$

$$bc = pq^2a^2 \quad \therefore \sqrt{bc} = a.q \sqrt{p}$$

$$\therefore \sqrt{ab} + \sqrt{ac} + \sqrt{bc} = a \sqrt{q} + a \sqrt{pq} + aq \sqrt{p}$$

$$\therefore \frac{(a+b+c)}{\sqrt{ab} + \sqrt{ac} + \sqrt{bc}} = \frac{a(1+q+pq)}{a(\sqrt{q} + \sqrt{pq} + q\sqrt{p})} = \frac{1+q+pq}{\sqrt{q}(1+\sqrt{p}+\sqrt{pq})}$$

Now since p and q are constant quantities, the expression $\frac{1+q+pq}{\sqrt{q}(1+\sqrt{p}+\sqrt{pq})}$ is equal to a constant quantity (say) m .

$$\therefore \frac{a+b+c}{\sqrt{ab} + \sqrt{ac} + \sqrt{bc}} \text{ is a constant quality.}$$

$$\therefore a + b + c < \sqrt{ab} + \sqrt{ac} + \sqrt{bc}.$$

9. Volume of a sphere $\propto$ cube of its radius.

$\therefore$ volume of a sphere = some constant quantity into (its radius)³

Let β represent this constant quantity.

$$\therefore \text{volume of a globe whose radius is } r_1 = \beta \cdot r_1^3$$

$$\text{volume of a globe of radius } r_2 = \beta \cdot r_2^3$$

$$\text{..... } r_3 = \beta \cdot r_3^3$$

$$\text{..... } r_4 = \beta \cdot r_4^3$$

$$\text{..... } r_n = \beta \cdot r_n^3$$

$$\therefore \text{volume of the whole} = \beta (r_1^3 + r_2^3 + r_3^3 + \dots + r_n^3).$$

Let R be the radius of the single globe, formed by melting and compounding the above globes. Then the volume of this globe = $\beta \cdot R^3$.

$$\text{But } \beta \cdot R^3 = \beta (r_1^3 + r_2^3 + r_3^3 + \dots + r_n^3)$$

$$\therefore R^3 = r_1^3 + r_2^3 + r_3^3 + \dots + r_n^3$$

$$\therefore R = \sqrt[3]{r_1^3 + r_2^3 + r_3^3 + \dots + r_n^3}$$

10. If $a \propto b$ when c is invariable, and $a \propto c$ when b is invariable, then will $a \propto bc$, when both b and c are variable. (Fide Todhunter's bigger Algebra, Article 425.)

Wages vary directly as the number of men that work when the time is the same.

Again, wages vary directly as the time during which they work when the number of men is the same.

$\therefore$ Wages vary as the product of the number of men into time when both the time and the number of men vary.

$$\therefore \text{Wages} = \text{some constant quantity into time into number of men.}$$

$\therefore \text{Wages} = p \cdot \text{time} \cdot \text{number of men.}$ It is given that 13 men earn £ 7 in 15 days of 8 hours each (i. e.) in 120 hours.

$$\therefore 7 = p \cdot 120 \cdot 13. \quad \therefore p = \frac{7}{13 \cdot 120}$$

Let w = wages of 52 men for $12\frac{1}{2}$ days of 9 hours each. Then
 $w = p \cdot 52 \cdot 12\frac{1}{2} \cdot 9$.

$$\therefore w = \frac{7}{13 \cdot 120} \cdot \frac{52 \cdot 25 \cdot 9}{2} = \text{£}26.5s$$

11. To find the sum to n terms, of the series whose p^{th} term is
 $(2p + 3)(2p^2 + 1)$ (i. e.) $4p^3 + 6p^2 + 2p + 3$.

Give to n , values 1, 2, 3, up to n .

$$\therefore \text{1st term} = 4 \cdot 1^3 + 6 \cdot 1^2 + 2 \cdot 1 + 3$$

$$\text{2nd term} = 4 \cdot 2^3 + 6 \cdot 2^2 + 2 \cdot 2 + 3$$

$$\text{3rd term} = 4 \cdot 3^3 + 6 \cdot 3^2 + 2 \cdot 3 + 3$$

$$\text{4th term} = 4 \cdot 4^3 + 6 \cdot 4^2 + 2 \cdot 4 + 3$$

$$\dots\dots\dots$$

$$n\text{th term} = 4 \cdot n^3 + 6 \cdot n^2 + 2 \cdot n + 3$$

$$\therefore \text{Sum to } n \text{ terms} = 4(1^3 + 2^3 + 3^3 \dots n^3) + 6(1^2 + 2^2 + 3^2 \dots n^2) + 2(1 + 2 + 3 \dots n) + 3n$$

$$= 4 \cdot \frac{n^2(n+1)^2}{4} + 6 \cdot \frac{n(n+1)(2n+1)}{6} + 2 \cdot \frac{n(n+1)}{2} + 3n$$

$$= n^2(n+1)^2 + n(n+1)(2n+1) + n(n+1) + 3n$$

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

$$= n(n+1)(n^2 + 3n + 2) + 3n$$

$$= n(n+1)^2(n+2) + 3n = n(n^3 + 4n^2 + 5n + 5)$$

12. If $a_0, a_1, a_2, a_3, a_4, a_5, \dots$ be the terms of a series whose differences ultimately vanish,

$$a_n = a_0 + n \Delta a_0 + \frac{n(n-1)}{2} \Delta^2 a_0 + \&c., \text{ where}$$

$\Delta a_0, \Delta^2 a_0, \Delta^3 a_0, \&c.$, represent the first terms of the several orders of differences.

a_0	a_1	a_2	a_3	a_4	a_5	a_6	a_7	a_8	...	the given series.
Δa_0	b_1	b_2	b_3	b_4	b_5	b_6	b_7	b_8	...	first order of differences.
$\Delta^2 a_0$	c_1	c_2	c_3	c_4	c_5	c_6	c_7	c_8	...	second order of differences.
$\Delta^3 a_0$	d_1	d_2	d_3	d_4	d_5	d_6	d_7	d_8	...	third order of differences.
$\Delta^4 a_0$	e_1	e_2	e_3	e_4	e_5	e_6	e_7	e_8	...	fourth order of differences.
									...	fifth order of differences, &c., &c.

In the above, the terms of the first order of differences are the differences of the 1st and 2nd, 2nd and 3rd, 3rd and 4th, 4th and 5th... terms of the given series; the terms of the 2nd order of differences are the differences of the 1st and 2nd, 2nd and 3rd, 3rd and 4th... terms of the first order of differences; and so on.

To find the n^{th} term of the series $1 + 18 + 75 + 196 + 405 + 726 \dots$

1	18	75	196	405	726	the given series.
	17	57	121	209	321	first order of differences.
		40	64	88	112	second order of differences.
			24	24	24	third order of differences.
				0	0	fourth order of differences vanish.

Here $a_0 = 1$

$$\Delta a_0 = 17$$

$$\Delta^2 a_0 = 40$$

$$\Delta^3 a_0 = 24$$

$$\Delta^4 a_0 = 0 = \Delta a_5 = \Delta a_6 \dots$$

$$a_n = a_0 + n \Delta a_0 + \frac{n(n-1)}{2} \Delta^2 a_0 + \frac{n(n-1)(n-2)}{6} \Delta^3 a_0 \dots$$

$\therefore a_{n-1}$ or the n^{th} term

$$= a_0 + (n-1) \Delta a_0 + \frac{(n-1)(n-2)}{2} \Delta^2 a_0$$

$$+ \frac{(n-1)(n-2)(n-3)}{6} \Delta^3 a_0 \dots$$

$$= 1 + 17(n-1) + \frac{(n-1)(n-2)}{2} \cdot 40$$

$$+ \frac{(n-1)(n-2)(n-3)}{6} \cdot 24 + 0 + 0.$$

$$= 1 + (n-1)(17 + 20n - 40 + 4n^2 - 20n + 24) = 1 + (n-1)(4n^2 + 1)$$

$$= 4n^3 - 4n^2 + n = n(2n-1)^2$$

$$\therefore \text{First term} = 4 \cdot 1^3 - 4 \cdot 1^2 + 1$$

$$\text{Second term} = 4 \cdot 2^3 - 4 \cdot 2^2 + 2$$

$$\dots\dots\dots$$

$$n^{\text{th}} \text{ term} = 4 \cdot n^3 - 4n^2 + n$$

$$\therefore \text{Sum to } n \text{ terms} = 4(1^3 + 2^3 \dots n^3)$$

$$- 4(1^2 + 2^2 \dots n^2) + (1 + 2 \dots n)$$

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

$$= \frac{n(n+1)(6n^2 - 2n - 1)}{6}$$

The general expression for the sum to n terms of the series a_0, a_1, a_2, a_3, a_4 , whose differences ultimately vanish, is

$$na_0 + \frac{n(n-1)}{2} \Delta a_0 + \frac{n(n-1)(n-2)}{6} \Delta^2 a_0 + \&c.$$

13. First term = 1.
 Second group = 2, 3, 4.
 Third group = 5, 6, 7, 8, 9.
 Fourth group = 10, 11, 12, 13, 14, 15, 16.

It is here observed that the numbers of terms in the 1st, 2nd, 3rd, 4th, and n^{th} groups are 1, 3, 5, 7 and $2n - 1$ respectively; to find therefore the sum of the terms of the n^{th} group, we have to ascertain what is the first term of the n^{th} group.

Now the number of terms in the first $(n - 1)$ groups
 $= 1 + 3 + 5 + 7 \dots \dots \dots 2n - 3 = (n - 1)^2 =$ last term of the $n - 1^{\text{th}}$ group.

We could have ascertained this by mere observation, for we observe that the 1st term is 1^2 ; the last term of the 2nd group is 2^2 ; the last term of the 3rd group is $3^2 \dots \dots \dots$ &c.

The first term of the n^{th} group = last term of the $(n - 1)^{\text{th}}$ group + 1 = $(n - 1)^2 + 1$.

$\therefore$ Sum of the terms of the n^{th} group

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

$$\{ n^2 - n(n - 1) + (n - 1)^2 \} = n^3 + (n - 1)^3.$$

(To be continued.)

PRESIDENCY COLLEGE.

ARITHMETIC.

I. A room 20 feet long and 15 feet broad has a verandah all round 6 feet wide; given that the height of the room is 14 feet, and the lowest height of the roof of the verandah 6 feet: find the cost of tiling the verandah at 2 annas a square foot.

II. A trough 12 inches long, 8 inches broad and 6 inches deep outside, is made of glass $\frac{1}{2}$ an inch thick. Find the weight of mercury it can hold; given that mercury is 13.5 times as heavy as water, and 1 cubic foot of water weighs 1,000 oz.

III. It is between 8 and 9 o'clock, and it is observed that the number of minute spaces between the hands, is $\frac{1}{2}$ of what it was 15' ago. What is the time?

IV. In a hundred yards race A can give B a start of 10 yds. and win by 10 yds.; B can give C a start of 20 yds. and win by 5 yds. They start together from a fixed point and run round and round a race course 200 yds. in circumference. After how many revolutions will A meet B and C respectively? and at what distance from the starting point?

V. A and B enter on a speculation and invest capitals in the ratio of 2:3. At the end of one year A increases his capital by $\frac{1}{2}$; and B withdraws $\frac{1}{2}$ of his; at the end of 2 years, A withdraws $\frac{1}{2}$ of what he has then, and B $\frac{1}{2}$ of what he has then. At the end of the 3rd year they have a profit of £1,370. Given that the rates of profits of the 1st, 2nd and 3rd years, are in the ratio of 3:2:1 respectively; divide the profits between them.

VI. A merchant insures his goods for £3,500 paying a premium of 5 per cent., so that in case of loss, he may lose only 20 per cent. of the premium paid. What is the price of the goods?

VII. A tradesman selling goods for a certain price to be paid 4 months hence offers to give $\frac{1}{2}\%$ more of the same goods for the same price ready money. What was the rate of discount?

VIII. A bankrupt whose liabilities amount to Rs. 17,200 has two bills in his favour for the same sum, due one year and two years hence respectively, and thus is in a position to pay 4 annas in the rupee. Find the sum for which the bills were drawn, simple interest being calculated at 5 per cent.

IX. If a person sells out of the 3 per cents. at 90 and invests the proceeds in lands at 25 years purchase, and thereby increases his income by £40; find the amount of stock he had in the 3 per cents.

X. A person has a certain amount of 4 per cent. stock. He sells out $\frac{2}{3}$ of it at 105 and invests the proceeds in the 5 per cents. at 110. He sells out of the 5 per cents. when they have fallen 5 per cent., and re-purchases the same amount of 4 per cent. stock at 104, as he sold before, and thus sustains a loss of £83. Find the amount of 4 per cent. stock originally held by him.

ALGEBRA AND EUCLID.

I. Solve the equations:—

$$(1) \sqrt[3]{x+a} + \sqrt[3]{x+b} + \sqrt[3]{x+c} = 0$$

$$(2) \begin{cases} x + y + m(x - y) = a \\ z - x - m(x + z) = b \end{cases}$$

$$(1 - m^2)yz = ab$$

II. If α, β be the roots of the Equation $x^2 - px + q = 0$, prove that $\alpha + \beta = p$, and $\alpha\beta = q$; and that the roots of the Equation $x^2 - (p^2 - 2q)x + q^2 = 0$ are the squares of the roots of the original Equation.

III. a. Investigate an expression for the sum of n terms of a series in Arithmetical Progression, whose first term and common difference are given.

b. If I buy n articles for R. 1 each, $n - 1$ articles for Rs. 2 each, $n - 2$ for Rs. 3 each and so on up to one article for Rs. n , find the sum I shall have to pay.

IV. Find the whole number of permutations of n things, when each may occur once, twice, thrice.....up to r times.

If m mosquitoes fly into a room occupied by $m + r$ persons, find the number of ways in which the party may be attacked (1) in any manner whatever, (2) so that each mosquito may attack a different person.

V. Assuming the truth of the Binomial Theorem when the index is any positive quantity, prove it for the negative.

Find the co-efficient of x^n in the expansion of $\frac{(1 - 2x)^2}{(1 - x)^4}$.

VI. a. If in any quadrilateral the opposite angles be together equal to two right angles, a circle may be described about that quadrilateral.

b. Compare the areas of two regular hexagons, one inscribed in, the other described about, a given circle.

VII. To inscribe a circle in a given triangle.

Having given an angular point of a triangle, the circumscribed circle, and the centre of the inscribed circle, construct the triangle.

VIII. Triangles, which have one angle of the one equal to one angle of the other, and their sides about the equal angles reciprocally proportional, are equal to one another.

Find a point in the side of a triangle, from which two lines, drawn one to the opposite angle, and the other parallel to the base, shall cut off, towards the vertex and towards the base, equal triangles.

IX. Describe a rectilinear figure which shall be similar to one, and equal to another, given rectilinear figure.

X. The alternate angles of a regular hexagon are joined: shew that the area of the hexagon formed by the intersections of the joining lines is one-third of the original hexagon.

TRIGONOMETRY AND EUCLID, BOOK XI.

I. Shew that $\tan A = \tan (180^\circ + A)$, taking A to lie between 180° and 270° .

II. Trace the changes in sign and magnitude of $\cos^3 \theta - \sin^3 \theta$ as θ varies from 0° to 180° .

III. Prove the following identities:—

$$(a) \cot \theta - \tan \theta = 2 \cot 2\theta.$$

$$(b) \cos^2 \alpha + \cos^2 (\alpha + \beta) - 2 \cos \alpha \cos \beta \cos (\alpha + \beta) = \sin^2 \beta.$$

IV. If $\tan \frac{\theta}{2} = \frac{1 - \tan^2 \alpha}{1 + \tan^2 \alpha}$, prove that

$$\sqrt{\tan \theta + \sec \theta} + \sqrt{\tan \theta - \sec \theta} = 2 \cot 2\alpha.$$

V. If θ be the circular measure of a positive angle less than a right angle, prove that $\sin \theta > \theta - \frac{\theta^3}{4}$.

Explain how this result is applied in calculating a table of natural sines.

VI. In any triangle, shew that $\cos A = \frac{b^2 + c^2 - a^2}{2bc}$.

Thence deduce the value of $\sin \frac{A}{2}$ in terms of the sides.

If m and n are the lengths of the perpendiculars from the angles at the base of a triangle on the line bisecting the vertical angle, shew that $4mn = a^2 - (b - c)^2$.

VII. Given two sides of a triangle and the perpendicular from the vertex on the base. Find the vertical angle.

VIII. Shew that $R = \frac{abc}{4\Delta}$, R being the radius of the circumscribing circle. The distances between the centres of the escribed circles being α, β, γ , prove that

$$4R = \frac{a^2}{\gamma_2 + \gamma_3} = \frac{\beta^2}{\gamma_3 + \gamma_1} = \frac{\gamma^2}{\gamma_1 + \gamma_2} \\ = \frac{(\gamma_2 + \gamma_3)(\gamma_3 + \gamma_1)(\gamma_1 + \gamma_2)}{\gamma_2 \gamma_3 + \gamma_3 \gamma_1 + \gamma_1 \gamma_2}, \gamma_1, \gamma_2, \gamma_3 \text{ being the}$$

radii of the escribed circles.

IX. Draw a line perpendicular to a plane from a given point without it.

X. A solid angle is contained by three plane angles:—prove that any straight line through the vertex makes with the edges angles whose sum is greater than half the sum of the containing angles.

PSYCHOLOGY.

1. Do the Laws of Association embrace all the intellectual operations?

2. What is meant by the seat of Revived Impressions? What is the seat? What are the proofs of the doctrine advocated by Dr. Bain?

3. Show that definition, induction and deduction are exemplifications of the Law of Similarity.

4. In the visual perception of a mango what Law of Association is involved?

1. Distinguish between the volume, the loudness and the pitch of a sound.

2. Trace the origin and determine the order (chronological and logical) of the notions of time, space and number.

3. What is the psychological import of Distance?

MADRAS CHRISTIAN COLLEGE.

HISTORY OF ENGLAND.

- I. a. What do you know of the *Kingship* among the Anglo-Saxons?
b. In what respect did the Saxon *Witen-a-gemot* differ from the *Parliament* of later days?
- II. a. State the chief limitations to the Royal authority at the accession of Henry VII.
b. Give a brief account of the struggle between the King and Parliament during the reigns of the Tudors, and the result thereof.
c. How did the dissolution of the monasteries by Henry VIII affect the constitution of Parliament?
- III. a. What is known in History as the *Reformation*? Contrast the Reformation in England with that in Germany.
b. Trace the progress of the Reformation in England through the reigns of Henry VIII, Edward VI, Mary, and Elizabeth.
c. State the chief points of difference between the State religion under Edward VI and that under Mary Tudor.
- IV. Give an account of the foreign relations of England under Henry VIII, pointing out how Wolsey influenced those relations.
a. Characterize the foreign policy of Elizabeth.
b. Point out how the condition of the poorer classes was ameliorated in her reign.
- VI. Show by a genealogical tree, and comment upon, the claims of Mary Stuart and Lady Jane Grey over the throne of England.
- VII. Write brief notes—historical and explanatory—on :—
The Act of Supremacy—The 'Bloody Bill'—The 'Bulwark of English liberty'—the Thirty-nine articles—The Defender of the Faith—The Star-Chamber—The Court of High Commission—The Puritans—The Armada—'Utopia.'
- VIII. How are the following personages connected with British History :—
Wycliffe, Simon de Montfort, Cranmer, Sir Thomas Moore, Knox, Caxton, Drake, and Cartwright.
- IX. Assign events to the following dates :—597, 1066, 1215, 1265, 1497, 1534, 1548, 1558, 1587, 1588.

ALGEBRA.

- I. Find a third proportional to 25 and 400.
- II. Deduce the proportions from the equations $x^2 - y^2 = xy$ and $a^2 + b^2 = ab$.
- III. If $\frac{a}{b} = \frac{c}{d} = \frac{e}{f}$ shew that each of these ratios

$$= \frac{pa + qc + re}{pl + qd + rf}$$

- IV. If the sum of any two of the quantities a, b, c be double of the third then shew that

$$\frac{(a-b)^2}{(b-c)(c-a)} = \frac{(b-c)^2}{(c-a)(a-b)} = \frac{(c-a)^2}{(a-b)(b-c)} = 1.$$

- V. Given a varies as b and b varies as c , show that $a + b + c$ varies as $p\sqrt{ab} + q\sqrt{bc} + r\sqrt{ac}$ where p, q, r are constants.

- VI. If A vary as B when C is constant and as C when B is constant; show A varies as BC when B and C vary.

- VII. The solid contents of two spheres one of which is hollow, and the other solid are to each other as 61 : 125, and the outer radius of the hollow sphere is to the inner radius as 5 : 4. Given that the solid contents of a sphere varies as the cube of the radius; show that the two outer radii are to each other as 5 : 1.

- VIII. Compare the common difference in the two arithmetical series whose n^{th} terms are $\frac{1}{2}\{2n+1\}$ and $\frac{1}{2}\{4n-1\}$.

- IX. The $(n+1)^{\text{th}}$ term of an *A. P.* is $\frac{ma-nb}{a-b}$; required the sum of the series to $(2n+1)$ terms.

- X. If $s_1, s_2, s_3, \&c.$, be the sums of arithmetical series (each to n terms), whose first terms are 1 and the common differences 1, 2, 3, &c. Show that $s_1, s_2, s_3, \&c.$, are in arithmetical progression and find the common difference of the series.

EUCLID.—BOOK IV.

- I. Describe an *equilateral* triangle about a given circle. State the relation between the radius of the circle *inscribed* in an equilateral triangle and that of the circle *described* about the same figure.

- II. Describe a circle which shall pass through three given points which are not in the same straight line.

- III. Describe a square about a given circle.

It is obvious that the square described about a circle is equal to double the square inscribed in the same circle.

- IV. Describe an *isosceles* triangle having each of the angles at the base double of the third angle.

1. The base of the triangle in the proposition is equal to the side of a regular pentagon in the smaller circle and the side of a regular decagon in the larger.
2. If the points of intersection of the circles be joined with the vertex and with each other another triangle will be formed equiangular and equal to the former.

V. Describe an equilateral and equiangular pentagon about a given circle.

If the alternate angles of a regular pentagon be joined, the figure formed by the intersection of the joining lines will itself be a regular pentagon.

VI. If ABCDEF be a regular hexagon and if AC, BD, CE, DE, EA, and FB be joined another regular hexagon is formed whose area is one-third of that of the former.

VII. In a given circle inscribe three equal circles touching each other and the given circle.

UNIVERSITY OF BOMBAY.

MATRICULATION EXAMINATION.

ELEMENTARY HISTORY AND GEOGRAPHY.

1. What instances are there in English history of the deposition of a reigning sovereign? Date the event in each case.
2. What great events do you associate with the names of Thomas a Becket, Edward the Black Prince, and John Hampden?
3. Give some account of the Corporation Act, the Act of Uniformity (during the reign of Charles II), the Conventicle Act, and the Five Mile Act.
4. Between whom, in what year, and with what result in each case were the following battles fought:—The three battles of Panipat, Bannockburn, Pinkie, St. Quentin, Senlac, Vittoria, Zutphen?
5. Who were the Ghurkas, the Pindaris, the Sikhs, the Begums of Oudh, the Slave Kings? What part did they play in Indian history?
6. What are the leading characteristics of the rule of Lord William Bentinck as Governor General? When did he rule? Mention and describe the chief reforms carried out by him.
7. Of what states are the following towns the capitals:—Stuttgart, Quito, Bangkok, Bucharest, Teheran, Lima, the Hague?
8. a. Name in order, going from west to east, the principal islands in the Mediterranean Sea, stating the country to which each belongs.
b. Name the chief rivers of Asia, saying of each of them into what sea it flows.
9. Give some account of the Gulf Stream, the Trade Winds, and the Monsoon.
10. Compare Europe, Asia, Africa and the Americas as to physical structure and features, pointing out special similarities and differences.

ENGLISH.

Describe in an essay of about 80 lines any journey which you have made by rail, road, or sea, or any pleasant walk you may remember to have taken.

Explain the following sentences:—

- a. The good run of business he had last season set him up for life.
 - b. He brought the horse to the hammer and knocked him down to the highest bidder.
 - c. His salary was so small that he could scarcely keep his head above water.
 - d. I received a letter at the dead of night written in a dead language.
 - e. The old man felt that his days were numbered.
 - f. At that time the practice of keeping late hours was very common.
 - g. There was little to choose between the rebels and their oppressors.
 - h. He is sure to do his business well, I'll be bound.
 - i. As a poet he presents a faint analogy to Milton.
- a. Give some account of the Indo-European family of languages. To what stock of that family does English belong?
- b. Give the Saxon equivalents of the following words of Latin origin:—Loquacity, mendicancy, sorcery, serpentine, larceny, anticipate, abstain, solitary, prevent, conversation, combustion, important.
- Give:—
- a. the plurals of 'leaf,' 'ox,' 'analysis,' 'criterion.'
 - b. the feminine of 'abbot,' 'actor,' 'duke,' 'songster,' 'testator,' 'nephew.'
 - c. Give the rules for the formation of the comparative and superlative degrees of adjectives. Explain the forms, 'worse,' 'next,' 'first,' 'farthest.'
 - d. Give the rules for forming the possessive cases of nouns. Write down the possessive singular and objective plural of 'knife,' 'conscience,' 'penny,' 'lady mayoress,' 'whosoever.'

Parse the words in italics; and explain the construction where necessary:—

- a. The *above* remarks, as we noticed *above*, apply *above* all to the third class.
- b. *There* was no one *there* but *you*.
- c. The coat is worth *quite* thirty *rupees*.
- d. Do as you please; *only* let your intention be apparent.
- e. The green trees whispered *soft* and *low*.
- f. Now is the *witching* time of night.

Write short sentences illustrating the meaning of each of the following pairs of words:—*Officious* and *official*; *ingenious* and *in-*

genuous; popular and populous; temperament and temperature; wilful and willing.

- a. Distinguish between 'accent' and 'emphasis.'
- b. What is meant by rhyme, quantity, metre, alliteration? Give examples of each.
- c. Define the following terms:—Tautology, euphemism, verbiage.
- a. What parts of the verb may be used (1) as nouns, and (2) as adjectives? Apply your answer to the word 'speak,' by making short sentences in which this verb is used in the different ways we have mentioned.
- b. Make use of the words *horse*, *kick*, *man*, as subject, predicate and object respectively to form one sentence in which (1) the subject is enlarged by an *adjective sentence* and (2) the predicate is enlarged by an *adverbial sentence* relating to cause.

COLLEGE-EDUCATION AND SELF-EDUCATION.

A LECTURE

By A. J. SCOTT, M. A.,

PRINCIPAL OF OWEN'S COLLEGE, MANCHESTER.

Delivered 3rd October, 1851.

It has been thought proper, by the governing body of Owen's College, that its opening should be marked in some more public and emphatic manner than its position has yet allowed. The duty is imposed on me of endeavouring to give some elevating and useful aim to the interest awakened by such a celebration. In delivering what must still be, in its essential character, an inaugural lecture on commencing the discharge of an academic office, I shall yield to the modification of that character suggested by the circumstances in which we meet, and by the relation in which our institution stands towards a community like that of Manchester. The occasion which brings us together is the establishment of a college, of an institution for carrying on, in connection with a great and growing university, the work of university education. We cannot advert to this without being led to consider the character and the worth of such an education: and on this subject, chiefly, I am about to address you.

The foundation is itself of the college, the zealous discharge, by some of those who best know Manchester, of the preliminary duties of its administration, the eager discussion in public of questions relating to the system to be pursued in it, in short, all the indications of interest excited by this new effort to introduce into the city the means of acquiring academic scholarship, are proofs that a want is acknowledged for which a university education is felt to be the appropriate supply. I may, therefore, hope to find among you a predisposition to weigh what may be offered as aid towards a definite conception of the culture which such an education is designed to bestow, and of the grounds on which it is worthy to be sought; while, on the other hand, I am stimulated to the undertaking by contemplating the prodigious antagonistic forces, with which the serene and ideal attractions of the intellectual life have to struggle in this metropolis of the world's industrial activity; forces, some of them essentially hostile, destined,

we trust, to be weakened or crushed in the conflict, but for the most part intrinsically noble or needful, and capable, therefore, of being harmonized with the influences which we have now especially to advocate, and of co-operating with them in a friendly opposition and healthful counterpoise, like that which maintains order among the powers of the material world, and which a due social organization strives to resemble.

The most obvious conception of the culture intended to be given by a university, is derived from such establishments having been originally employed in preparing men for the duties of a particular profession. There can be no doubt that this is to a great extent historically true, though not quite so absolutely as is generally supposed. At a very early stage in the history of modern civilization,—previously to the twelfth century, that is,—schools of the great churches, then most nearly corresponding to universities, offered scholastic education to any one who would accept it; though few, no doubt, perceived in it any value except in preparing for the priesthood. The schools of the more learned monasteries, such as that of Bec, in Normandy, which furnished England with two archbishops in the eleventh century, received, even at that remote period, future counts and dukes among the students as well as clergymen. But it is on the whole true, that those great schools, and the universities which from the twelfth century succeeded them, educated few who were not designed to officiate in the church. It does not follow that the education there bestowed was exclusively professional, according to the standard of knowledge at the time. Were this the proper occasion, it would not be hard to show that the case was decidedly the reverse. According to their means, it was characteristically a liberal education that those teachers purposed to communicate. Grammar, arithmetic, music, rhetoric, are studies well selected to form the basis of a general development of the humanity. If they were wretchedly taught, often wretchedly comprehended by those who had to teach, this is a defect of quite a different sort from priestly exclusiveness. A more just view of the fact, in regard to the universities at this early stage, is, that they attracted towards them the mass of such as aspired after the full exercise of their mental faculties, and an application of them to high and worthy objects; and that, in the existing condition of society, there was also but one profession towards which such men generally were drawn.

We are not, therefore, helped to solve the problem of what a university education is, so far as the origin of these institutions can help us, by this reference to professional purposes. As they aimed simply to give the highest education they could, we have still to inquire after the characteristics or essentials of this highest education. No doubt, this predominance of a professional interest gradually affected the process of instruction. Still, so much secular knowledge and free command of the intellect was imparted as to be found, without some counter check, even dangerous to theological belief. It was this, indicated by the notorious fact that the great schoolmen, after the universities had existed for a century, were the champions of investigation rather than of orthodoxy, which led to the memorable enterprise of the Dominican order in the thirteenth century, to give a directly religious aim to all the prevailing studies; that is, in other words, to use every particle of the existing knowledge as a weapon on the side of the established religious system. The intellectual culture of the laity had already greatly advanced. The professional or theological character which it was now sought to impress on general learning was in every sense a reaction against secular predominance, against independent inquiry, against studies which had attracted even the clergy from those of their profession. Then, indeed, an ecclesiastical character was impressed on

the highest education. But it was quite too late to attempt to repress what may be called the secular spirit in its pursuit of acquirement. The manifestations of its reaction in its turn were manifold throughout lettered Europe. There were already universities mainly for secular studies, as Bologna for civil law, Salerno for medicine. But in England took place the most vigorous display of educational enterprise on the part of the laity. The importance of the higher studies in preparing for political life; and the eligibility, for laymen of a certain rank, of professional pursuits hitherto abandoned to the clergy, led, in the fourteenth century, to the establishment of the Inns of Court. Then were the days of that laborious learning, whose very effluvia or aroma, after centuries, hangs about certain localities like an infection, sufficiently vigorous to make men catch lawyer-ship as the endemic of the place. But the process was not at once so very refined as now. The Inns of Court constituted as yet a true lay university, where a systematic and comprehensive knowledge was aimed at, of whatever entered into the education of a gentleman, according to the standard of the time.

It is not needful to pursue farther this historical illustration. Whatever formalities, predilections, or restrictions may remain to attest the former preponderance of the clergy in European universities, they are still conceived of as professing to give the most thorough and the most finished intellectual preparation for the secular life also; with this noticeable distinction, that in the universities of the continent, the idea of fitting men for their special functions and vocations has the greater influence, and in England, the idea of that training which should distinguish the man of mental cultivation in general,—what we mean, in short, by the characteristically English phrase to which I before had recourse, the education of a gentleman.

Admitting, then, that at one time the members of a particular profession mainly received their education at the universities of Europe, and that now there are certain vocations for which a university education is considered as especially necessary, or is even absolutely required by authority, we find, in these facts, not the essential character of such an education, but merely an extrinsic result of it. Universities are not to be defined as the means of preparing men for certain vocations, although there be certain vocations for which a university education is peculiarly needful or useful. In the middle ages, a prior or a parish priest was not expected to make direct use, in his official duties, of his acquaintance with the scientific principles of arithmetic, dialectics, or astronomy, as a knight was of his training in the use of arms and in the management of his horse; but it was expected that the whole mind and character of the scholar should have received a discipline, nutriment, and expansion from his academic pursuits, fitting him the better for humane, large, and lofty functions. This is plainly what was meant, however it was performed. In like manner, an English judge now may never in his whole legal existence have to refer to the *Principia* of Newton, or to the *Mécanique Céleste* of La Place; and yet the knowledge of those works, which a university has placed within his reach, may truly indicate a certain culture of the man, contributing to the dignity, and depth, and exactness with which his office is discharged. A French engineer has attended the course of Cousin, a German diplomatist those of Schelling or Hegel, an Edinburgh physician those of Hamilton, and the more they have learned, the less likely will they be to obtrude the methods of propositions of metaphysical or dialectical science into their respective business; but, the more they have learned, the more comprehensiveness, resource, and mental finish will they display there. Evidently, at

least, this was the object of their academic instruction. What practice it is missed, or imperfectly realized, the practice requires improvement, but ever in accordance with the fundamental principle.

How, then, are we to characterize that learning of which universities are to be the special seat? which has evidently, at first sight, the air of somewhat more profound, radical, and speculative than is elsewhere cultivated; inasmuch that wherever isolated individuals dedicate themselves to the like researches or contemplations, we feel that a substantial identity subsists between their pursuits and those for which colleges are erected. Instead of an immediately tangible or saleable utility forming their essence, they seem to be distinguished by its absence. What can any man do, or produce, corresponding to, or co-extensive with, his knowledge of the higher geometry, of the comparative anatomy of Cuvier and Owen, or the comparative glossology of Grimm and Bopp? What may seem an answer to this confirms and illustrates our position. No doubt improvements in theoretic mathematics, for example, are followed by improvements in the arts of life, but from minds fixed and limited by any practical ends, mathematical system could never have come forth. Again, the practical results of great discoveries of truth are, to a great extent, necessarily unforeseen, their very direction unthought of, not only during the investigation, but even after the discovery is made, and by the discoverer himself. They cannot constitute his guidance, or his inducement. It is truth for her own sake he has sought. Men gather fruit from his knowledge, because truth is prolific. But the progressive applications of a great discovery during centuries, or to the end of time, are an incomplete measure of the pregnancy of the original truth, which, by its principle of active life, is greater and more precious than all of them. We have here, then, a sphere of mental activity, which is, indeed, found to be fertile in most important uses, while these uses cannot be anticipated during the process, or proposed as its object. If far the larger share of such fruits are not directly or distinctly contemplated by the inquirer himself, how much less will the mass of mankind associate them with his abstruse studies? Kepler may have been aware that an improved knowledge of the planetary motions must improve navigation; he may even have definitely contemplated the lunar method of finding longitude as a result of his improvement of the lunar theory; but were merchants or seamen likely to consider their affairs as influenced by his enormous and apparently abstract calculations? Had the passion with which he devoted himself to ascertain the law of proportion between the distances of the planetary orbits from the sun, and the periods of their revolutions, anything to do, according to the apprehension of his contemporaries, with future fleets bringing home the materials of English manufactures, and the produce and manufactures of lands innumerable, for English use? And yet, in the commerce of all our ports is Kepler living, thinking, working, even now, daily and hourly, with a ubiquity and effect against which no services of individuals directly engaged in it are for a moment to be measured; discharging functions for which the payment of annual thousands in perpetuity would be a scanty recompense. Nay, not Kepler only, but the old Alexandrian, the Athenian of two thousand years ago, the Chaldean watching the heavenly motions another millenium away from us,—those who laid to the hands of Copernicus and Kepler the vast accumulation of materials for astronomical system,—all these are yet working in the mind of man, and for us. But astronomy itself is nothing without geometry. How purely contemplative, how utterly disconnected from the thought of practical application, were those studies of Euclid and Archimedes, which to later ages have

proved the basis of practice in innumerable departments! In the Pythagorean and Platonic schools were laid the foundations of the Greek geometry; and there the superiority to practical considerations was matter of principle and of system: yet there were the Conic Sections studied, so as to enable Kepler and his successors, a thousand years after, to apply to the planetary orbits a complete doctrine of the properties of the ellipse, which had waited all that time for the manifestation of its utility. Look, then, at those abstracted and theoretic ancients; and then show me the practical man, the scale and the result of whose operations is, for mere usefulness, to be named with theirs. But it was a benefit they conferred unawares, or knowing only that truth is fruitful, that knowledge is ultimately power; and if they knew not of that benefit, how could it be foreseen, or commissioned, paid for beforehand, by any generation from theirs to ours? There is no application of physical truth which seems so like the multiplying the limbs and extending prodigiously of an individual human presence, as the great series of the inventions of James Watt. Your city, as it stands, is almost his creation. To this there is no need to call your thoughts. But observe the nature of his preliminary inquiries. Who was likely to have considered as *practical*, the employments of a poor maker of mathematical instruments, devoting his too much leisure to mastering, testing, and extending Black's paradoxical theory of latent heat? It is the pulse of his brain that now throbs in all your engines; it is a great assemblage of speculative spirits which yields as its instrument the myriads of arms, and tools, and machines that stir around us. The men who in the very nature of things can never be appreciated, can never be hired, are the men that do the most even of that work which the world is readiest to value and remunerate.

In these remarks, I would not be understood as seeking to illustrate the practical utility of investigations in physical science. That topic is abundantly trite, and uncontested amongst us; so much so, indeed, that physical science itself is popularly identified with its economic applications. But I would take physical science as an illustration of the transcendent part which solitary and abstract study, not immediately directed to any outward result, bears in the history of the most practical improvement. So that human society is, for its own good, bound to afford for such study, opportunity and encouragement, since it cannot adequately recompense; to take care lest all its members become mainly practical men; to store up, and continue from age to age, the results of the more profound inquiry and speculation; to supply to the hand of the workers the stock of principles and facts, on which the truth of their working may be found, in varying and expanding circumstances, to depend. For such ends, among other instruments, has been instituted among every highly civilized people, something equivalent to a university education.

The men by whom achievements of such lasting worth are to be done, being comparatively regardless of results immediately estimable by others, must needs be comparatively elevated above considerations of self-interest. In children we see from the first a beautiful inquisitiveness, rendering it a reward in itself to know and understand more of that world of life and matter which lies around them. By and by, they have learned enough of the objects, to have a certain mastery over them, to be able to do something with them, if but in play, or in mimicry of earnest processes. They discover what pleasure or profit men can command from nature; and that this point a great division takes place among minds; affecting the course of the after life. Some follow in the beaten track of profit and advantage; with some few remains the fresh eagerness to know, and sympathy, so to speak, with the life of the universe, which made the happiness of the child. These are the

men to the highest of whom the world owes its great accessions of quickening knowledge, while others, in subordinate place, are well pleased to receive, communicate, perpetuate it, and hold it ready for the applications of those engaged in action. Disinterestedness is but another name for a disposition to find their interest and their recompense in the seeking and finding of the knowledge itself; a disposition belonging, as we have seen, to the very essence of their function. It would be idle to claim for this class an exemption from the ordinary necessities and appetites of humanity, or from the pursuit of their gratification, or to deny that in some instances, among which Watt is perhaps the most conspicuous, the practical application has been so rapid and so gainful, as to procure a large reward to the discoverer; but it would be just as idle to overlook the fact, that an amount of labour, a putting forth of superior power, is contributed by them to the joint capital of national and human efficiency, altogether impossible to be accounted for by the inducements which society holds out to their sense of personal interest. I say not merely look to the pittance of men like John Dalton, or the voluntary starvation of men like the late Graff, the German lexicographer; but compare what is considered as competency or effluence by your Faradays, Liebig's, and Herschell's, with the expected results of a successful life of commercial enterprise: then compare the amount of mind put forth, the work done for society in either case; and you will be constrained to allow that the former belong to a sort of workers, who, properly speaking, are not paid, and cannot be paid, for their work; as indeed it is of a sort to which no payment could stimulate.

As, then, we have seen exemplified in this class of labourers the paradox, that while their work is that in which immediate utility is the least considered, it is also that which is ultimately most useful; in them, too, we find exhibited another paradox, that, the nature of their duties disqualifying them for the care of their own interest, and their products being indeed without any immediate marketable value, the care of their interest, to the extent at least of an adequate provision for the continuance of their labours, becomes the concern of the community. Your provision, then, for the highest investigations of pure mathematics, is your provision for actual and future engineering, surveying, statistics, timekeeping, navigation,—the list you can extend at your pleasure; your provision for philosophical chemistry is your provision for dyeing, agriculture, the public and private care of health, and indeed, what not, among the economic arts; your provision for a large and exact literature and philology, is your provision for that commerce with past ages and remote peoples, whose imports are so essential to all the uses of life, and make a nation truly a member of the great community of mankind; without which, indeed, it is stranded and islanded in time, shut up to a narrowness of resources which it is happily impossible for us to conceive. For these, and the like ends, a university education among a people is provided.

But again, we have seen that the vocation of the scholar in literature and in science implies a specific disposition, what in its highest examples is called a genius, but must, in a measure, exist in the humblest, even in those who co-operate only as depositories and distributors. Every specific inward impulse is defined by its congenial good. The congenial good of the scholar lies in the truth, beauty, and excellence of ideas; in plainer words, it is enjoyed by knowing and contemplating. If others cannot sympathize with this, that were no reason for its not being sought after. The name of usefulness is much apt to beguile men here. We have shown how useful in this calling, even for such things as no man doubts to be serviceable. But were it not so, were one to ask of what use is your knowledge of the starry

heavens? Of what use is your Sanscrit, your poetry, your dialectics? Ask again, of what use is your champagne, your silken hangings, your account at your bankers? It is answered, I like them, or like others to admire them. But, I like them, is as good and as honest an answer for the tastes and requirements of the intellect, as for those of the palate. One is no more obliged, as a preliminary to satisfying these appetites, first to prove to others the reality of their objects, than to forbear enjoying music till he has made it demonstrable to a deaf man; or to suppress his delighted exclamations at the beauty of the prismatic colours, till he has made impossible the incredulity of the blind. But, alas, there is one great difference. The deaf man verily knows that he is deaf; the blind man that he is blind; or rather, the humiliation of confessing our defect is unvoidable as to the physical perceptions, whereas men can and will brave it out in regard to the higher senses of the intelligence.

Still it may be asked, are not certain things, as for example a convenient equipage, and above all, a good account at one's bankers, of use, distinguishable from mere immediate enjoyment? No doubt, of great and manifold use, especially the latter. But these things, or anything else, can be good in but two ways, as means or as an end; good for something else, or good for itself. The account at the bankers is, I suppose, chiefly good for something else; for what it commands. So far, then, its value to any man is the pleasure or the intrinsic advantage to him of what this enables him to have, or be, or do, and nothing farther. In like manner, if we set aside the pleasure of being driven in a handsome carriage, and the complacency of calling it ours, the good of it is in the facility and saving of strength, with which it conveys us from place to place; and in this case, too, its worth as means, is precisely the worth of the ends which it brings within reach; and not a hair-breadth more. It is tiresome, perhaps, to insist on so plain a point; but it is needful to remind men that usefulness is the attribute of means, not of ends; and that there must be a value above usefulness, as ends are above means. This is the goodness of a thing in itself. The relish of food, the smell of a rose, the sweetness of music, the contemplation of truth, &c., the peace of a man's conscience; these are instances, higher and lower, of that which is good, apart altogether from its being useful. But a thing is useful which procures me any one of these. And this establishes, too, that there could be no usefulness, if there were no other good than usefulness; that means would have no value, were there no ends worth seeking for their own single sake; and, to come home to our immediate object, that useful knowledge is not necessarily the highest kind of knowledge, nor usefulness its highest quality. A man may show no deficiency, of judgment, who, while he reads the newspaper as a means to ends, some of them small enough, regards as an end in itself, and not of the smallest, the communion of his spirit with that of a great ancient, and of a great people; even were it that of the Athenians, and of Thucydides.

Once more, the man is measured by his congenial good. He is higher or lower in the scale of humanity, not at all according to his command of the means of pleasure, nor the keenness of his relish and uninterruptedness of his enjoyment, but according to its source. The dustman, or coalheaver, whose wages give him food and clothes, and extend also to the congenial good of tobacco and potent beer, stands in his actual condition in another region from that of Howard or of Newton, inasmuch as the end he is content and qualified to pursue is a lower one. He commands it as amply, pursues it as steadily, delights in it as absolutely; but by laws immutable and eternal as humanity, it is lower in itself, and he is lower along with it.

Indeed, a distribution, not practically useless, of men's pursuits might be made, according to the very different degree in which the possession of the end accompanies the production or employment of the means. The toolmaker, for example, the man who lays down a railway, the manufacturer, the stock-broker and banker above all, are, in the exercise of their business, conversant with the production or accumulation of means, and means alone. Usefulness is the proper attribute of such employments, precisely because they can aspire no higher, because their objects do not, and cannot pretend to the distinction of being good in themselves, but are only good for something. The artist belongs to another class. The musician, for example, is not, like the maker of flutes or piano-fortes, conversant with the means only of musical enjoyment, but with the enjoyment of music itself. For himself and for others, that attracts and occupies him. He finds his end in the means. If he ceased to do so, no practice, no miracles of execution, will save him from ranking with artisans, not with artists. But if otherwise, it is this direct occupation with the end which gives him a higher place, within his own department, than the mere producer of means. This places the player or singer above the musical mechanic; but these, again, are but as instruments, relatively to the composer or musical poet. With the end, with the life and spirit of music, he is directly engaged. His place is, therefore, not only highest in his art, but among those who have a similarly central position in reference to all the great arts. He sits with Phidias and the poets of form, with Titian and the poets of colour, with Dante and Shakespeare and the poets of speech—every man after his measure. And so the man of science, of literature, of philosophy, stands not upon the usefulness of his pursuit, as do their subordinates, who are occupied with the means towards these several ends, or with their applicability to other ends, but upon its intrinsic worth and nobleness. His main business is with the good that is in it, not with the good that it is for.

With knowledge, then, and especially with the higher and deeper knowledge, it is as in the case of the bodily senses. What has more obvious, large and important uses, than the eye? But when sight is lost, these are not the benefits most regretted. Milton, describing the Hebrew champion,—

Blind among enemies, O worse than chains,
Dungeon, or beggary, or decrepit age:

while he represents him as lamenting bitterly the other evils to which he is thus subjected,

Dark in light, exposed
To daily fraud, contempt, abuse, and wrong,
Within doors or without, still as a fool
In power of others, never in my own:

yet makes all this secondary to the privation of the blessedness of seeing for the mere sight's sake.

O dark, dark, dark, amid the blaze of noon,
Irrecoverably dark, total eclipse,
Without all hope of day!
O first created beam, and thou great word
"Let there be light," and light was over all;
Why am I thus bereaved thy prime decree?
The sun to me is dark
And silent as the moon,
When she deserts the night,
Hid in her vacant interlunar cave.

And when the great blind man, in strains that recur so often, not too often, to our ears and lips, laments in his own person the same calamity, it is not that another must take him by the hand to cross the street, that another must carve his food, or even that he can read only by the eyes of others, hardships and sore obstructions as these are, but he mourns that

Not to him returns
Day, the sweet approach of even or morn,
Or sight of vernal bloom, or summer's rose,
Or flocks, or herds, or human face divine.

Finding thus—Wisdom at one entrance quite shut out, to him no consolation is adequate but the hope of the light that shines inward, and the mind through all her powers irradiates. So were it with all of us. It is good to have the guidance of our sight; but yet more exquisitely "Light is good, and it is a pleasant thing for the eye to behold the sun."

Because, then, scholarship nourishes all the arts of life, to which it is as the hidden moisture of the ground is to the produce of our fields, because it brings the mind in free contact with one of its higher appropriate goods, because it is the nutrition and development of faculties in man, without whose exercise he is less and lower than he ought to be; therefore it is well that countenance and encouragement should be given by society to that higher scholarship, which is the object of university education. The presence of some who are dedicated to it cannot fail to tell on an entire national life. I have all along supposed that their chief aim professionally is study-itself. On this I am disposed to lay not a little stress. The highest teaching can never be that of him whose chief business is to teach. Socrates, Plato, and Aristotle were resorted to, not because they had made teaching their business, but because they were believed to make philosophy their business. Look at the eagerness with which men in our own time run to be taught by any one who has dedicated himself to know and understand, that of which he is to speak; Schelling or Liebig, De Candolle or Guizot, Lyall or Faraday. It may happen that he is defective in the mechanism of the instructor. I have known it so; though it be rarer than is commonly supposed. Even then, from the master in any knowledge, something is to be caught that no other can impart. And if he have also in any measure the special gifts of a teacher, all will come forth from him with a life and love, with a power, a fulness and freshness, which you will look for in vain from the man whose main business you make it to communicate, and not to possess something worth communicating. Accordingly, a college is originally a provision for study and contemplation. In all the older colleges of Europe the endowment is for a life of study, whether in its commencement or in its maturity: the teaching is secondary. Not that communities are to be regardless of the impartation; but the chief portion of such care must be exercised over that which is to be imparted. He who learns from one occupied in learning, drinks of a running stream. He who learns from one who has learned all he is to teach, drinks "the green mantle of the stagnant pool." To catch information is something; to catch the life and spirit of the pursuit and contemplation of truth, is infinitely more. The one you may get from him, whose own studies are a *hortus siccus*; the other from him only whose knowledge is a garden of living plants, putting forth fruits in their seasons, changing their aspect as they grow. The existence of such men is communicative. Their manner of being leavens that which is around them, even an entire people. The more of free animated scholarship there exists anywhere, the more will it assuredly diffuse itself, by conversation and books, in its pure and systematic forms, and in the aids of theoretic insight afforded to those engaged in practice. But where the highest style of formal instruction is to be regularly provided for, it follows from our principles that it should be confided to those who are to dedicate themselves to the mastery and advancement of their several branches of knowledge. This seems to be the definition of the professor, as distinguished from the minister of the earlier education.

The special recipients of university teaching will naturally be those, firstly, who devote themselves to that search after truth which furnishes the first idea of university education; then, those whose vocation requires for its due discharge the general culture of mind and character, which demands such education for its completeness,—that is, the learned professions, emphatically so called; those whose future vocation requires the applying of principles belonging to science and the higher literature; along with all who are to possess leisure and ample means, without imagining that these things exempt from responsibility, or that they are in themselves all-sufficient to the well-being of a human mind and soul. Such are, in a country like ours, among the most important public functionaries, whether formally appointed or not. They exercise a social influence, which is limited or extended, and in all ways affected, for good or evil, by the manner and measure of their education in its highest stage. But if such men think only of the dignified enjoyment of their wealth, they will remember how much this depends on the same conditions. Books and pictures the rich man has; stores of delight they would be to the poor scholar or artist; to him insipid and empty, unless his mind be opened. The best things which money and station can command are, I suppose, conversation and travelling; and these are to every one in exact proportion to the mind he brings to them. One meets with worthy people heartily glad to escape from Rome, for example, because that great monument of the world is to them a book all in an unknown tongue; because it appeals to sympathies which their education has left dormant. Half the cost of some great journeys, expended on mental preparation, instead of couriers and equipages, might have made their pleasure and their profit tenfold. I shall never forget one whom I met many years ago at Zug, in Switzerland; a man mild and refined, as if by nature, who greatly delighted in the natural beauty and sublimity around us, but seemed to feel it quite an escape from the cities of the Rhine, of which he was weary. "But the Rhine," said my companion, "is so full of historical interest." The stranger's countenance clouded as he said, "To you it may be: to me all that is a blank."

But it is time to remember that you may, not unreasonably, think I have said too much, while I am painfully conscious of having said too little. I have tried to set forth to you the inestimable services of that higher knowledge of which colleges are the destined conservators; the dependence of those services on the free pursuit of knowledge, unfettered by considerations of immediate application to use: the intrinsic worth of study, apart from all its utility. I have sought to shew that it belongs to the region above that of demand and supply in the market, and that certain of its essential qualities are recognized, and that a due homage is done to them, by permanent provision for its maintenance irrespectively of that law. Where these qualities are so far ignored that this knowledge is put to the test of the counter, and held to be good so far and no farther than it will sell, you may do as is done in America, where senates of universities are gravely deliberating whether the lore of scientific method and primal learning is not to be abandoned, and directly profitable instruction, as in agriculture or commerce, substituted in its place: that is, whether university education shall not cease. America can afford to do this, not without loss, but she can afford to do it, and why? Seas and revolutions are between us, but speech, and books, and remembrances make us one people. Oxford and Cambridge are felt there, as they are in Manchester. But, in time, perhaps, America will feel that for her is needed a new diffusion, nay, to meet her special wants, a new modification, of that mental culture which the older universities, here, supply under limits of number and of form. May I be allowed to suppose that Manchester already feels this?

MISCELLANEOUS.

PACHEAPPA'S EDUCATIONAL CHARITIES.

DISTRIBUTION OF PRIZES.

Rajah Sir T. Madava Row, K.C.S.I., distributed the prizes to the pupils of Pacheappa's High School, Chengulroya Naicker's Middle School, and Govindoo Naicker's Primary School, in Pacheappa's Hall, at 5-30 p.m. yesterday, 13th August. Among those present were Sir Charles A. Turner, (Chief Justice,) Mr. Justice Kernan, Mr. Justice Hutchins, Mr. Justice Muthusawmy Iyer, Dr. D. Duncan, Mrs. D. Duncan, Miss Carr, Dr. W. H. Wilson, Mr. Eardley Norton, Mr. Powell, Mrs. Powell, Mr. and Mrs. and Miss G. Duncan, Dr. M. C. Furnell, and Mrs. Furnell, Mr. A. T. Arundel, Mr. and Mrs. J. H. Tarrant, Mrs. Hunt, the Rev. W. Miller, Mr. H. B. Grigg, Mr. P. B. Gordon, the Rev. P. Rajagopaul, Mr. Basil Lavery, Mr. P. Vijiarunga Moodelliar, Mr. V. Krishnama Charriar, Mr. V. Bashyam Iyengar, Dr. Dhanakote Raju, Rai Bahadoor T. Gopala Row, The Hon. Mir Humayun Jah Bahadur, Mr. V. Cunniah Chetty and Mr. P. Raghoonatha Moodelliar. Proceedings commenced by the President of the Charities, Mr. P. Somasoodrum Chettiar, reading the following paper:—

"We, the Trustees, cannot but feel, and I am sure all here will admit, that our Proceedings to-day are clouded by a sad event, the news of which has been recently received; I mean the death of Mr. John Bruce Norton, formerly Advocate General of Madras, and for many years the Patron of Pacheappa's Charities. When I look back to the eighteen years during which Mr. Norton, with such distinction to himself and benefit to the native community, discharged the duties of Patron of these Charities; when I call to mind the eloquent words of counsel and encouragement that annually fell from his lips in this Hall, making Pacheappa's Anniversary one of the great educational events of the year; and when I feel that those eloquent lips are now silent for ever, you will believe, Sir, that it is with feelings of sincere sorrow that, on the part of my colleagues and myself, I address you on this occasion. Mr. Norton deserves the gratitude and affectionate remembrance of the native community especially for his steadfast and consistent advocacy of a system of national education for the people of India, on a secular basis and without any interference with their religious faith. Through good report and through evil report he was, along with his namesake, Mr. George Norton, the champion of those measures in connexion with the education of India which the Government finally sanctioned and which resulted in the present educational system—a system which has worked so well for more than 40 years that it is to be hoped that no change of it in any respect is seriously contemplated. The Trustees of Pacheappa's Charities have many additional reasons for holding Mr. Norton in affectionate remembrance. The interest which he took in these institutions was deep, as his speeches testify; and of the advice and assistance which he gave, and gave so heartily, on occasions of difficulty and even of danger, the Trustees of Pacheappa's Charities will ever preserve a grateful memory. It was always Mr. Norton's practice to end his educational speeches in this Hall by requesting all present "to have in respectful and grateful remembrance the memory of our founder Pacheappa." Mr. Norton's name has become so intimately associated with these Charities, that I feel justified in calling upon all present, who have benefited by these Charities in any way, to hold in affectionate and grateful remembrance the memory of our distinguished and large-hearted Patron for many years—John Bruce Norton.

The Secretary then read the Trustees' Report from which we take the following:—

Finance.—The balance at the beginning of the year was Rs. 77,994-4-3. Receipts during the year Rs. 53,690-14-3, making a total of Rs. 131,685-2-6. The expenditure amounted to Rs. 52,195-5 11, leaving a balance in favor of the Charities of Rs. 79,489-12-7.

Management of Schools.—Pacheappa's High School commenced the year with 134 boys. There were 351 admissions and 343 withdrawals during the year, leaving 142 boys on the rolls. The average daily attendance was 91 per cent. The whole of the senior class appeared for the First Examination in Arts and only 8 students succeeded in passing, 80 pupils were recommended for the Matriculation Examination and 59 passed. The Government Inspector of the Presidency visited the institution in August and examined the lowest class, and the Director of Public Instruction in reviewing the Inspector's report pronounced the school "on the whole to be in a fairly satisfactory condition." As to physical education, the Government have been pleased, at the intercession of the President of the Municipality, to give the requisite plot of ground on the Esplanade opposite the Hall, and a trained gymnastic teacher has been secured through the Physical Training Association. His Highness the Elia Rajah of Travancore, presented the school with a handsome donation for providing a set of gymnastic apparatus. During the year, Pacheappa's High School and the other two schools under the Trustees were visited by the Education Commission, and an address was presented on the occasion to the Hon. W. W. Hunter, the President of the Commission.

The Branch school at Conjeveram had on its rolls on the first day of the year 206 boys, and taking into account the admissions and withdrawals the number at the end of the year was 236 boys with an average attendance of 88 per cent. Out of 18 pupils who appeared for the Matriculation Examination, 9 passed, and as many as 22 out of 24 boys, passed the Middle School Examination. This school was inspected by Dr. J. Bradshaw, whose report is not to hand.

The Branch School at Chedambaram closed the year with 260 boys with an average daily attendance of 92 $\frac{1}{2}$ per cent.; 11 boys passed the Matriculation, and 25 passed the Middle School Examination. There were some changes in the teaching staff.

Ponnambala Pillay's Sanscrit School closed the year with 23 boys, average attendance 16, and the progress of the School was fair.

Govindu Naicker's Primary School closed the year with 352 boys with an average daily attendance of 90 per cent. The results of Dr. Bradshaw's examination were fairly satisfactory.

Chengalroya Naicker's Middle School closed the year with 369 pupils, with an average daily attendance of 88 per cent., 96 boys passed the Middle School Examination. The Government Inspector examined the pupils in August, and the Director, in reviewing the Inspector's report, "hopes that much better results will be produced at the next inspection as those now reported are only moderately satisfactory."

An orphanage with an Industrial School in the name of Chengalroya Naicker was organised, containing 50 orphans.

The Principal, Mr. Cruickshank, next read his report of which the following is a summary.

The three schools were visited on the 6th October last by the Education Commission. In their address to Dr. Hunter on that occasion, the Trustees, after stating their views on education generally, explained how unjustly they were treated in the matter of grants—that while they were refused the whole

of even the small amount allowed under the grant-in-aid code, a neighbouring Mission school not only received all it was entitled to, but had during the year received an enormous additional grant very much in excess of the whole amount received on account of Pacheappa's College and High School. Only eight students succeeded in passing the First Examination in Arts, being 25.1 per cent. of those who appeared. Speaking of the failures in the recent F. A. Examinations the Principal believed that it was too frequently forgotten that examiners were not appointed to make the futile attempt to discover how much a boy did not know, but to ascertain whether he knew enough to entitle him to pass the examination. There were about 180 separate points to be answered in the poetry paper and 180 minutes to answer them in. The Principal did not think that the "Candidate of decided ability," contemplated by the University, could have answered the whole of this paper in less than four hours and a half, although, perhaps, a paragon like Macaulay's school-boy might have answered it in half an hour less—59 boys passed the Matriculation, and 51 boys passed the Government Fifth Class Comparative Examination.

One of the boys then came on the platform and recited, "These are Thy glorious works Parent of Good," followed by some recitations by two of the younger boys. The Chairman then distributed the prizes and read the following address:—

LADIES AND GENTLEMEN.—When a person has, for some years, occupied a position of power and influence, you may, as a rule, pretty safely credit him with the possession of an art rather important and useful—namely, the art of firmly saying 'no' to an indefinite number of applicants more or less pressing! In the course of my life, I have come in contact with consummate masters of this art, and I have, to some extent, made them my study! I had flattered myself that I had thus acquired something of this necessary art. But, only the other day, I was quite undeceived. I will tell you how this happened. My friend, Mr. Somasoondram Chettiar Avergal, called upon me one fine morning when the sun shone bright, the trees looked glorious in their freshened foliage, and man might be supposed to share the general joy of nature. After some judicious introductory conversation, he let the cat out of the bag! He requested that I should be good enough to take the chair and to deliver a short address on this occasion which has brought us together here. Without a moment's hesitation I gave him a reply in the negative, tempered, however, with all the politeness I could summon. I pleaded my strong wish not to be tempted out of my placid retirement. I pleaded also that I was far more a man of the closet than of the platform. And I laid all the stress I could on the impossibility of my doing anything like justice to a task which, in preceding years, had been performed by men specially qualified for it, and performed in an excellent, and often in a memorable manner. My friend heard me with his characteristic patience and calmness, and met me with a remonstrance, simple, yet singularly eloquent and forcible. He soon convinced me that further resistance was useless. The result was, I had to yield; and I now stand before you to offer a few remarks, to which I beg your indulgent consideration. The reports which have just been read speak for themselves. They give the salient facts in a short compass; and there is little matter for any special comment. The financial statement appears satisfactory. This is an important criterion of good management. There was a balance in hand of nearly Rs. 80,000; and in what shape this balance was held—how much in cash, how much in notes, and so forth, and in what way safeguarded,—these particulars are found in the appendix of the Report. I observe that the Trustees get the

money-accounts audited by experts: This is a proper course to maintain. The results of the University Examinations constitute a fair, though not an infallible test of the efficiency of a school. If, in any year, and in any respect, these results are unsatisfactory, the Trustees do well to demand explanations, and to subject the explanations to a close scrutiny. The remarks and suggestions which the Government Inspectors make from time to time, receive, no doubt, the best attention possible from all concerned. Grants-in-aid, accorded by Government, will, let us hope, be more liberal hereafter. I am quite sure that Government feel a sincere interest in these purely Native institutions. What we want is, that the pecuniary aid should be commensurate with that interest. The Trustees have recorded "their warm acknowledgments of the great zeal and ability with which the Principal, Mr. Cruickshank, has conducted his important duties"; and the labours of the other teachers are also favourably noticed. It is needless to observe how very largely the success of these educational institutions depends on the thoroughly conscientious manner in which the teaching agency performs its sacred functions. Let every teacher, from the top to the bottom, constantly keep in sight the best examples of his profession, and strive to come up to them. On the whole, the schools appear to be doing work fairly. And it is a noteworthy fact that the good done by them is more than local, for, the pupils come from nearly all parts of the Presidency. The public owe their best thanks to the President and Trustees for gratuitously devoting so much of their time and attention to the administration of the important trust in their hands. The President has already alluded to the sad loss we have sustained in the death of Mr. Norton. He spoke feelingly about it and at the very outset, because the melancholy topic was naturally uppermost in his mind. This place, this occasion, and this audience, must always forcibly recall the name of one who was, for years, closely connected with this institution as its patron, and closely connected with this community as its benefactor. With unfeeling rapidity and abruptness has the Telegraph brought us the sad intelligence of his death in England. Who in this large assembly—who in this large community—is not familiar with the honoured name of John Bruce Norton? Who is there, with philosophy frigid enough to regard this loss with indifference? Whatever may have been sometimes said to the contrary by occasional ill-will or by excusable ignorance, gratitude for disinterested benefits is a prominent characteristic of the native heart. John Bruce Norton cannot be forgotten. He will live in the grateful memory of this community much longer than his form will be borne by the canvass which adorns these walls. I knew Mr. Norton in the plenitude of his ability, of his energy, and of his benevolence. A European, and therefore an alien, though he was, he sincerely loved the natives of the land. His was not a barren feeling, occasionally paraded for merely conventional purposes. It was genuine in its character. It operated steadily—it operated incessantly—it bore substantial fruits. It was the offspring of a large heart and of a deep conviction. In the very hall in which we are now assembled, he said of himself, and of his European fellowmen, "We must drop the habit of regarding ourselves as mere exiles, whose first object should be to escape from a disagreeable climate, with the greatest possible amount of the people's money, in the shortest possible time. We must look upon the land as that of our adoption; and each of us, according to his means and opportunities, must help on the welfare of the natives in that station of life to which it has pleased God to call him." Keeping this, his own high ideal, constantly before him, he worked on honestly, vigorously, and, as well all know, with remarkable success. He took a warm interest in the cause of native education. He took a prominent share in setting the broad lines which State education should fall on. He earn-

estly pleaded for the enlightenment of the people as a fundamental condition of the advancement of their welfare. This was not all. He freely met the educated natives of the day, afforded them generous sympathy and useful advice, and, in not a few instances, he exercised his personal influence to enable them to start, or get on, in life. I am glad I have this public opportunity of acknowledging the large debt of gratitude which I myself owe to Mr. Norton in these respects. Many friends here will still remember the highly encouraging words which often fell from him in this very Hall regarding my career in Travancore. Words coming from such a man, addressed so publicly, and often in the presence of the ruling authorities, carried to me, near Cape Comorin, a solace and a strength, which it is difficult for me to enable you fully to realise. His indefatigable exertions extended over the whole area of native interest. He was an ardent advocate of native interests and native advancement in the most comprehensive sense. He spoke, he wrote, he acted in their behalf so earnestly, so disinterestedly, and so constantly, that he succeeded, in no small measure, in elevating the ideal of Government itself in regard to its duties to its subjects. His favourite maxim was, (to quote his own words) "India must be governed *for* India, *in* India, and in the main, *by* India." It is the loss of such a man, that we now deeply deplore. It is a loss which, as the President has said, cannot but cast a shadow on the proceedings of this day. As we must not permit ourselves to dwell too long on the sad and irreparable event, let us now turn to pleasanter topics. My memory easily and vividly recalls the period when Mr. George Norton, Mr. John Bruce Norton, Sreenivasa Pillai, Hyder Jung Bahadur, and Lutchminarasu Chettiar, were conspicuous figures. When, on the eve of my leaving for Travancore, I called on Mr. George Norton to take leave of him, he affectionately placed his hand on my head and gave me his blessing. He had always taken a great interest in me, and was chiefly instrumental in my obtaining a footing in the Travancore Service. As for Mr. John Bruce Norton, I have just told you how he encouraged and strengthened me in my career in that Native State. Hyder Jung was also one of the Governors of the Madras University, and gladdened me with an occasional present of books while I was yet a student at school. *Lutchminarasu Chettiar was the great patriot of the day and made immense sacrifices for the good of the country. But, among these native gentlemen I remember Sreenivasa Pillai the best, because he used not only to give me books, but to favour me with an occasional kiss! The kiss was, no doubt, given with true educational affection. But I rather disliked the masculine compliment, for, it entailed the friction of an unusually luxuriant moustache! All those prominent figures of the period are gone—gone for ever. I have referred to them here, chiefly to identify the period I have in view. From that period, education has made great progress in Madras, and indeed, in all parts of India. The results are generally striking and gratifying in a high degree. Numbers of fairly educated natives are met with, employed in various pursuits, usefully and honorably. We see excellent specimens of them as Government servants, as Court-Pleaders, as Doctors, as Engineers, as Merchants, and as general members of society, such as would do credit to any nation. The progress of education has decidedly raised the moral tone of the community. It has created an intelligent native public opinion. It has brought into existence a number of reformers in the various departments of Native life, who are striving to improve the existing state of things in various respects. From what has been thus far proved, it may be legitimately inferred that the native intellect is capable of indefinite development under favourable circumstances. We need not be oppressed with any suspicion that nature has constituted us a race, appreciably inferior to any on the face of the earth. Our intellectual capa-

bilities being such, all will depend on the way in which they are developed. Nor is this diffusion of education confined to British India. It is a matter of the greatest congratulation that education has considerably penetrated important Native States, and will more and more penetrate all of them. Instances may be pointed out of Native States, which cheerfully maintain costly and well-managed colleges. And, an additional feature of great interest and auspicious significance is, that there are examples of native Princes themselves being well-educated men. You know that I am naturally a warm friend and well-wisher of the Native States. I ardently desire that they should exist in perpetuity as so many sources of usefulness, of strength, and of honour to the British Government. If they are to exist as such—if they are to exist at all for any long period—their rulers should cease to be ignorant despots, and their subjects should cease to be ignorant men. Indeed, education is even more necessary to a Native State, than to a British Indian Province, inasmuch as the highest functions of Government in Native States are performed by natives, whereas British Indian Provinces, have the benefit of European supervision. The expansion of education which has already thus taken place, though as yet falling much short of the requirements of the vast population, has already done an amount of solid good, which it is difficult to estimate. But, one circumstance should be noted here, and again and again. The vast amount of good which has thus been effected is due to high education, and nearly to high education only. Elementary education, I do not deny, has an important use of its own. But, mere elementary education cannot supply power enough to overcome the inertia of ages—cannot supply power enough to break through the barriers placed on the path of progress, by ignorance, by prejudice, and by superstition. For this purpose, a certain amount of power is required. Knowledge being power, we must impart knowledge to that decree, which yields no less than the power required for the purpose. It is, therefore, to be earnestly hoped that nothing will be done to retard high education even on the plea of accelerating elementary education. I cannot let this opportunity pass without offering a few remarks regarding a suspicion which has been more or less haunting the minds of our rulers—at least some of them,—a suspicion, that highly educated natives are prone to become disloyal to the British Government. Having had very intimate intercourse with many highly educated fellow countrymen,—having had access to their inmost thoughts,—I have no hesitation in avowing my belief thus publicly that the suspicion has no real foundation. On the contrary I feel sure that, as a rule, highly educated native gentlemen realise and appreciate the blessings of British domination far better than the great mass of the people, whose knowledge is limited to their own personal experience, and who can hardly recall the frightful misgovernment of the past. Of all the people of India, those who have had the benefit of high education are the most interested and the most earnest in wishing for the continuance of British rule. They are convinced that British rule is absolutely necessary for the peace, the prosperity, and the future development of India. They are convinced that no other power on earth would govern India so justly, so wisely, and so beneficially. There should be no doubt about these facts. But, the educated natives are—for the very reason they are educated—disposed to criticise Government much oftener, and much more, than all the rest of the population. They have learnt a high ideal of Government. They have treasured up the noble principles which great English statesmen themselves have enunciated and advocated. They regard the Queen's Proclamation of 1858 as their great charter. Whenever, therefore, the action of Government in any of its departments appears to them to fall short of the

standard they have thus formed, they are apt to complain, a circumstance which perhaps makes them seem less grateful—less loyal—than the mute millions. Now, criticism, thus arising, ought surely to be tolerated if not encouraged. The object of such criticism is to improve the existing government—by no means to overturn it. To make the matter clearer by analogy, let me remind you that many a wife complains of the husband with the object of obtaining better treatment, and certainly without the object of bringing about a divorce! Many a good lady, whether native or European, will, I am sure, corroborate the truth of this homely illustration! I do not overlook the oft-quoted fact that some of the native newspapers are too often unmeasured in their political criticism. It is an evil, sincerely to be deplored. In this connection, I would invite attention to a few considerations. In the first place, all the violence exhibited is not to be attributed to the highly educated natives. On the contrary, the violence too often proceeds from half-educated men who, unable to find other employment, take to newspaper writing. There is then the effect of occasional bad example set by some organs of Anglo-Indian opinion. Something is also due to youthful folly or indiscretion or immaturity, such as exist in every community. Again, the native writers are necessarily too theoretical, not having had the benefit of sobering experience in the actual management of affairs. Even the frisky and bellowing Indian bull often subsides into a quiet, plodding animal under the actual pressure of the yoke! The more the natives are associated in the higher work of administration, the better will they realise and appreciate those many circumstances which compel material modifications of theory in actual practice. On the other hand, Government also should recognise the fact that the progress of education necessitates the gradual elevation of the standard of administration. What satisfied fifty years ago, will not satisfy now. This is an important truth; but, it is so obvious as to need no demonstration. Again; when the public journals question the justice or wisdom of any action of Government, Government should condescend to afford explanation, oftener and more fully than heretofore. Such explanations would, in many cases, clear up matters and obviate dissatisfaction. A good and strong Government ought not to hesitate to take the people into its confidence. In what way Government may offer explanations to the public is a question of detail. Very often, and oftener than heretofore, it may lay on the Editor's table such records as contain the necessary explanations. But, I would strongly recommend some recognized system of putting questions to Government and of eliciting replies. The time has come for introducing a moderate system of the kind, carefully guarded against abuse and embarrassments. It would have a marvellous effect in keeping public servants on the alert, in enabling Government to vindicate itself in the eyes of the public, and in averting misapprehensions and dissatisfaction on the part of the people. Again; Government might well arrange for the more extensive employment of the educated native by the heads of its various departments. I speak from positive personal experience when I aver, generally, that an educated native, when he has had some practical training, makes a far more useful and far more trustworthy official, than a man of the old school. The educated native works with an intelligent appreciation of reasons and principles—an appreciation, without which, work cannot be done thoroughly well. The educated native has a character to maintain; he is actuated by good motives. He is therefore trustworthy,—a quality so necessary in every post, wherein anything more than merely mechanical duties have to be performed. In this connection, I may assure all concerned that I should not have been able to put the administrations of certain important Native States in fair order

but for the valuable assistance and co-operation of well educated fellow countrymen. I acknowledge this with equal pleasure and gratitude. Let no apprehension be felt by the head of any Department that an educated native is more difficult to manage than one of the old school. The educated man is, of course, not given to flattery and blind subservience. But, under fair treatment, he is as amenable to discipline, and as willing to work diligently and cheerfully, as any other. The secret of getting him to work to the utmost of his power lies in treating him with the courtesy, the consideration and the sympathy which are due to educated gentlemen. In these circumstances, it is obvious that the accession of every educated native to the public service is calculated to contribute to the elevation of character, and quality of administration in general. Make the best laws; frame the most elaborate rules; issue the most stringent circular orders; they would all be of little use unless ignorance and corruption are eliminated, and intelligence and probity are substituted. It may not be irrelevant here to say a few words on the subject of social intercourse between the higher classes of Europeans and the educated natives. Every one admits the desirableness of promoting such intercourse, and yet, matters in this respect appear to be almost standing still. It has been sometimes said that, so long as the natives decline to dine with Europeans, such intercourse is hardly possible. I confess I doubt the validity of this argument. Just recollect that the Brahmins do not dine with the Sudras; nor the Sudras with the Mussulmans. There are sects of Brahmins who do not dine with each other. And yet, cordial intercourse between them is by no means wanting. It is, therefore, to be hoped that earnest men on both sides will do something to bring Europeans and natives closer together, because it is one of the best means of creating mutual sympathy—a sympathy which must be of great political value in a country, situated as India is. Now let me turn to the students assembled before us and address them in a few words of simple and practical advice. My young friends. While you are eagerly pursuing your studies, remember that good health is more essential to happiness, than anything else. Let then your studies be prosecuted consistently with good health. Do not over-work your brain. Do not deprive yourselves of sleep, eat well, sleep well, and study well! Do not neglect physical education. Bodily exercise is quite necessary to health, which, I have said, is of inestimable value. In carrying on your studies, work moderately, regularly and uniformly. Do not be idle for some time, and then try to make up for it by over-exerting yourselves. In other words, avoid spasmodic activity. Try to find out things yourselves as much as possible, rather than shirk labour and get others to do, what you ought yourselves to do. The exertion involved in doing the thing yourselves improves you and strengthens you, whereas the habit of dependence upon others must weaken you. For instance, if you want to know the meaning of a word, refer to the dictionary yourselves and get the meaning, rather than ask a friend or teacher for the same. Do not pass over a thing which you do not thoroughly understand. You should grapple with it, and be at it, till you thoroughly understand it. It is only in this way you will make sound and solid progress. It is not enough simply to take in knowledge, you should digest and assimilate it. In other words, avoid what is called cramming.

Cultivate the reasoning and judging powers. These are called into requisition in every career, and almost at every step. They make the main difference in the value of men. Cultivate the habit of giving exclusive attention to any given subject—of concentrating the mind upon it. This habit constitutes the foundation of intellectual excellence. Acquire a correct pronunciation. It requires much and constant attention to succeed in this.

Acquire a simple and correct style of composition for the ordinary purposes of life. It would be very awkward—indeed discreditable—if an educated man is not able to draw up a decent letter, official or private. Be sure that your handwriting is fairly good. It is a great mistake to suppose that a bad hand denotes a good scholar. Do not leave school before completing your education according to the prescribed plan. You must at least reach some of the higher stages in the educational career. Do not consider that your education has ended when you have left school. What a man learns at school is a very small part of his education. When school education ends, self-education begins, and, self-education must go on through life and to the end of it. English being a foreign and difficult language, it is apt to slip away from us unless we take special steps against such a contingency. Make it a rule to read aloud every day some book or periodical, written in the best current English. You should also keep up the habit of speaking and writing in that language. These precautions are all the more imperative if you settle in the Mofussil. Have a settled plan of life. Consider well, consult friends and well-wishers, and decide upon the walk of life you are to enter. Then steadily adhere to it. Frequent and fanciful changes in the plan of life are unfavourable, and sometimes fatal, to success. Having settled what business you will undertake in life, strive to learn that business as perfectly as possible. Let much of your reading be directed to this end. Study both the theory and the practice of your business. Get advice and assistance in this respect from those who have already achieved success in that business. Remember that competition is the great differential characteristic of this age. Keen competition you will meet with everywhere. Unless, therefore, your special education is really good, you will be outstripped in life. Your general education will not save you from failure. I warn you thus early. Depend mainly upon your own merit and honest exertions for advancement in life, rather than upon personal recommendations and personal influence. In every part of your conduct, maintain a high character. Never do wrong knowingly or carelessly, your truthfulness, your trustworthiness, your uprightness in every respect, should be quite above the reach of suspicion. So arrange matters, that your business may afford you pleasure. If you do your business with a sense of trouble or pain, you will sooner or later, become tired of it. You should feel a lively interest in your work. You should be proud of it. Whatever you do, do it to the best of your power. If you fall short of the perfection you are capable of, you do yourselves injustice—you appear to be inferior to what you really are. A slovenly habit of doing work mars success in life. Maintain uniform good temper. Be courteous and obliging. Judge men and measures charitably. Do not take offence, unless it is gross, and deliberately meant. These are among our old, national characteristics. Let English education improve—not impair them. Be good citizens. Do as much good as you can, to all around; and scrupulously abstain from evil. Let your lives, as educated men, be examples to others, and reflect credit on the school which has educated you and sent you forth into the world. Whoever fails in this respect, is a traitor to the sacred cause of education. Be contented with whatever lot Providence assigns to you. Contentment is more valuable than the philosopher's stone! Spare some portion of your time, to be dedicated to the good of your country. As educated men, you are among the guardians of public welfare and the promoters of public progress. Accordingly, take interest in matters of public importance, whether political, or social or any other. By the exercise of care of judgment and of moderation, make your influence felt. The advice I have thus rapidly given you is, by no means, exhaustive. But I may venture to think I have given you a

somewhat useful, though imperfect summary. It is something like this little compass attached to the chain of my watch. Little as it is, it pretty clearly shows the cardinal points. I trust you will accept my advice with confidence as I have some right to offer the same to you, for, I am one of yourselves, and have had some experience of the world. But, perhaps, the best of my credentials is that I am one of the earliest pupils of that great man who is now peacefully resting on his laurels in his distant home. The name of Mr. Powell is a household word here. His long and arduous labours in the field of education, are well known to you, and will be well known to generations yet unborn. You will not be surprised to learn that I love him, I respect him, I admire him, I reverence him as my great 'Guru.' Such feelings on the part of the pupil towards his teacher are peculiar to the Hindu, and I am, in this respect, a Hindu to the very core. I became Mr. Powell's pupil the day his career here began, and was the object of his affectionate solicitude for a number of years. How he laboured for us! What singular devotion—what rare enthusiasm was his! He made our study literally a pleasure. It seems as if it were only yesterday; yet, nearly 40 years have rolled away. I vividly remember how heartily he joined us in our sports after school hours. How he then took us to the open terrace of his house and familiarized us with the solar system and the sidereal heavens. He made me take the altitudes of certain stars with his sextant and mercurial horizon; and, whenever I see those stars, I remember Mr. Powell, and I remember those pleasant days. We learnt applied Mathematics so far, that we were able to calculate eclipses, and to follow those beautiful processes by which the distances of celestial bodies are calculated. Demonstrated truths took such a firm hold of our minds that a number of popular errors and superstitions connected with astronomy were dispelled like mists before the sun. After leaving Mr. Powell's school, I have run a long and prosperous career in life. At every step of it, I have gratefully felt the beneficial influence of Mr. Powell's teaching. Even in the repose I am now enjoying, I feel that influence no less than ever, and it must be a matter of great gratification to Mr. Powell that the influence he exerted on his pupils has, through them, extended to larger areas and wider interests; for all the good that has been done by such native gentlemen as my friends, the Hon'ble Rama Iyenger, the Hon'ble Seshiah Shastri, the Hon'ble Muthusawmi Iyer, Mr. Sadasiva Pillai, Dewan Bahadur Raghunatha Row, and the late lamented Runga Charlu is ultimately traceable to the influence of Mr. Powell's teaching. But, we have a much nearer example. Has not my friend, Mr. Lavery, faithfully reflected the virtues of his great master, in connection with this very school, the anniversary of which we are now assembled to celebrate? Who can assign an arithmetical value to the intellectual and moral effects of the long and indefatigable labours of Mr. Lavery as Principal of Patcheappah's School? As I am addressing you in the presence of my friend, and as I know how extremely modest he is, I will say no more of him than this, that, if I were a real, instead of a titular, Rajah, I should have gladly conferred on him a 'Jaghire,' and never afterwards thought of resuming it! It is time now to bring this interesting ceremony to a close by renewing our tribute of honour and gratitude to Patcheappah Mudaliar, the noble and munificent founder of this and connected institutions, which will ever be objects of the greatest interest and pride to the Native community.

Mr. Somasoodrum Chettiar then read the following paper:—

It is with great pride and satisfaction that I rise to say, on behalf of myself and my colleagues, how greatly you have obliged us by your kind compliance with our request that you should take the chair at the ceremony

we have performed this evening. I need scarcely say, Sir, that we have all listened with considerable interest, to the eloquent and impressive address you have just delivered; and it is no small source of gratification to an elderly person like myself, Sir, to feel that our country has produced men like yourself, and the Hon'ble Mr. Justice Muthuswami Aiyar, here present, men not more distinguished for soundness of learning and great intellectual power than for integrity, benevolence and true patriotic zeal. I am happy, Sir, that during my tenure of office as President of these Charities the chair at the anniversary meeting has for the third time been taken by a native gentleman. I once again tender our warmest thanks to you. I earnestly pray that the Almighty, giver of all good things, will keep you and yours in the enjoyment of perfect health and happiness, and I trust, Sir, that you will long be able to render help in the way of giving sound and valuable advice in matters relating to the general progress and prosperity of our country.

Garlands of flowers were then hung round the necks of those on the platform and the meeting dispersed.—*Madras Mail*, August 14th.

SIR T. MADAVA ROW AT PACHEAPPA'S.

The anniversary of Pacheappa's Educational Charities on Monday evening last marks an epoch, and an important epoch, in the social and political annals of this Presidency. For the first time since the institution of the annual proceedings, the chair was taken, and the address delivered, by one who had himself received his early education from funds which the wisdom and forethought of Mr. George Norton directed to the purposes of tuition and enlightenment. Sir. T. Madava Row was a Pacheappa's boy; and there must have been a feeling of pardonable and generous pride among many of the close-packed audience at the thought that they were assembled to listen to words of experience and of encouragement from the lips of one of their own fellow countrymen, who had been educated in that very Hall, and who had since earned for himself a standing and a reputation which not many Englishmen in India have equalled, and no natives have surpassed. His opportunity on Monday was unique, and Sir Madava Row seized it, and used it well. In an address, which for purely literary merit will bear favourable comparison with the eloquence of his most gifted predecessors, he dwelt not merely upon the necessity for the adoption of those principles and the practice of those virtues which lead their votaries step by step to the highest summits of legitimate ambition; but he touched, in language as temperate as it was pertinent, upon some of the obligations which advancing civilization threw upon the Government. He spoke to the rulers as well as to the ruled; affording practical demonstration that a native could in his own person combine the two initial attributes of statesmanship, prudence and courage. After all due allowance for the exceptional independence of his position, it needed exceptional moral intrepidity frankly to criticize the action of Government, and to demand from them that they should take the public more into their confidence than they do at present, or have ever hitherto done.

Honour to whom honour is due. It would be impossible for any impartial person to deny that Sir Madava Row placed his fingers on one of the most serious wants of the community, and one of the most serious defects of Government as carried on in India. Secrecy has long been considered, if not one of the ends, at least one of the means, of Government. And with this deplorable result; that mutual confidence has become an impossibility, and mutual esteem most seriously impaired. If it be conceded, that the object of Government is the greatest happiness of the greatest number, it must also be conceded that the most fiendish ingenuity could not have devised a system more thoroughly calculated to frustrate the attainment of that end than that which breeds a reciprocal distrust; engenders on either side a feeling of anger and discontent; alienates the subject from his ruler; facilitates, nay invites, misconstruction of purpose and sentiment; and denies to every enlightened citizen the information to which he is politically entitled. Secrecy is a sign of weakness. Strength courts the light. Truth never shrinks from publicity. Yet for years we have been content to let wrong be. Habit has accustomed our neck to the yoke, but even habit has not taken away the sense of injury. It is explicable, though none the less mournful, that those whose daily bread and future loaves depend upon their retention of office, and their advancement in official life, should not venture publicity to remonstrate against the perpetuation of a policy which can only end in moral and political emasculation. It has been reserved for a native statesman openly to avow a want which all have admitted in secret, and to suggest, at a native anniversary, a reform in which native and European are alike deeply interested. To those who take a kindly interest in the political welfare, present and future, of the natives of India, there is room for much hope and much self-congratulation, if there be room also for humiliation, in the knowledge that at a public meeting, and in the presence of influential public servants a native has been found honest enough to admit a political want, and courageous enough to tell the Government wherein their error lay. There is room for hope; because while the admission and the criticism attest the sense of political independence and the courage of conviction, they afford substantial reason for the trust that a generation is growing up which will not fall behind its predecessor in its grasp of political self-respect and advancement, but will steadily carry on the good work which was begun by those who learnt under British administration, the value and the meaning of British freedom. There is room for self-congratulation: because the address of Sir Madava Row proves conclusively that our sway in India is bearing good fruit: that a long series of Governments—mistaken perhaps in many things, but in the main striving honestly, and with marvellous singleness of purpose, to raise the moral and intellectual status of the people they were called upon to rule—has not only not laboured in vain, but is likely to bequeath to the races of India that most valuable of all inheritances, the desire and the capacity for political equality. No man knows better than does Sir Madava Row himself that long

years of political serfdom, and patient education are conditions precedent to the attainment of such an end and the right use of such a legacy. As there is no royal road to learning, so a nation cannot leap at one bound from the darkness of ignorance and superstition into the sunshine of an universal and unrestrained franchise. The growth of English liberty—still capable of enlargement and perfection—is the outcome of centuries of conflict and restraint. The natives of India have yet much to learn before they are fitted as a whole for the uncontrolled exercise of political power. But Sir Madava Row's career is itself the best testimony to the merits of our administration, and the highest incentive to the talents and the industry of native worth. If his career has been passed, and his reputation made in foreign states, none the less true is it that his own personal success and the benefit he has conferred upon tens of thousands of natives are due, in the first instance, to the principles which he imbibed from English fountain heads; and to the education which he received from an Englishman. Sir Madava Row paid a well-merited, but none the less generous, tribute to the exertions and the qualifications of Mr. Powell, whose tenure of the educational chair is memorable for the marked distinctions which his pupils have achieved in after life. Muthusawmy Iyer, Seshia Shastri, Ramiengar, Ragunatha Row, Sadasiva Pillai, Runga Charlu, Madava Row, these are among the most prominent of Mr. Powell's pupils—men, each of whom having in his own way risen to the top of his profession, form conjointly an eloquent cluster of appellants in favour of the continuation of high education. In the face of results so eminently satisfactory, it would be unwise, if not unjust, to adopt a policy of retrogression.

Sir Madava Row, in the course of his address, deprecated hasty and wholesale condemnation of the native press upon the plea that that press was young, and its editors and contributors versed only in theory and unversed in practice. It may be true that immaturity is to blame for much that is written. But it is impossible to shut one's eyes to the fact that there are graver causes for European and official censure than the inexperience or the youth of the indigenous editor. In Northern India the native press is far more bitter and hostile than it is in this Presidency; but honesty compels the admission that both the style and the substance of the articles in the local press require considerable modification before even a well-wisher of the native cause could lend that press whatever aid might be derived from his support and countenance. It has often been asserted that one of the direct results of giving the natives anything beyond the rudiments of a very elementary education was to awake, to foster, and to disseminate throughout the land the seeds of disaffection and disloyalty to the British Government. Sir Madava Row gave to the theory an unqualified denial. He speaks with all the weight of a long, a varied, and a successful administrator: and his denial is entitled to a respectful and careful consideration. It may reasonably be doubted whether a high education, which enlarges a man's views and enlightens his understanding, can really tend to arouse discontent and envy. If

such were the inevitable tendency of education, education would be a curse instead of a blessing. While, however, fully sympathising with those whose aim it is to distribute a higher culture in the land, it is not easy to avoid the suspicion that among educated natives there is a growing appetite, not merely for criticising, but for depreciating the action of their rulers and of their European associates. Is not this attributable in a great measure to the limited range of professions which the majority of educated natives give themselves? Beyond Government service and the law, to what profession does the native aspire? The result must be that the two favourite walks of life become over-crowded; and the youthful aspirant, disappointed at the outset finds his views of life and men embittered by a sense of failure. The remedy lies in a more extensive range of professions. Why should we not have independent Doctors, and Architects, Mechanics, and Engineers? The answer points to the great defect of native character—the sense of dependence, the leaning upon Government. We do not say it unkindly. But many who most earnestly espouse the cause of native advancement, are fain to confer that no real and permanent improvement is possible until the natives are more deeply imbued with a spirit of independence, until they learn to lean less upon the Government, and more upon themselves. No man can better inculcate this principle than Sir Madava Row himself: for to all the weight due to an honorable and distinguished career he adds the high quality of moral courage.

In terms of tender and affectionate respect Sir Madava Row alluded to the career of the late Mr. John Bruce Norton, and to his long and intimate connexion with the natives of this Presidency and with their social, political and intellectual improvement. The eulogy was well earned: and it was well bestowed. Few men have laboured more energetically, and none more unselfishly, to ameliorate the condition of the natives than did Mr. Norton. But his fundamental axiom was that the improvement was to come from within, and was to rest upon a foundation no less sure than that of self-respect, and independence. He watched anxiously over Sir Madava Row's career, and had he been permitted to be present at Pacheappa's on Monday last, he would have gloried in the fact that Sir Madava Row, an old Pacheappa's boy, was in the chair, as the triumph and the living incarnation of the great and fundamental principles—truth and self-reliance—upon the inculcation and dissemination of which he so ungrudgingly bestowed his time, his labour, his talents, and his influence.—*Madras Mail*.

APPOINTMENTS

Sanctioned by the Director of Public Instruction, during the month of August 1883.

R. Chakravarti Aiyangar, 1st Assistant, High School, Saidapet, to be 1st Assistant, High School, Palghat, but to continue to act at Kumbakonam.

T. R. Srinivasa Aiyar, B. A., *Sub pro tem*, 2nd Assistant, Berhampore College, to be *Sub pro tem*, 1st Assistant, High School, Saidapet.

T. V. Subbarama Aiyar, 3rd Assistant, and Acting 1st Assistant, Salem College, to be 2nd Assistant, Berhampore College, but to continue to act at Salem.

W. Raghavendra Rau, B.A., 3rd Assistant, Mangalore College, *Sub pro tem*, Head Master, High School, Cannanore, to be 2nd Assistant, Calicut College, but to continue to act at Cannanore.

Mr. Paul D. Rozario, 3rd Assistant, Calicut College, to be *Sub pro tem*, 2nd Assistant.

M. Kameswara Rau Pantulu, 3rd Assistant, Berhampore College, to act as 2nd Assistant.

T. Janakiramayya, B.A., 6th Assistant, Chittoor High School, to be *Sub pro tem*, 2nd Assistant, High School, Saidapet.

G. V. Siva Rama Aiyar, 6th Assistant, Madura College, to be 6th Assistant, Bellary College, but to continue to act at Erode.

A. Aiyaswami Sastri, B.A., to be *Sub pro tem*, 6th Assistant, Madura College.

K. C. Ramuni, 3rd Assistant, Cannanore High School, to act as 2nd Assistant.

M. Venkataratnam, 3rd Assistant, Bellary College, to be 2nd Assistant, Chittoor High School.

M. Deva Rau, 2nd Assistant, High School, Chittoor, to be 3rd Assistant, Bellary College, but to continue to act as 2nd Assistant.

P. Venkoba Chari, 4th Assistant, Bellary College, to act as 3rd Assistant.

T. A. Ramachandra Aiyar, Acting 2nd Assistant, High School, Chittoor, to be *Sub pro tem*, 6th Assistant, Bellary College.

T. R. Kartikesam Pillai, 3rd Assistant, High School, Chittoor, to act as 1st Assistant, Middle School, Arni.

C. M. Srinivasa Chari, 2nd Assistant, Middle School, Palmanair, to act as 3rd Assistant, High School, Chittoor.

Krishna Bhatta, to be *Sub pro tem*, 5th Assistant of the Mangalore College.

G. Mukunda Rau Nayudu, 2nd Assistant, High School, Chicacole, to act as 1st Assistant.

V. Appayya, 3rd Assistant, to act as 2nd Assistant.

J. Appayya Sastri, 4th Assistant, to act as 3rd Assistant.

G. Mahadevan, to act as 4th Assistant.

C. N. Subramanya Aiyar, 4th Assistant of the Berhampore College, to be Deputy Inspector of Schools, Chicacole Circle.

K. Krishnamurti Pantulu, Deputy Inspector of Schools, Chicacole Circle, to be 4th Assistant, Berhampore College.

T. Sitaramaswami Pantulu, Deputy Inspector of Schools, Vizagapatam, 6th Class, to be Deputy in the 5th Class.

Mr. E. E. Perrett, First Master, Presidency College, to be Head Master, Salem College.

Mr. L. C. Williams, Second Master, to be *Sub pro tem*, 1st Master, Presidency College.

Mr. J. Small, 3rd Master, to be *Sub pro tem*, 2nd Master.

K. Bashiyam Aiyangar, 4th Master, to be *Sub pro tem*, 3rd Master.

Mr. D. J. Winfred, *Sub pro tem*, 5th Master, to be *Sub pro tem*, 4th Master.

M. V. Narayanaswami Pillai, *Sub pro tem*, 6th Master, to be *Sub pro tem*, 5th Master.

A. S. Vaidyanatha Aiyar, to be *Sub pro tem*, 3rd Assistant, Calicut College.

Miss H. Bernard, Head Mistress, Practising Department of the Government Female Normal School, to act as Assistant Superintendent.

Miss Shanmukham, Head Mistress of the Kumbakonam Government School, to act as Head Mistress of the Practising School.

A. Subba Rau, Deputy Inspector of Schools, South Tanjore, to be 2nd Assistant, Bellary College, but to continue to act as 1st Assistant, Calicut College.

D. Jagannatha Rau, *Sub pro tem*, 6th Assistant, to act as 3rd Assistant of the Berhampore College.

P. O. Pothan, Deputy Inspector of Schools, South Malabar, to be Deputy Inspector of Schools, North Malabar.

T. Mathai, Deputy Inspector of Schools, North Malabar, to be Deputy Inspector of Schools, South Malabar.

LEAVE.

Privilege leave for 3 months to J. Srinivasa Chari, Assistant, Librarian of the O. M.S.S. Library.

Leave without allowance for 3 months, to Varamuniswamayya, Acting Deputy Inspector of Schools, Koilkuntla Range.

Leave on private affairs for 4 months, to N. Swaminatha Aiyar, 1st Assistant, Middle School, Srirangam.

Privilege leave for 2 months, to P. Vedanta Chari, Deputy Inspector of Schools, Chingleput Range.

September 1883.

Leave without allowance for 20 days, to M. Singaravelu Mudali, Deputy Inspector of Schools, North Coimbatore and Nilgiris.

Leave on Medical Certificate for 4 months, to C. Kurian, Head Master of the Chavakad School.

Leave on Medical Certificate for 1 month, to C. H. Tambu Pillai, Officiating Superintendent of Vernacular Studies, Government Normal School, Madras.

(By order)

D. S. WHITE,

Asst. to the Director of Public Instruction.

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337 To 360 missing

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"Gladly would he learn and gladly teach."

THE
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New Series.

ENGLISH UNIVERSITY SYSTEM OF EDUCATION.

THE changes, which are being made in the Curriculum of studies for the B. A. Degree Examination and the institution of the Bachelor of Science Degree, show that the Madras University is gradually being formed after the model of the London University. The English Universities are, in soundness of learning and in thoroughness of method, second to none in the world. But let it be remembered, that the London University has no more claim to be called an English University than either Edinburgh or any other Scotch University. Oxford and Cambridge are, pre-eminently, the *English Universities*, for they are the oldest in the kingdom and adopt a system of education, which is something unique in itself and entirely different from that of any other University in Great Britain. I propose here to say a few words about the intellectual results of such a system of education.

Before investigating the merits of any particular scheme of education, we must understand what we mean by education, and what we consider to be its ends. For the term *education* is a tolerably comprehensive one, covers a great deal of ground, and may be taken in a great many different acceptations. Ask one man to define *education* for you, and he will say (truly enough, too, in one sense) that everything which a man passes through in his life is a part of education for this world or the next. Ask another, what he understands by education, and he will answer your question most socratically by another or string of others—"education of whom, and for what? A lawyer's education, a doctor's, a merchant's?" And if you tell him a "man's" he will be still less able to give you a direct reply. Ask a third what the end of education is, and he tells you *one rationale*, that it is "to qualify men to do good" which is a magnificent sentiment no doubt, only if you come to cross question the gentleman as to the particular kinds of good that men are to be qualified to do, you will find them to include doing any amount of injury to others to promote one's own interests, the robbery of private individuals, resistance to public authority and a general propensity to upset everything established.*

There are certainly some very odd ideas on the same subject of education afloat among us here in India. But leaving these, let us see what the

* In some of the continental countries, such as Germany and Russia, students in the Universities take a leading part in all political disturbances.

chief end of education is. The late Professor Maurice, in his interesting lectures on education delivered before the London University, says, that from all the various systems and definitions of education ever proposed may be evolved three distinct doctrines; the first, that the end of education is the *development of the faculties*; the second, that it is the *restraint of certain faculties*; the third, that it is the *giving of information*. Now the two sister Universities of Oxford and Cambridge adopt the first rather than the two other theories, just intimated, as the true theory of liberal education. Their primary object is not the *giving of information*, but rather the developing and training of the mind, so that it may receive, arrange, retain, and use to the best advantage, such information as may be afterwards desirable or necessary—such information as it may be the business of professional teachers to supply it, or its pleasure to collect for itself. Here let me point out the result of the system of education adopted by our Indian Universities. The sole end is the *giving of information*, it is not the preparing the mind of the student for further impressions which it will be able to take in even after the three or four years' University training is over.

Neither the preparation nor the abilities of those who enter on any College or University course at the same time being equal, it is a question with all academical authorities, how to make a class work together so that the dull ones shall not retard, nor the bright ones hurry the rest and that all shall be kept busy without any being over-worked. Now the English University system by its examinations of different kinds suited to different degrees of preparation and capacity and by its private tuition (which is an integral part of the system, though existing unofficially) has provided for educating every separate student in accordance with his antecedents and capabilities, and ingeniously combines the advantages of a public and a private education. The student then may learn more or less, but whatever the amount, he is expected to learn it *thoroughly*. Hence, as the first effect, he acquires habits of extreme accuracy.

At our Colleges in India it is so arranged that all the students go through the same course at least during the most important years of their College career and as a necessary consequence, some go through it well and some ill; it is too much for some and not half enough for others. Now in an English University, precisely the reverse of this takes place. A student may go through a very limited or a very extensive course of reading, but whatever he passes an examination in, he is required to do and know well. Even those disparagingly known as *pass examinations* require more than half marks on their papers, and the way in which a slovenly and inaccurate man loses marks would astonish a great many of our students if subjected to them. And as we ascend, the demand for precision increases with the field for its exercise till we arrive at, for instance, high wranglers who have made not one single decided mistake in their six days work. It is unnecessary to enlarge on the value to its possessor of such a habit of reading, thinking and writing accurately. Let me allude, however, to one of its advantages. An Oxonian or a Cantab is most careful in verifying references. He will not take a thing at second hand if he can go to the original source of it. Hence he is little liable to be imposed upon by the ignorance real or assumed of others or to be the innocent medium for other men's blunders.

But the English student does not only read his subjects *accurately*, he reads them *comprehensively*, so that he can apply them. It is indeed, impossible to avoid the imparting in some instances, of partial and exoteric information, but as a general rule, it could never be said of the English

graduates what is so often said of Indian students, that theirs is a knowledge of particular books rather than of subjects. And in no place of education is there less *parrottry*, less exercise of memory, as distinguished from the acquisition of knowledge, than at Oxford or Cambridge.

Again the English student acquires manly habits of thinking and reading. He becomes fond of hard mental work and has a healthy taste in his mental relaxations. The trash of the reading room or library he despises as he would sugar-candy. No work of fiction, but the very best are to be found in his room. His idea of light reading is Shelley's or Tennyson's Poetry, Macaulay's Essays, an article on the Nineteenth Century or a treatise on Ethics or Political Economy. Such taste indeed is late in forming, but the habit of mind once started, the student goes on drawing in knowledge from all quarters at a vast rate, and whatever he does take into his well-prepared mind, assimilates itself with matter already there, and fertilizes and fructifies; nothing of what he reads is thrown away.

Now the general final effect of this energetic, accurate and comprehensive style of working, is that the English student exhibits great power and rapidity in mastering any new subject to which his attention is necessarily turned. If he has to acquire a foreign language or a new science, to become familiar with the elements of a difficult profession, like that of the law, or even to learn the details of a large business establishment, in any case he takes cleverly hold of the first principles, and then proceeds accurately but speedily, from step to step, till he has attained the desired knowledge. The English student is great in acquiring mastery of a subject and using it for his own benefit, in his profession for instance, but his inclination to promulgate his acquisitions and the fruits of them to the world, does not keep pace with his ability to do so. This is not due to any selfish feeling in regard to knowledge, for no men are more ready to communicate information when you ask it of them, but the tendency in question rather springs from modesty and an excessive fastidiousness produced by hypercriticism. Accustomed to scrutinize with the greatest severity the performances of others, the English graduate is not indulgent to his own. He is just as hard upon them and more dissatisfied with them. This is the spirit that keeps many a competent man from making a name among the scholars and literary men of the civilized world. What a contrast do our Indian students form to the English graduates. No sooner the Hindu student gets a smattering of English and an imperfect knowledge of some subject or other, than he must needs rush into print and publish at least a *compendium* which by-the-bye is no more than a melancholy imperfect reproduction of some well-known text book, and which also becomes deplorably marred in the stealing. Would it not be well for our precious authors to wait a little instead of displaying their premature knowledge in such amusing productions, and play a wiser part by informing and improving their immediate associates by their conversation and their unwritten learning?

These few remarks which I have been able to make on the educational system of the English Universities, clearly bring before us the defects of our own system. The changes that are being made in our University examination are changes no doubt in the right direction. A student can never be perfect in all subjects, but special attention given to a particular branch of study, for which he may have natural inclination and taste, will make him proficient in that branch. The education of an Indian graduate is certainly wanting in accuracy and comprehensiveness.

THE EDUCATION COMMISSION.

(Communicated.)

The delay in issuing the report of the Committee is very disappointing. It is now said that Government will not consider it till the next Simla Season, and that nothing practical will be done till 1885. This is the more unfortunate, as the present Secretary of State seems to be a reasonable man, who does not consider that an Indian career should mean exile for life. He has just given the P. W. D. better pension rules, and it is understood that the Education Commission recommend optional pensions after a moderate time; but if the present Government is turned out and we should have a new Secretary of State like the Duke of Argyll, all hope of better rules must be abandoned.

THE FOLLOWING IS A COMPLETE TABLE OF THE
INDO-EUROPEAN TONGUES.

I. Indic or Hindoo.	1. Sanskrit (dead, only found in the sacred books of the Brahmins). This language contains the purest forms of all our English roots, and is the key to the scientific study of all Indo-European languages.	
	2. Hindû, Hindustani, Bengali and others.	
	3. Cingalese (the language of Ceylon.)	
	4. Certain gipsy dialects.	
II. Iranic.	1. Zend (dead; the old language of Persia).	
	2. Modern Persian.	
III. Keltic.	1. Erse (Irish).	
	2. Gaelic or Highland Scotch.	
	3. Manx (spoken in the Isle of Man).	
	4. Kymric (called by us <i>Welsh</i>).	
	5. Brézouec (called also <i>Armorican</i> and <i>Bas Breton</i>).	
	6. Cornish (dead since 1778).	
IV. Italic or Romanic or Romance.	1. Latin, Oscan, Umbrian and other old Italian languages.	
	2. Modern Romance dialects or languages.	
	(a.) Italian.	
	(b.) Spanish.	
	(c.) Portuguese.	
	(d.) French.	
	(e.) Roumansch, or: Rhaeto-Romanic (spoken in the Grisons, a canton of Switzerland).	
	(f.) Wallachian (in Wallachia).	
V. Hellenic or Greek.	1. Ancient Greek, with its dialects, <i>Attic</i> , <i>Ionic</i> , <i>Doric</i> , &c.	
	2. Modern Greek or Romanic (spoken in Greece and its Islands, and in some towns of Asia Minor).	
VI. Windic.	Lettic.	(a.) Old Prussian (dead).
		(b.) Modern Lettish (spoken in Lithuania).
	Slav or Slavonic.	(a.) Russian.
		(b.) Polish.
		(c.) Bohemian or Czech.
		(d.) Bulgarian.
		(e.) Illyrian.
	Slav or Slavonic.	(a.) Russian.
		(b.) Polish.

- VII. Teutonic.
1. Low-German or Low-Dutch (*Platt-Deutsch*), with its dialects.
 - (a.) Moeso-Gothic (spoken in Dacia; dead).
 - (b.) 'Continental Saxon' (spoken up to 9th century).
 - (c.) English (or *New Low-Dutch*).
 - (d.) Dutch or Hollandish.
 - (e.) Frisian (spoken in Friesland, in Holland.)
 - (f.) Flemish (spoken in Belgium).
 2. Scandinavian, with its dialects.
 - (a.) Icelandic (the oldest and purest form).
 - (b.) Ferroic (spoken in the *Far Oer* or *Faroe Islands*).
 - (c.) Svensk or Swedish.
 - (d.) Dansk or Danish.
 - (e.) Norsk Norwegian.
 3. High Dutch or High German. (Modern German, also called *New High-Dutch*).

The above is an extract from Professor J. M. D. Meiklejohn's admirable Treatise on the English language.

At the last anniversary of the Martiniere College, Lucknow, the Principal in his introductory address, said with reference to the founder of that Institution:—

"MAY IT PLEASE YOUR EXCELLENCY.—It is our custom on these occasions to say a few words about our Founder and the work of the School generally, besides giving a brief report on the year's work. The latter duty naturally devolves upon Mr. Gannon, who has had charge of the School during my absence for the whole working year. Knowing the deep and special interest your Lordship has ever taken in the education of the people both in England and in India, we see no reason to depart from our usual custom.

"Claude Martin was born at Lyons on the 5th January 1735, his father being a Cooper in that city. In his 20th year he joined the French Army as a common soldier and landed in India under Count Lally in the stirring days of 1757. In 1761 he was taken prisoner by the English at Pondicherry and was sent to Bengal. After the conclusion of the war he enlisted in the English Army, and we soon find him a cadet, and shortly afterwards in command of a number of his fellow countrymen who like himself had engaged in the East India Company's Service. During the reign of Asaf-ud-dowla, Captain Martin, with the approval of the Company, attached himself to the Court of Oudh, where he soon obtained complete influence over the Nawab Vizier, and became to all intents and purposes Prime Minister. By his tact and industry he succeeded in amassing a large fortune, but he still remained an Officer of the Company, receiving his half pay and promotion to the day of his death, (13th September 1800) being at that time a Major-General of the East India Company. He died possessed of more than four millions of Sicca rupees invested in the Company's twelve per cents., besides large landed estates in the Province of Nawab Vizier, in the territories of the East India Company and in the kingdom of France. The present Government House, we may mention, was his Barod Khana,

or Powder Magazine. By his Will, after providing for his dependents, and leaving large sums of money to be given away in charity, he founded Colleges at Lucknow, Calcutta, and Lyons. In reference to the one at Lucknow, he says:—"My Constantia House is never to be sold. It is to serve as a monument or tomb to deposit my body in, and the house is to serve as a College for educating children and men in the English language and religion." His directions have been carried out. He was buried in the vaults of this Building; little did he dream when making his munificent bequests that under the protection of the British Government the School he founded would attain to the position it now occupies. "One hundred foundationers are fed, clothed, and educated free of all charge, and in addition one hundred boarders are entertained at a charge less than the average expenditure. Under the vigilant supervision of the Governors, the noble endowment is doing a good work, and providing for those within its walls, abundance of food and clothing, and an education which compares favorably with that given in good middle class schools in England. Many of our old Foundationers look back to the school with feelings of affection, showing that it has supplied for them, as well as any school can do, the place of friends and home. A bright future is in many instances opened out to gifted hardworking boys who but for the bounty of Claude Martin, would have had but a gloomy outlook.

HIS EXCELLENCY THE VICEROY AND GOVERNOR-GENERAL then delivered an eloquent address, a portion of which is in these terms:—

"I have listened with great interest to the reports which have been read during the course of these proceedings. The interesting sketch of the career of Claude Martin, the founder of the Martiniers of Lucknow, Calcutta, and Lyons which has been given us by the Principal, shows the lively charity by which that remarkable man was animated; and how earnest was his desire that the wealth which he had acquired during his long and adventurous career should be made as useful as possible to his fellow men. It is highly probable that the Principal was right when he said that General Martin little dreamt that the schools which he was founding by his Will would attain to the high positions which they now occupy; but he cast his bread upon the waters, and under the fostering care of the British Government the full benefits of his magnificent endowments have at length been realised. His name is worthy of all honor and his example of wide and constant imitation. It has been, ladies and gentlemen, a great pleasure to me to learn that this Institution in all its departments is at the present time in so flourishing and satisfactory a condition. The Girls' School and the Boys' School seem alike successful, and the pupils of these Institutions appear to make equal progress in their literary and their physical studies. It has been my fortune this year to visit both the foundations in India which were established by General Martin. In the Spring I was present on an occasion similar to this at the Martiniers at Calcutta, and there also I was glad to hear of the success of that useful Institution. Since then a great blow has fallen upon that College, and I cannot help availing myself of this opportunity to express here in this sister Institution my sincere regret for the untimely death of Mr. Biden, the Principal of the Calcutta Martiniers. He devoted himself to his duties there with the utmost zeal and earnestness, and even the single visit that I paid to the College was sufficient to show me that he had acquired the confidence and respect of his pupils. I sincerely lament his loss and I am sure it will be deeply felt by all the friends of that Institution.

UNIVERSITY OF MADRAS.

MEETING OF THE SENATE.

An adjourned meeting of the Senate was held at 5-30 P. M. on the 27th September. Present: the Rev. W. Miller, Mr. D. Sinclair, Dr. D. Duncan (Registrar), Mr. N. Pogson, C. I. E., Mr. C. Michie, Smith, Mr. G. K. Winter, the Rev. W. T. Sathianadhan, the Rev. G. Milne Rae, Dr. W. H. Wilson, M.R.Ry. R. Balajee Rao, M.R.Ry. P. Chentsal Rao, Dewan Bahadur R. Raghoonatha Rao, M.R.Ry. M. Sheshagiri Sastrulu, M.R.Ry. V. Krishnamachariar, Mr. Justice Muthusawmy Iyer, and Dr. T. K. Rogers. In the absence of the Vice-Chancellor, Rev. W. Miller was voted to the chair.

The Chairman said that they had been considering para. 9 of the report of the B. Sc. Committee, some amendments had been made at the last meeting, but before putting the para. finally to the present meeting, he would like to know if any one wished to move any further amendments. The para. stood as follows: "That candidates for the Bachelor of Science Degree be required to pass an examination in any three of the following subjects: (1) Pure Mathematics, (2) Mixed Mathematics, (3) Astronomy, (4) Chemistry, (5) Experimental Physics, (6) Botany, (7) Zoology, (8) Animal Physiology, (9) Physical Geography and Geology, (10) Principles of Agriculture, and (11) Electricity.

Mr. G. K. Winter proposed an amendment that subject No. 11 in the para. be, Electricity and Magnetism.

Mr. C. Michie Smith seconded the amendment, which was carried *nem con.*

The Chairman then put the para. finally to the meeting, and it was carried *nem con.*

Para. 10 was also carried *nem con. viz.*, "That the pure Mathematics include Algebra, Trigonometry, and Geometry as for the pass examination for the B. Sc. Degree of London University, and in addition to the following:— Differential Calculus as in Branch I of the new B. A. Curriculum of the Madras University, and Integral Calculus as for the pass examination for the B. Sc. Degree of London University."

The Meeting then proceeded to discuss para. 11 "That the mixed Mathematics be the same as in Branch I of the new B. A. Curriculum of the Madras University."

Mr. Michie proposed the addition of the words "with the omission of Astronomy."

Mr. Winter seconded the amendment.

The Rev. Mr. Rae thought it would be better, (seeing that Astronomy had been selected as one of the subjects for the B. Sc. Degree, and would have to be reconsidered by the Committee and a syllabus prepared) if the whole subject were left to a Sub-Committee, so that they might submit a modified report, saying whether Mathematics would be sufficient without Astronomy and also prepare a syllabus without Astronomy. The question would again come up in para. 14 under heading 2 where papers have to be distributed and 60 marks assigned to Astronomy. Mr. Rae was not inclined to vote for the amendment, but suggested that the matter be sent to a Sub-Committee.

Mr. Sinclair agreed with Mr. Rae and thought the suggestion very desirable, he had very much pleasure therefore in seconding Mr. Rae's amendment.

The Chairman observed that Mr. Rae had simply made a suggestion. If Mr. Smith's amendment were rejected, Mr. Rae could then move another.

Dr. Rogers was not in favour of Mr. Smith's amendment.

Mr. Krishnamachariar believed that Astronomy was usually considered as a part of mixed Mathematics.

The amendment being put to the meeting, was lost by 4 to 3.

Mr. Rae proposed an amendment that paras. 11, 12, 13, and 14 be remitted to the Committee, and a supplementary report be brought up thereon.

Dr. Wilson said there was no reason whatever to assign paras. 12 and 13 to the Committee.

Mr. Michie Smith agreed with Dr. Wilson and believed it would be an insult to ask the Committee to reconsider paras. 12 and 13.

The Chairman did not think it would be an insult, because the Committee could return the paras. in the same form. As he understood the amendment, it simply meant that the paras. should be referred back to the Committee for such changes as may seem to be desirable. If no changes were desirable the Committee would propose none.

Mr. Seshagiri Sastrulu was in favour of the amendment.

The Chairman thought that they should have looked a little before them. The Registrar had just pointed out to him that they could not, in due order accept the amendment bearing upon paras. 12, 13 and 14 when they were discussing para. 11. He would therefore ask them, to decide simply upon para. 11.

Mr. Rae moved that para. 11 be remitted to the Committee with the view of bringing up a supplementary report.

Mr. Seshagiri Sastrulu seconded the amendment, which was carried *nem con.*

Mr. Rae said that as mixed Mathematics and Astronomy were not involved in para. 12, he would move that it be accepted.

The Chairman read para. 12, viz., "That the Chemistry, Experimental Physics, Botany, Zoology, Animal Physiology, and Physical Geography and Geology, be the same as for the pass examination for the B. Sc. Degree of the London University, with such alterations in the Botany, Zoology, Animal Physiology, and Physical Geography and Geology of Syllabuses as were made on introducing them into Branch III of the new Curriculum of the Madras University." Carried *nem con.*

The meeting next discussed para. 13, viz., "That the principles of Agriculture and Electricity be defined by the annexed Syllabuses."

Mr. Krishnamachariar moved that the word "Magnetism" be inserted after "Electricity" in para. 13.

Mr. Sinclair seconded the motion, which was carried *nem con.*

Mr. Rae then proposed "that the whole of para. 14 be remitted to the Committee, and a supplementary report be brought up." The para. read as follows, "That the examination be conducted and the marks distributed" as follows:—

1. Pure Math., 1 paper, each 3 hours' duration, Algebra and Trigonometry	40 marks.
Geometry	80 "
Diff. and Int. : Calculus	80 "
2. Mixed Math., 3 papers each, 3 hours' duration, Dynamics.	80 "
Hydrostatics, Pneumatics and Optics	60 "
Astronomy	60 "

3. Chemistry, 2 papers, each of 3 hours' duration, and a practical examination of one period of 3 hours. Each paper to carry 50 marks, and the practical examination to carry 100 marks.

4. Experimental Physics, 3 papers, each of 3 hours' duration, and a practical examination of 3 hours. Each paper and the practical examination to carry 50 marks.

5. Botany, Zoology and Animal Physiology, in each subject 2 papers, each of 3 hours' duration, and a practical examination of two periods of 3 hours. Each paper to carry 50 marks and the practical examination 100 marks.

6. Physical Geography and Geology, 2 papers, each of 3 hours' duration, and a practical examination of 3 hours. Each paper to carry 60 marks, and the practical examination 80 marks.

7. Principles of Agriculture, 3 papers, each of 3 hours' duration, and an oral examination of 3 hours. Each paper and the oral examination to carry 50 marks.

8. Electricity, 2 papers, each of 3 hours' duration, and a practical examination of 2 periods, each of 3 hours. Each paper to carry 60 marks, and the practical examination to carry 80 marks.

Mr. Krishnamachariar, seconded the motion.

Dr. Wilson thought the meeting should now discuss the second heading in the para. relating to mixed Mathematics, as it should be referred to the Committee along with para. 11.

Mr. Smith, agreed with Dr. Wilson.

The Chairman said that they should at least refer Astronomy to the Committee.

Dr. Wilson replied that Astronomy was included in para. 9 and had been referred to the Committee. They did not mean to refer every part to the Committee.

The Chairman, explained that the motion was that the whole of para. 14 should be referred to the Committee, and if the motion were carried, then a further amendment might be moved as to mixed Mathematics and Astronomy being referred to the Committee.

Mr. Krishnamachariar said that he seconded Mr. Rae's amendment under the impression that a part only of para. 14. would be referred to the Committee. He could not second the amendment as it stood.

Mr. Seshagiri Sastrulu then seconded the amendment, which was carried by 7 to 3.

Para. 15 was after some discussion put to the meeting and carried *nem con.*, viz., "that candidates be required to obtain one-third of the marks allotted to each paper and each practical examination, and one-half of the total marks, to qualify for the degree of B. Sc. and to those candidates who obtain two-thirds of the total marks, be placed in the first class." The meeting then proceeded to discuss para. 16, viz., "candidates be required to show not only an accurate knowledge of the facts of science, but also an adequate power of expression, and examiners be at liberty to deduct on account of errors in language, not more than 15 per cent. of the marks to which the candidate would be entitled if his composition were satisfactory."

This para. gave rise to a long and animated discussion.

Mr. Michie Smith moved that "15 per cent." be altered to "5 per cent."

Mr. Pogson seconded the motion.

Dr. Wilson was decidedly opposed to the motion.

Mr. Sathianadhan agreed with Dr. Wilson, and thought it was unnecessary to deduct any marks for English, especially for native candidates who would find it very difficult to pass the examination under such circumstances. If it was a paper on *language* it would not matter.

Mr. Smith asked permission to withdraw his motion.

The Chairman wished to know if the meeting would allow the motion to be withdrawn.

Mr. Rae would not consent to its withdrawal. He was certainly much surprised when he saw the number of dissentients against the report, he wished that the gentlemen who had expressed their dissent to-night had had the courage to do so in the Committee itself (perhaps "courage" was not the proper word to use.) As to the deduction of marks Mr. Rae believed that something of this kind ought to be adopted in reference to this examination. They had the testimony of Dr. Rogers and Dr. Macrae that native students who answered papers on physical science, &c. in the Medical College had answered very badly in regard to their power of expression. Some guarantee should be given that candidates should not only have a knowledge of the facts of science, but also, and what is of more importance, they should be able to express those facts in an intelligible form to their examiners or anybody else to whom they might have to give information or instruction on scientific subjects. And again it was very important that a man who passed out of the Madras University stamped with the degree of B. Sc., should not have a mere smattering of English but should be able to express his knowledge of science in intelligible language. Mr. Rae would therefore strongly support the recommendation of the Committee to deduct marks on account of errors in English. He would not be tied to 15 per cent., but he would much rather accept 5 per cent. than nothing. The number ought to be laid down by the Senate in order that examiners might know that they had it in their power to deal in the matter.

Mr. Justice Muthusawmy Iyer was much in favor of the amendment. They should devise some means to induce candidates to pay attention to this subject. It would not be desirable to pass out graduates with the stamp of the University degree of B. Sc., who could not speak or write simple English, such men would be of no benefit to the country but a discredit to the University. And independently of this it would be nothing but fair in allotting marks that a distinction should be made between those candidates who possess not only a scientific knowledge but also an adequate power of expression, and those candidates who although possessing an accurate scientific knowledge could not express themselves correctly.

After some further discussion the amendment was divided into two portions. The first portion being put to the meeting, viz., that 15 per cent. be omitted, was carried *nem con.*

The second portion was next put, viz., that 5 per cent. be inserted instead of 15 per cent., and was lost by 8 to 5.

Dr. Rogers moved a further amendment that after the word "language," the following be inserted "involving ambiguity of expression, not more than 5 per cent. of the marks to which the candidate would have been entitled if his composition had been sufficiently explicit."

Mr. Ragoonatha Rao seconded the amendment, which was divided into two portions: (1) "That all the words after 'language' be omitted." Carried *nem con.* (2) "That the following words be inserted after 'language,' viz., 'involving ambiguity of expression, not more than 5 per cent. of the marks to which the candidate would have been entitled if his composition had been sufficiently explicit.'" Lost by 9 to 4.

Dr. Wilson proposed that the whole para. be omitted.

Mr. Sathianadan seconded the proposition, which was carried *nem con.*

It was next proposed, seconded and carried, that as Mr. Fowler, the President of the Committee was absent from Madras, the next senior, Mr. Gopala Rao be asked to be President.

The meeting then adjourned *sine die*.—*Madras Mail*.

ENGLISH GRAMMAR.

1. Enumerate the Parts of Speech in the English Language; state which of them may be inflected; and specify the kinds of inflection of which they are respectively susceptible.

2. Distinguish between *personal*, *relative* and *interrogative* pronouns. Classify the pronouns in the following sentence:—"Who is the owner of the horse which you and I were admiring to day?"

3. Define a verb and distinguish between *transitive* and *intransitive* verbs. What do you mean by an *auxiliary* verb? Enumerate the classes of English auxiliary verbs, with examples.

4. Write down the plural or singular forms (as the case may be) of

Cargo, valley, soliloquy, kine, penny, box, ox, appendices, fife, staves, wife, axis.

5. Give the distinguishing features of verbs of the *weak* and *strong* formation respectively; to which class do all verbs of modern introduction into the language belong?

Write down the first person singular of the past tense, and the past participle of the verbs *to lay*, *to lie*, *to bring*, *to sing*, *to ring*, *to spring*, *to shut*.

6. What is a sentence? Distinguish between a *simple*, a *complex*, and a *compound* sentence. What two parts are essential to the formation of a complete sentence? Explain the term *copula*. Make the *copula* explicit in the sentence, "the fire burns."

7. Punctuate the following passage, and parse the portion printed in italics:—

She never told her love
But let concealment like a worm; the bud
Fed on her damask cheek she pined in thought
And with a green and yellow melancholy
She sat like patience on a monument
Smiling at grief.

SHAKESPEARE.

8. Analyse:—

O'er the wide earth, on mountain and on plain,
Dwells in the affections and the spul of man
A Godhead, like the universal Pan,
But more exalted, with a brighter train.

WORDSWORTH.

ARITHMETIC.

1. The Mint buys silver for the purpose of coining seventy-four millions eight hundred and sixty-seven thousand five hundred florins; but when three-fourths of the florins have been finished, the Mint is ordered to coin the rest of the silver into half crowns. How many half crowns will there be?

2. Divide 570021 by 77 by *short* division, explaining how you obtain the remainder.

3. The weights of Bow Bells are respectively :—two tons 13 cwt. 0 qr. 25 lbs.; 1 ton 14 cwt. 2 qrs. 6 lbs.; 1 ton 6 cwt. 0 qr. 13 lbs.; 1 ton 1 cwt. 0 qr. 23 lbs.; 16 cwt. 0 qr. 4 lbs.; 13 cwt. 2 qrs. 22 lbs.; 12 cwt. 0 qr. 7 lbs.; 10 cwt. 0 qr. 0 lb.; 9 cwt. 1 qr. 5 lbs.; and 8 cwt. 3 qrs. 7 lbs.

Find their total and also their average weight.

4. Find by Practice the cost of 7 tons 15 cwt. of bell-metal at £7-16s-0d. per cwt.

5. Simplify $2\frac{1}{2}$; $\frac{9\frac{1}{2} - 7\frac{1}{2}}{\frac{8}{3}}$; and $3\frac{1}{2} - 1\frac{1}{2} + 4\frac{1}{2} - 2\frac{1}{2}$.

6. A and B join in giving a picnic, each paying for the guests he invites. A invites fifteen and B ten. The whole cost is £6-18-6 $\frac{1}{2}$. On the day, B pays for the carriages for the whole party at 2s. 6d. per head, and A pays all the other expenses. How must they afterwards settle accounts with one another?

7. Divide 4.05 by 2.7; 40.5 by .0027; and .00405 by .00027.

8. Reduce £1-3-11 $\frac{1}{2}$ to the decimal, of £5, giving the most correct answer to 4 places of decimals.

9. Make out a bill for the following goods shipped to New York, together with the charges upon them :—

Irish linen, 475 yds. at 3s. 4d. per yard. Black cloth 37 yds. at £1-0-6. per yard. Charges :—packing, £1-19-1.; Shipping £4-7-8.; Insurance and commission on £130 at 2 $\frac{1}{2}$ per cent.

10. Find the discount at 4 $\frac{1}{2}$ per cent. on £587-18-9, due 6 months hence.

11. If 7 oxen can eat 3 tons of hay in a month, how long will it take 49 sheep to eat 35 tons, an ox consuming three times as much as a sheep?

12. A room measures 16 feet by 21 feet, and is 11 feet high. There is one door, 7 feet by 3 feet; and two windows, 8 feet by 4 feet. Find the cost of papering it with paper 2 feet wide at 2 $\frac{1}{2}$ d. per yard.

13. How many poles of fencing are required to enclose a square park, containing 832a. 2r. 25p.?

1. What is the smallest number by which 266200 can be multiplied so as to become a perfect cube?

When 1848 men are drawn up in a solid square there is one man wanting to complete the formation. How many men are there in the face of the square?

2. Standard gold contains $\frac{1}{2}$ of alloy. 40lbs. troy of standard gold is minted into 1869 sovereigns. How many grains of pure gold are in a sovereign? If in future there is one grain less of pure gold in a sovereign what will be the loss sustained by the owner of a sovereign if the coin becomes defaced? Price of gold at the Bank of England £3-17-9 per oz.

3. A and B set out from the same place in the same direction. A travels uniformly 18 miles a day, and after 9 days he turns and goes back

as far as B has travelled during those 9 days. He then turns again and overtakes B at the end of 22 $\frac{1}{2}$ days after the time they first set out. Find B's rate.

4. Under what circumstances can a vulgar fraction be expressed as a terminating or a circulating decimal?

5. If 201 men and 335 boys do in 240 days the same amount of work that 70 men and 96 boys do in 665 days, compare the average daily work done by each man with that done by each boy.

6. A and B invest sums which are as 4 to 5. After 3 months A withdraws $\frac{1}{2}$ and B $\frac{1}{4}$ of their investments. At the end of one year how should they divide a gain of Rs. 33,500?

7. The debts of a bankrupt amount to £2134-10-6, and his assets are worth £916-15-4 and an undiscounted bill of £513 due 4 months hence, simple interest at 4 per cent. How much in the £ can he pay his creditors?

8. A person invests a certain sum in the 3 per cents. at 96 $\frac{1}{2}$. Had he waited till they fell to 96 $\frac{1}{2}$ he would have got £16 more stock. What sum did he invest? Brokerage $\frac{1}{2}$ per cent.

9. A 3 per cent. stock is at 91 $\frac{1}{2}$, and a 4 per cent. stock at 123. One person buys £1000 stock in each, and another invests £1000 in each. Compare the respective incomes obtained by the two on their whole investments.

10. A gravel walk 6 feet wide runs round a grass-plot 60 feet long and 40 feet wide. If gravel be 3s per cubic yard, find the cost of a coat of gravel on the path 3 inches deep.

QUESTIONS ON PSYCHOLOGY.

1. Give an account of the method or methods by which an accurate knowledge of Mental states is to be obtained.

2. What is meant by an Intellectual sense, and how would you arrange the senses according to this degree of intellectuality?

3. Describe how it is that a man may have a particularly good ear for languages, and yet be deficient in musical sensibility?

4. Give definitions of Sensation, Perception, Imagination and Conception, and point out the relations which exist between them.

5. Explain the proposition that all Perception is a process of classification.

6. Is Memory a simple mental operation, or can it be resolved into more elementary processes? How is it we can often recall the initial letter of a person's name without being able to recall the whole name?

7. Define Appetite, and distinguish *Appetites* from *Volitions* properly so called.

8. What elements may be discriminated in the full analysis of a Voluntary Act?

9. What exactly is meant by saying that we understand "a proposition"? Take, for examination, some proposition in which both the subject and the predicate are abstract terms.

10. Describe the process of acquiring habit or skill, as in the case of learning to play a musical instrument.

11. What is meant by *Desires*? How are they distinguished from *Appetites* and from *Affections*?

12. How do you account for the origin of our ideas of Time?

CONIC SECTIONS.

I. In how many different ways can a plane cut a Cone and name the different sections.

Shew how a parabola may practically be described, and give a concrete example of an ellipse.

II. Draw a pair of tangents to a parabola from an external point.

If OQ, OQ' be a pair of tangents to a parabola from an external point and the chord QQ' be a normal to the curve at Q' , then OQ is bisected by the directrix.

III. If CP, CD be conjugate diameters, and PF be drawn at right angles to CD meeting CA in G

then $PF \cdot PG = BC^2$;

If PF meets BC produced in G ,

then $PF \cdot PG = AC^2$;

IV. If PH be the chord of the circle of curvature at the point P of an ellipse, which passes through the centre, then $PH \cdot CP = 2CD^2$;

V. If P be any point on the hyperbola, and CD be conjugate to CP : then $SP \cdot S'P = CD^2$

Prove that the curve which trisects the arcs of all segments of a circle described on a given base is an hyperbola.

VI. If two chords of an hyperbola intersect one another, the rectangles contained by their segments are proportional to the squares of the diameters parallel to them.

N. B.—Prove this

(1.) When O , the point of intersection of the chords is *within* one branch of the hyperbola and the chords meet that branch alone.

(2.) When O is *outside* and the chords meet one branch alone.

PRESIDENCY COLLEGE.

HISTORY OF ENGLISH LITERATURE AND LANGUAGE, 1350—1450.

I. How do you account for the birth of a true English Literature at this time?

II. (a.) Sum up what you consider to have been the chief effects of French influence upon the Literature.

(b.) Give also, in tabular form, the chief effects of Norman French upon the structure and character of the English Language.

III. (a.) Write a short account of Petrarch and Boccaccio, defining their position in the History of Italian and European Literature.

(b.) To what extent was Chaucer indebted to these? Answer briefly.

IV. (a.) Give a short account of the Vision of *Piers Plowman*—attending to (1) authorship; (2) date of appearance; (3) subject matter and objects; (4) manner of treatment.

(b.) Give a short account of the life and works of Lydgate, Barbour, Maundeville.

(c.) Write short notes on, *Kings Quhair*, *Astrolabe*, *Piers Plowman's Crede*, *Confessio Amantis*.

MADRAS CHRISTIAN COLLEGE.

PARADISE LOST, BOOK VI.

I.—Give an account of the plan of *Paradise Lost*, not exceeding a page and a half in length.

II.—If you divide *Paradise Lost* into three equal parts, what is the theme of the second part? What justifies or renders necessary the peculiar form of presenting the matter contained in the second part?

III.—Paraphrase (with a few prefatory remarks as to the context):—

"Servant of God, well *done*, well hast thou fought
The better fight, who single hast maintain'd,
Against revolted multitudes the *cause*
Of truth, in word *mightier* than they in arms;
And for the testimony of truth hast borne
Universal reproach, far worse *to bear*
Than violence: for this was all thy care
To stand approv'd in sight of God, though worlds
Judg'd thee *perverse*: the easier conquest now
Remains *thee*, aided by this host of friends,
Back on thy foes more *glorious to return*
Than scorn'd thou didst depart, and to *subdue*
By force, *who* reason for their law, refuse,
Right *reason* for their law, and for their King
Messiah, who by right of merit reigns."

(a) Give the construction of the words in italics.

IV.—1 Aspect; battle; obsequious; obvious; prevention; reality; reluctant; success; vicissitude.

Explain carefully these words (a) as used by Milton, and (b) as used now; and point out how the meaning has changed.

2 (a) Give the meaning of:—champaign; myriads; terrene; hosting; puissance; adamant.

(b) Give the derivations and cognate forms of:—sheer; humble; precipitate; secure; steed; minstrelsy; twilight; vanquish.

V.—Write notes, explanatory, etymological, historical and grammatical, on:—

War *in procinct*; in *battailous* aspect; shields with boastful *argument* portrayed; the first *assay*; arms on armour clashing; both *addrest* for fight, *mingled* broils; the trumpet from on high *'gan blow*.

VI.—Quote or give the substance of:—

1. The description of Satan staggering under the blow from Abdiel's sword.

2. The comparison employed to illustrate the combat between Michael and Satan.

3. The description of Satan at the head of his army as he was found by Michael's army, and

4. The description of the march of Michael's army.

VII.—(a) What are spoken of as:—"The rocky *cell* of tenfold adamant;" "uncreated till the crime of Satan's rebellion;" "a dreadful interval;" "a third part of the gods"?

(b) Enumerate and explain all the names and epithets applied to Satan in the portion you have studied.

VIII.—Give in your own words Abdiel's reply to the charge of cowardly sloth brought by Satan against the faithful angels.

ENGLISH PROSE.

I. Paraphrase—

1. In the midst of her triumph, Jeane still remained the pure, tender-hearted girl of the Vosges.
2. Her whole nature summed itself up in one absorbing passion.
3. Far from being able to let them pass, the advance-guard was so thickly massed together that not a man could move.
4. Lollardry can have made little way among men whose grudge against the Archbishop of Canterbury sprang from his discouragement of pilgrimages.
5. Make a good-end of that ye have begun, and do well, and aye better and better; for at the even men heareth the day.
6. Now reigneth pride in price, and covetise is counted wise, and lechery withouten shame, and gluttony withouten blame.

II. Explain the italicised portions in—

1. No man may come truth to *but if he sing 'sic didero.'* (3) In the rude jingle of these lines began for England *the literature of political controversy.* (3) The peasants demanded a *money commutation of all villgin services.* (4) The three squadrons of the French *extended to a vast depth.* (5) *A dazzling rainbow of enamelled armour.* (6) The children of Domremy *drank in poetry from fairy ring and haunted well.* (7) *Council of war.* (8) *Thanks to the vigilance of his spies,* he discovered his error. (9) *Here, therefore, they must stand at bay.* (10) These were the *stray first fruits of the classical press in England.*

III. Give the force of the words in italics in—

1. *With* the battle of Tewkesbury, their cause was finally lost.
2. The restlessness of the men *under* the fire of the artillery.
3. But *while* careful to win his daily bread, &c.
4. The tedious process of copying was thrown aside *for* the new art.
5. She pushed through the western counties *up* the Severn.
6. The king told *off* two hundred men.
7. And well *had* it been *had* they all fallen.
8. Incredible *as* it may seem, the French army could not move.

IV. Make grammatical, orthographical, or other remarks upon, the italicised words in—

1. The Parliament *were* driven to raise money by a tax.
2. Sloth *is take* in good season.
3. At the even men *heareth* the day.
4. Many of these workmen had *loosed* their belts.
5. The duke of Somerset determined to leave his *vantage-ground*.
6. I have learnt to ordain this book after the form as ye see and is *not* written with pen and ink.

V. Re-write—

1. 'They were so firmly fixed that it was with difficulty that they disengaged themselves in an attempt to advance',—using the adverb 'too' instead of 'so'.
2. Richard had hardly quitted the tower when the Kentishmen appeared *at its gates*,—using the positive and comparative forms of 'soon'.
3. 'A tiler killed one of the collectors of the poll-tax in vengeance for a brutal outrage on his daughter',—using the verbs 'revenge', and 'avenge'.
4. 'The girl was in her eighteenth year, with all the vigour and activity of her peasant rearing',—using the adjectival forms of 'vigour' and 'activity'.

VI. (a) Give the Etymology of—

Poetry—Emancipation—Poll—Villain—Panic—Romance—Chapel—Abbot—Constable—Dutch.

(b) How do you account for two different English words having nearly the same meaning—such as *regal* and *royal*—being derived from the same classical root?

Quote three similar instances.

VII. Write short notes upon—

The Canterbury Tales—The *Æneid*—The Golden Legend—Fleur-de-lys—The Bloody Field—Dauphin—Lollardry—Whitsuntide—The Black Death—Wars of the Roses—"The inn of lawyers at the Temple."

VIII. Define 'Simile'—'Metonymy'—'Synecdoche'; and quote examples from Green's 'Readings English from History.'

IX. Simply name—

'The father of English Poetry', 'The stray first-fruits of the classical press in England', 'The King-maker', 'The maid of Orleans', 'The political pamphlets of Milton and of Burke', 'The crowning place of the French kings', 'The key of southern France', 'The patron saint of England', 'Caxton's first printed work', 'The authors of the *Æneid* and of *Polychronicon*, and Gower's works.

X. (a) Explain the allusions in the following extracts—

1. To strengthen his throne Henry the Fifth revived the old quarrel with France.
2. Then ten thousand men-at-arms.....whose only prayer was that of Law Hiro.
3. Caxton was no rival of the Venetian Aldi.

(b.) Criticise—

"It was probably at the press of Colard Mansion that Caxton learned the art *which he was the first to introduce into England.*"

XI. (a) What were "the mingled passions which met in the Revolt of the Peasants" in the reign of Richard II?

(b) "Of the fifty thousand Frenchmen in fact but two or three thousand had the power actively to engage with the eleven thousand Englishmen" at the battle of Agincourt. How is this accounted for?

XII. (a) Caxton's translations are important in the history of the English language; how?

(b) How do you understand Spenser's description of Chaucer as the "*pure well of English undefiled*"?

EUCLID, BOOK IV.

I. Describe an *equilateral* triangle about a given circle. State the relation between the radius of the circle *inscribed* in an equilateral triangle and that of the circle *described* about the same figure.

II. Describe a circle which shall pass through three given points which are not in the same straight line.

III. Describe a square about a given circle.

It is obvious that the square described about a circle is equal to double the square inscribed in the same circle.

IV. Describe an isosceles triangle having each of the angles at the base double of the third angle.

1. The base of the triangle in the proposition is equal to the side of a regular pentagon in the smaller circle and the side of a regular decagon in the larger.

2. If the points of intersection of the circles be joined with the vertex and with each other another triangle will be formed equiangular and equal to the former.

V. Describe an equilateral and equiangular pentagon about a given circle.

If the alternate angles of a regular pentagon be joined, the figure formed by the intersection of the joining lines will itself be a regular pentagon.

VI. If ABCDEF be a regular hexagon and if AC, BD, CE, DF, EA, and FB be joined another regular hexagon is formed whose area is one-third of that of the former.

VII. In a given circle inscribe three equal circles touching each other and the given circle.

HISTORY OF ENGLAND.

I. a. What do you know of the *Kingship* among the Anglo-Saxons?
b. In what respect did the Saxon *Witen-a-gemot* differ from the *Parliament* of later days?

II. a. State the chief limitations to the Royal authority at the accession of Henry VII.

b. Give a brief account of the struggle between the King and Parliament during the reigns of the Tudors, and the result thereof.

c. How did the dissolution of the monasteries by Henry VIII affect the constitution of Parliament?

III. a. What is known in History as the *Reformation*? Contrast the Reformation in England with that in Germany.

b. Trace the progress of the Reformation in England through the reigns of Henry VIII, Edward VI, Mary, and Elizabeth.

c. State the chief points of difference between the state religion under Edward VI and that under Mary Tudor.

IV. Give an account of the foreign relations of England under Henry VIII, pointing out how Wolsey influenced those relations.

V. a. Characterize the foreign policy of Elizabeth.

b. Point out how the condition of the poorer classes was ameliorated in her reign.

VI. Show by a genealogical tree, and comment upon, the claims of Mary Stuart and Lady Jane Grey over the throne of England.

VII. Write brief notes—historical and explanatory—on:—
The Act of Supremacy—The 'Bloody Bill'—The 'Bulwark of English liberty'—the Thirty-nine articles—The Defender of the Faith—The Star-Chamber—The Court of High Commission—The Puritans—The Armada—'Utopia.'

VIII. How are the following personages connected with British History?—
Wycliffe, Simon de Montfort, Cranmer, Sir Thomas More, Knox, Caxton, Drake, and Cartwright.

IX. Assign events to the following dates:—597, 1066, 1215, 1265, 1497, 1534, 1548, 1558, 1587, 1588.

LOGIC.

1. Discuss and compare the various modes of stating the fundamental axiom of the syllogism, and deduce from it the special syllogistic rules.

2. What is the end aimed at by all systems of syllogistic notation? Describe and compare the systems of Euler, Lambert and Hamilton, stating which you think the best and why.

Represent by each of these modes Darü, Camestres, Bokardo and Fesapo.

3. Prove—(a) That the second figure can give only negative, and the third figure only particular conclusions. (b) That a syllogism in the fourth figure cannot have O as a premise nor A as a conclusion.

PRESIDENCY COLLEGE.

HISTORY:

I. Account for the great power of the Crown under the Tudors.

II. Note concisely the religious changes made in the reigns of Henry VIII, Edward VI, and Elizabeth.

(a) What inference do you draw from the fact that the English people during the above period were ready to change their religion at the bidding of their rulers.

(b) Explain with some minuteness the allusions in the following sentence:—

"A reformation begun by Henry, the murderer of his wives, was continued by Somerset, the murderer of his brother, and completed by Elizabeth, the murderer of her guest."

(c) Relate the circumstances which led to the fall of Thomas Cromwell.

III. Give a succinct account of the foreign transactions of Elizabeth's reign—(1) with Scotland, (2) with France, (3) with Spain, (4) with Holland.

IV. Show by a genealogical table the descent of James I, Arabella Stewart, and Lady Jane Grey from Henry VII.

V. State the causes of the growth of the power of the Commons during the latter half of the 16th century.

(a) Give a brief account of James I's quarrels with the Commons.

(b) What were James's motives in seeking the Spanish match for his son?

VI. Give a concise analysis in the form of a Chronological Index, of the struggle between Charles I and his parliaments to the commencement of the Civil War.

(a) Give a brief account of (1) *The Solemn League and Covenant*, (2) *The Self-denying Ordinance*, (3) *The New Model*.

VII. (a) Why did Cromwell expel the *Rump*?

(b) His next parliament was not strictly a parliament, why? How did it come to an end?

(c) State the principal acts of Cromwell's next two parliaments.

(d) How was the country governed during the interval between these two parliaments?

VIII. Write brief notes on:—1 *The Statute of Provisors*, (2) *The Statute of Premunire*, (3) *The Act of Navigation*, (4) *The Star Chamber*, (5) *The Court of High Commission*, (6) *The Corporation Act*, (7) *The Test Act*, (8) *The Act of Supremacy*, (9) *The Act of Uniformity*, (10) *The Habeas Corpus Act*.

HISTORY OF ENGLISH LITERATURE.

- I. (a) Certain reasons have been assigned to account for the general decline of literature in Europe in the fifteenth century. What are these?
- (b) What special circumstances may be advanced in explanation of the non-appearance of any great poets in the hundred years after Chaucer?
- II. What is meant by the 'New Learning'? Give the names of its chief pioneers.
- III. Write a short account of Surrey, and Sir Thomas Wyatt, and estimate the value of their contributions to English Literature.
- IV. (a) What forms of the drama existed in England before the appearance of the true drama in the sixteenth century?
- (b) What circumstances contributed to the development of the drama in the sixteenth century.
- V. Explain the term *Skeltonical verse*. Give the names of the (1) first English Comedy, (2) The first English Tragedy, (3) The author who first made use of blank verse for dramatic compositions.

HISTORY OF ENGLISH LITERATURE AND LANGUAGE.

- I. Write a short account of the state of Learning among the Anglo-Saxons just before the Norman Conquest. What means of instruction were then available?
- II. Point out the effects of the Norman Conquests, (a) on the position and conduct of the Anglo-Saxon clergy, (b) on the relations of the English Church to Rome, (c) on the education of the clergy.
- III. Give a short account of Mahometan learning in the West of Europe, confining your attention to (a) The seats of learning, (b) The subjects taught, (c) The influence exercised on Western Europe.
- IV. (a) Trace the history of the rise of the Abbey of Bec, and examine its importance in the literary and educational history of Europe.
- (b) Explain the terms *Trouvères* and *Troubadours*. What are their respective languages called?
- V. (a) Give the names of two Monkish Chroniclers and some account of their works.
- (b) Write short notes on Walter de Mapes and Gerald Du Barri.
- (c) Give a short account of the Ormulun, Brut, Ayenbite of Inwyt, paying attention to their dates of composition, authorship, subject-matter, language.

CHAUCER'S CLERKES TALE.

- I. a. Opposite their correct dates, mention some of the most important events in connection with Chaucer's life.
- b. Without going into unnecessary details, explain the difficulty in fixing the year of his birth.
- II. a. Chaucer's literary work has been divided into three periods. What are these? Give two works belonging to each.
- b. What remarks have you to offer on such a division.
- III. From what source did Chaucer borrow the Clerk's Tale? Quote his own words on this point.

IV. Paraphrase:—

- a. Accepteth, lord, now for your gentillesse,
That we with pitous herto un-to you pleyne,
And lete your eres nat my voys disdeyne.
Al have I nought to doone in this watere
More than another man hath in this place,
Yet for as muche as ye, my lord so dere,
Han alwey shewed me fauour and grace,
I dar the better aske of yow a space
Of audience to shewen our requeste,
And ye, my lord, to doon ryght as you leste.
For certes, lord, so well us lyketh yow
And al your werk and ever han doon, that we
Ne coude nat us self deuysen how
We mighte liuen in more felicitie
- b. she a daughter hath ybore
Al had hir lever have born a knave child.
- c. For, sith a womman was so pacient
Un-to a mortal man, wel more us oughte
Receyuen all in gree that god us sent;
For greet skille is, he *preve* that he wroughte.
But he ne tempteth no man that he boughte,
As saith seint Jame, if ye his pistl rede;
He preveth folk all day, it is no drede.

Also explain the construction of the italicised clauses in (a), parse the italicised words in (b) and (c), and point out all the obsolete idioms in (c).

V. Write explanatory notes on,—

- a. As Linian dide of philosophye
Or lawe, or other art particuler.
- b. But hye god som tyme senden can
His grace in-to a litel oxes stalle.
- c. This markis hath hir spoused with a ring.
- d. dere ynough a Jane.
- e. Lest Chichevache you swelwe in hir entraille.

VI. Give the meanings of the following phrases:—

Lasse and more, houses of office, sitting and seruyse, yul apayed, in high maistrie, at the contraille.

VII. Give the meanings of the following words, explaining carefully their etymological components:—

flokmele, linage, natheles, herbergage, thrashfold, unnethe, Orford.

- VIII. a. Give the past participles of *fetch, recche, lea, wende*,
- b. also an example of a strong verb which is now weak,
- c. also the present tense, and the past tense, singular and plural, of the verbs *mot, may, witan*.
- d. Write out with care the full declension of the pronoun in the third person.

IX. Scan the following lines and give reasons where necessary:—

- a. Wel ny alle othere cures leet he slyde.
- b. By a mayde, lyk to her stature.
- c. The more trowe, if that were possible.
- d. Sholde nat telle, whos children they were.
- e. And also wisly he may soule glade.
- f. And in a cloth of gold that bryghte shoon.

LOGIC.

Examiner:—D. DUNCAN, M.A., D.SC.

I. How are Deduction and Induction related? Distinguish between Inductive and Deductive certainty.

II. State precisely the several meanings of "Law."

III. Are uniformities of Co-existence ascertainable by the same method as uniformities of Causation?

IV. State and explain the three aspects in which, according to Dr. Bain, Causation may be viewed.

V. What is the first step in Inductive inquiry?

VI. Give an account of the methods of investigation employed in the course of the inquiry as to the cause of Dew, using as much as possible, tabular modes of statement.

VII. After how many and what sort of instances may it be concluded that an observed coincidence between two phenomena is not the result of chance?

VIII. Distinguish between and exemplify the three sub-requisites coming under the second requisite of a philosophical language.

PRESIDENCY COLLEGE.

LOGIC.

Examiner:—D. DUNCAN, M.A., D.SC.

I. Is Logic a Science, or an Art, or both, or neither? Give reasons.

II. What is meant by the "second sphere of the positive?" How do some logicians express the same idea?

III. Explain the following words as used in Logic:—Term, Conception, Connotation, Abstract, Differentia, Correlative, Essential, Privative, Categorical.

IV. State and exemplify the ambiguity connected with the words 'is,' 'all,' 'some.'

V. Define Predicate, Predicable, Predicament, and Predication.

VI. What is meant by the obverse of a proposition? Distinguish between formal and material obversion.

VII. State briefly the leading objections to the doctrine known as the Quantification of the Predicate.

VIII. Give concrete syllogisms exemplifying undistributed middle, and illicit process of major and illicit process of minor.

ÆNEIDOS LIBER II.

QUESTIONS WITH ANSWERS.

I. Ques.—Write notes, grammatical, and explanatory on the following hints:—

- (a.) Et si fata deum, si mens non laeva fuisset.
- (b.) (Haud ignota loquor) superis concessit ab oris.
- (c.) Hinc semper Ulixes criminibus terrere novis.
- (d.) Bis quinos silet ille dies.
- (e.) Fatale aggressi sacrato avellere templo
Palladium, caesis summae custodibus arcis.
- (f.) Virgineas ausi divae contingere vittas.
- (g.) Ardentisque oculos suffecti sanguine et igni.
- (h.) Scandit fatalis machina muros, foeta armis.
- (i.) Qui redit exuvias indutus Achilli.
- (j.) Quo res summa loco, Paesthu?
- (k.) Pressit humi nitens, trepidusque repente refugit.
- (l.) Unde omnis Troia videri.
Et Danaum solitae naves et Achaia castra.
- (m.) At non ille, satum quo te mentiris, Achilles
Talis in hoste fuit Priamo.
- (n.) Templumque vetustum desertae Cereris.
- (o.) Sed me magna deum genetrix his detinet oris.

—Ans.

- (a.) *Laeva* with *fata* means adverse; with *mens* means infatuated; and is thus an instance of zeugma.
Deum—by syncope for *Deorum* (gen. plural).
- (b.) *Haud ignota*=not unknown=very well known. When two negatives coming together make a strong affirmative, the figure is called Litotes.
Superis ab oris—the earth is spoken of as the upper regions, because the ancients believed Tartarus to be below our feet.
- (c.) *Criminibus novis*=fresh charges.
Terrere—Historic Infinitive.
- (d.) *Dies*=accusative of duration of time.
- (e.) *Fatale*—"the safety of the Palladium was one of the securities of Troy's existence."
Avellere—to drag down because it was chained to the temple.
Palladium—the image of Pallas, the Latin Minerva.
Custodibus—is ablative absolute.
- (f.) *Virgineas* is an instance of transferred epithet—the virgin fillets of the deity being the fillets of the virgin deity—Minerva being unmarried.
- (g.) *Oculos* is accusative of closer definition after *suffecti*.
Igni—is the ablative singular—some nouns of the 3rd declension have *in* in accusative and *i* in ablative singular as *tussis, sitis, ignis*, &c.
- (h.) *Scandit*=ascends slowly.
Armis=armatis viris, i. e., with armed soldiery.

- (i.) *Redit*—the historic present for the sake of vividness; *Exuvias* is accusative of closer definition after *indutus*. *Achilli*—is used instead of the other form of the genitive, *Achillis*, to avoid a repetition of the *s* sound.
- (j.) *Res summa* either (1) *salus reipublicae*; (2) the hottest battle; (3) the citadel, or, (4) the sum total of our affairs. *Panthu* is the vocative case.
- (k.) *Humi*—the ancient dative—in terra; *refugit*—the perfect tense signifying a habit.
- (l.) *Solitae* agrees in construction with *naves* only and not with *Troia* or *castra*. *Naves* being the middle substantive, we get an example of Mesozeugma.
- (m.) *Satum te*—is accusative with infinitive, *esse* being understood after *satum*. *Ille Achilles*—the *ille* of celebrity. *In hoste*—in case of his enemy.
- (n.) *Desertae Cereris templum*—may be by enallage for *desertum Cereris templum*. *Desertae* (1) either because deprived of her daughter Proserpina by Pluto; (2) or because Polyphaetes, her priest had been slain in the war; (3) or because her worship had been suspended during the ten years siege, or (4) because her temple was in a deserted and solitary place out from the city.

(o.) *Magna deorum genetrix*—Cybele.

II. Ques.—Virgil uses eleven different names for the wooden horse. What are they?

Ans.—Simulacrum—effigies—sacrum—robur—pinæ claustra—lignum—machina monstrum—dolum—donum—moles.

III.—Point out the allusions in:—

- (a.) Sive dolo, seu jam Troiae sic fata ferebant.
 (b.) Invidia postquam pellacis Ulixi.
 (c.) Sanguine placatis ventos et virgine caesa.
 (d.) Quos illi fors ad poenas ob nostra reposcent.
 (e.) Omnia ni repetant Argis, numenque reducant.
 (f.) O patria, o divum domus Ilium, &c.
 (g.) Cassandra, dei jussu non unquam credita Teucris.
 (h.) His moenia quæere.
 Magna per errato statues quæ denique ponto.
 (i.) Hominum rex fulminis afflavit ventis et contigit igni.

III.—Ans.

- (a.) Thymoetes had a son Munipus, born on the same day as Paris the son of Priam. Priam being warned by the oracle that a child was born that day to the ruin of his country, chose rather to interpret the oracle against Munipus rather than Paris and put him to death. Thymoetes on that account entertained a grudge against Priam, and was hence suspected of betraying his country. Virgil, therefore, says "*Sive dolo hortatur*."
- (b.) *Invidia*—because Ulysses having feigned madness to escape coming to Troy, was exposed by Palamedes whom he ever afterwards hated and whose death he brought about.
- (c.) This alludes to the law among the Romans, which provided that children should suffer for the crimes of their parents against the State.

- (d.) Alludes to a custom among the Romans, who if they did not succeed in any expedition, were wont to return home and once more take the omens.
- (e.) "Ilium the home of the gods" either because its walls had been built by Neptune and Apollo, or because of its numerous temples.
- (f.) Cassandra having slighted Apollo's love, was punished by him with the gift of prophecy, but with no effect.
- (g.) Magna Moenia—the reference is to Rome, which Æneas was to found.
- (h.) Anchises according to tradition, was blasted with lightning for divulging his intimacy with Venus.
- (i.) Diana incensed with Agamemnon for killing her deer while the Grecian army was at Aulis, withheld the wind. Calchas having consulted the oracles reported that Iphigenia, the daughter of Agamemnon must fall a victim to satisfy Diana. She was brought to the altar, but Diana allowed a deer to be substituted, Iphigenia being taken to serve Diana as priestess.

IV. Ques.—Explain the enmity of Juno, Minerva, Apollo and Neptune to the Trojans.

Ans.—Juno, Minerva, and Venus contended for the prize of Beauty offered by the gods. Being unable to agree, they referred their claims to Paris, the son of Priam, king of Troy, who decided in favour of Venus, who influenced Paris by promising to give him Helen, the wife of Menelaus, and the most beautiful woman on earth.

The enmity of Neptune and Apollo was caused by the refusal of Leomedon, the ancestor of Priam, to pay them the stipulated sum for their labours in building Troy.

V. Ques.—Point out any peculiarities of construction in:—

1. Et tremefacta comam concusso vertice nutat.
2. Delecta virum corpora.
3. Angusta viarum.
4. Vulcano superante.
5. Ducendum ad sedes simulacrum conclamant.
6. Amor cognoscere et audire.
7. Sat jura fidemque supplicis erubuit.
8. Tacitæ per amica silentia lunæ.
9. Plurima imago mortis.

1. Ans.—Comam—Accusative of closer definition after tremefacta.

2. Delecta virum corpora for delectorum virum corpora is an instance of transferred epithet.

3. For angustas vias by Hendyadis.

4. Ablative absolute construction—vulcano being put for igni by Metonymy.

5. Simulacrum ducendum (esse) is accusative with infinitive after conclamant.

6. The infinitives for the gerunds cognoscendi et audiendi by Graecism.

7. Erubuit an intransitive verb governs jura fidemque, by a Greek construction.

8. Silentia the plural for the singular.

9. Plurima with a singular noun is strange.

ALGEBRA.

QUESTIONS.

1. Simplify $\frac{n^3 + (n^2 - 1)\sqrt{n^2 - 4} - 3n - 2}{n^3 + (n^2 - 1)\sqrt{n^2 - 4} - 3n + 2}$.
2. Extract the square root of $\left\{ (2e^x + e^{-x})(2e^y + e^{-y}) + 2\left(2e^{\frac{x+y}{2}} + \frac{1}{2} + e^{-\frac{x+y}{2}}\right) \right\}$.
3. If $\phi(a) + \phi'(a) = a^a = \frac{1}{\phi(a) - \phi'(a)}$, show that $\phi(a)\phi'(a) + \phi(\beta)\phi'(\beta) = \phi(a - \beta)\phi'(a + \beta)$.
4. If $(by - cx)^2 = (b^2 - ac)(y^2 - cz)$, prove that $(bx - ay)^2 = (b^2 - ac)(x^2 - az)$.
5. Eliminate l, m, n from the equations $a^2l^3 + b^2m^3 + c^2n^3 = a'^2l + b'^2m + c'^2n$, $al = bm = cn$, and $l^2 + m^2 + n^2 = 1$.
6. If $l_1l_2 + m_1m_2 = l_2l_3 + m_2m_3 = l_3l_1 + m_3m_1$, then $\frac{(m_1 - m_2)(m_2 - m_3)(m_3 - m_1)}{(l_1 - l_2)(l_2 - l_3)(l_3 - l_1)} + \frac{l_1l_2l_3}{m_1m_2m_3} = 0$.
7. Find the value of $(x + y + z)(x_1 + \omega y_1 + \omega^2 z_1)(x + \omega^2 y + \omega z)$ when $\omega^3 = 1$.
8. Investigate the relation which exists between m and n when $mx^3 - (2m^2 + 3n)x^2 + (m^3 + 6mn)x - 3m^2n$ is a perfect cube.

SOLUTIONS.

1. Expression $= \frac{(n-2)(n+1)^2 + (n^2-1)\sqrt{n-4}}{(n+2)(n-1)^2 + (n^2-1)\sqrt{n-4}}$
 $= \frac{(n+1)\sqrt{n-2}}{(n-1)\sqrt{n+2}} \left\{ \frac{(n+1)\sqrt{n-2} + (n-1)\sqrt{n+2}}{(n+1)\sqrt{n-2} + (n-1)\sqrt{n+2}} \right\} = \frac{(n+1)\sqrt{n-2}}{(n-1)\sqrt{n+2}}$
2. Expression $= \left\{ (4e^{\frac{x+y}{2}} + e^{-(x+y)} + 4) + 2\left(2e^{\frac{x+y}{2}} + \frac{1}{2} + e^{-\frac{x+y}{2}}\right) \right\}$
 $= \left\{ \left(2e^{\frac{x+y}{2}} + e^{-\frac{x+y}{2}}\right)^2 + 2\left(2e^{\frac{x+y}{2}} + e^{-\frac{x+y}{2}}\right) + 1 \right\}$
 $= \left\{ 2e^{\frac{x+y}{2}} + e^{-\frac{x+y}{2}} + 1 \right\}^2$
 $\therefore$ square root of expression $= \left(2e^{\frac{x+y}{2}} + e^{-\frac{x+y}{2}} + 1\right)$.

3. Now $\phi(a) + \phi'(a) = a^a$
also $\phi(a) - \phi'(a) = \frac{1}{a^a}$

$$\left. \begin{aligned} \therefore 2\phi(a) &= a^a + \frac{1}{a^a} \\ 2\phi'(a) &= a^a - \frac{1}{a^a} \end{aligned} \right\} \text{Similarly} \left. \begin{aligned} 2\phi(\beta) &= a^\beta + \frac{1}{a^\beta} \\ 2\phi'(\beta) &= a^\beta - \frac{1}{a^\beta} \end{aligned} \right\}$$

$$\text{and also } \left. \begin{aligned} 2\phi(a - \beta) &= a^{a-\beta} + \frac{1}{a^{a-\beta}} \\ 2\phi'(a + \beta) &= a^{a+\beta} - \frac{1}{a^{a+\beta}} \end{aligned} \right\}$$

$$\text{Now } \phi(a)\phi'(a) + \phi(\beta)\phi'(\beta) = \frac{a^{4a} - 1}{4a^{2a}} + \frac{a^{4\beta} - 1}{4a^{2\beta}} \dots\dots (1)$$

$$\phi(a - \beta)\phi'(a + \beta) = \frac{\{a^{2(a-\beta)} + 1\} \{a^{2(a+\beta)} - 1\}}{2a^{a-\beta} \cdot 2a^{a+\beta}}$$

$$= \frac{a^{4a} - a^{2a-2\beta} + a^{2a+2\beta} - 1}{4a^{2a}} = \frac{a^{4a} - 1}{4a^{2a}} + \frac{a^{2a}(a^{2\beta} - a^{-2\beta})}{4a^{2a}}$$

$$= \frac{a^{4a} - 1}{4a^{2a}} + \frac{(a^{2\beta} - \frac{1}{a^{2\beta}})}{4} = \frac{a^{4a} - 1}{4a^{2a}} + \frac{a^{4\beta} - 1}{4a^{2\beta}} \dots\dots (2)$$

Hence the required result.

4. Now $b^2y^2 - 2bcxy + c^2x^2 = b^2y^2 - b^2cz - acy^2 + ac^2z$
 $\therefore -2bcxy + c^2x^2 = -b^2cz - acy^2 + ac^2z$
 $\div$ by $c \therefore -2bxy + cx^2 = -b^2z - ay^2 + acz$
 $\times$ by $a \therefore -2abxy + acx^2 = -ab^2z - a^2y^2 + a^2cz$
 $\therefore -2abxy + a^2y^2 = -acx^2 - ab^2z + a^2cz$ add b^2x^2 to each side
 $\therefore b^2x^2 - 2abxy + a^2y^2 = b^2x^2 - ab^2z - acx^2 + a^2cz$
 $\therefore (bx - ay)^2 = b^2(x^2 - az) - ac(x^2 - az) = (b^2 - ac)(x^2 - az)$
5. Now $a^2l^3 + b^2m^3 + c^2n^3 = a'^2l + b'^2m + c'^2n$
 $\therefore a^2l^3 + b^2m^3 + c^2n^3 = a'^2l + b'^2m + c'^2n$
 $\therefore a^2l^3 + b^2m^3 + c^2n^3 = a'^2l + b'^2m + c'^2n$
 $\therefore a^2l^3 \left\{ \frac{1}{a} + \frac{1}{b} + \frac{1}{c} \right\} = al \left\{ \frac{a'^2}{a} + \frac{b'^2}{b} + \frac{c'^2}{c} \right\}$

$$\therefore \left\{ \frac{1}{a} + \frac{1}{b} + \frac{1}{c} \right\} = \frac{1}{a^2 l^2} \left\{ \frac{a'^2}{a} + \frac{b'^2}{b} + \frac{c'^2}{c} \right\}.$$

Since $l^2 + m^2 + n^2 = 1$; by substitution we get

$$\frac{a'^2 l^2}{a^2} + \frac{b'^2 l^2}{b^2} + \frac{c'^2 l^2}{c^2} = 1.$$

$$\therefore a'^2 l^2 \left\{ \frac{1}{a^2} + \frac{1}{b^2} + \frac{1}{c^2} \right\} = 1; \therefore \left\{ \frac{1}{a^2} + \frac{1}{b^2} + \frac{1}{c^2} \right\} = \frac{1}{a'^2 l^2}.$$

$$\therefore \left\{ \frac{1}{a} + \frac{1}{b} + \frac{1}{c} \right\} = \left\{ \frac{1}{a^2} + \frac{1}{b^2} + \frac{1}{c^2} \right\} \left\{ \frac{a'^2}{a} + \frac{b'^2}{b} + \frac{c'^2}{c} \right\}.$$

$$6. \text{ Now } m_2(m_1 - m_2) = -l_3(l_1 - l_2); \therefore \frac{m_1 - m_2}{l_1 - l_2} = -\frac{l_3}{m_2}.$$

$$\text{again } m_1(m_2 - m_3) = -l_1(l_2 - l_3); \therefore \frac{m_2 - m_3}{l_2 - l_3} = -\frac{l_1}{m_1}.$$

$$\text{also } m_2(m_3 - m_1) = -l_2(l_3 - l_1); \therefore \frac{m_3 - m_1}{l_3 - l_1} = -\frac{l_2}{m_2}.$$

$$\therefore \frac{(m_1 - m_2)(m_2 - m_3)(m_3 - m_1)}{(l_1 - l_2)(l_2 - l_3)(l_3 - l_1)} = -\frac{l_1 l_2 l_3}{m_1 m_2 m_3}.$$

$$\therefore \frac{(m_1 - m_2)(m_2 - m_3)(m_3 - m_1)}{(l_1 - l_2)(l_2 - l_3)(l_3 - l_1)} + \frac{l_1 l_2 l_3}{m_1 m_2 m_3} = 0.$$

$$7. \text{ Since } x + y + z \text{ is a factor of } x^3 + y^3 + z^3 - 3xyz;$$

$$\therefore x + \omega y + \omega^2 z \text{ is a factor of } x^3 + \omega y^3 + \omega^2 z^3 - 3x\omega y\omega^2 z,$$

$$= x^3 + \omega^3 y^3 + \omega^6 z^3 - 3\omega^3 xyz; \text{ but since } \omega^3 = 1.$$

$$\text{This last expression} = x^3 + y^3 + z^3 - 3xyz;$$

$$\therefore x + \omega y + \omega^2 z \text{ is a factor of } x^3 + y^3 + z^3 - 3xyz.$$

Similarly it can be shown that $x + \omega^2 y + \omega z$ is also a factor of it.

$$\therefore x^3 + y^3 + z^3 - 3xyz = (x + y + z)(x + \omega y + \omega^2 z)(x + \omega^2 y + \omega z).$$

$$8. \text{ If it is a perfect cube it must be of the form } (ax + b)^3.$$

$$a^3 x^3 + 3a^2 b x^2 + 3ab^2 x + b^3 = mx^3 - (2m^2 + 3n)x^2 + (m^3 + 6mn)x - 3m^2 n$$

$\therefore$ equating the co-efficients, we have

$$a^3 = m \dots \dots \dots (1); 3a^2 b = -(2m^2 + 3n) \dots \dots (2)$$

$$3ab^2 = m^3 + 6mn \dots \dots \dots (3); b^3 = -3m^2 n \dots \dots \dots (4)$$

From these equations we now eliminate a and b .

$$\text{By (1) and (4) } a^3 b^3 = -3m^3 n.$$

$$\text{By (2) and (3) } 9a^3 b^3 = -(2m^2 + 3n)(m^3 + 6mn).$$

$$\therefore 27m^3 n = (2m^2 + 3n)(m^3 + 6mn)$$

$$\therefore 27m^3 n = 2m^4 + 15m^2 n + 18n^2$$

$$\therefore m^4 - 6m^2 n + 9n^2 = 0.$$

$$\therefore (m^2 - 3n)^2 = 0; \therefore m^2 = 3n.$$

Q. E. D.

The following is extracted from the Report on Public Instruction in the North-Western Provinces and Oudh, for the year ending 31st March, 1883, by R. T. H. Griffith, Director of Public Instruction, N. W. P. and Oudh, with the Government review on it:—

There are now thirteen colleges or sections of colleges which give what is technically called university education. These are the English Government colleges at Agra, Allahabad, and Benares, and the newly-constituted college department of the Fyzabad High School; the aided English colleges at Lucknow and Aligarh; the unaided college department of St. John's, Agra, and of the London Mission College at Benares; the Oriental departments of the Government college at Benares and of the aided colleges at Lucknow and Aligarh; and the law classes at Allahabad and Lucknow. Besides these, which are shown in the statistical returns, La Martinière at Lucknow teaches beyond the entrance examination and prepares matriculated students for the engineering and medical colleges. The Thomason Engineering College at Roorkee is not connected with the Education Department, and its Principal submits his own report to the Government of these provinces.

The total number of students in the English arts colleges has risen from 349 at the end of 1881-82 to 415 at the end of 1882-83, the increase being chiefly in the Muir Central College, and in the Agra College, in which several scholarships have recently been founded by the liberality of native gentlemen. There is a growing demand for this class of education when it can be obtained for little or nothing, but those who are able and willing to pay the very moderate fees which are now charged and to live for years in a distant and perhaps uncongenial town are still comparatively few. For my own part I lay more stress upon the fitness of our pupils than their numbers, and am content for the present that our colleges should turn out yearly a few well-taught and well-mannered graduates whose after lives are a credit to themselves and their teachers.

The results of the university examinations are much more satisfactory than those of last year and are especially creditable to the Muir Central College and Canning College. In the examination for honours in arts and the M. A. degree the Muir College passed all its five candidates, four for the former and one for the latter, two of the former obtaining the first and second places in the class and carrying off the gold and silver medals of the university. These five students passed in physical science, and Mr. S. A. Hill, the Professor who taught them, deserves the great credit of their success. From Canning College one student gained honours in English literature, and one took the M. A. degree without honours in the same subject. The whole result is that five students obtained the M. A. degree with honours, two taking university prizes and two the M. A. degree without honours, against four in honours only last year. The other colleges sent up no candidates for this examination.

In the B. A. examination 28 students passed out of 62 candidates, against 8 out of 38 last year. In this examination Canning College stands easily first, having passed 15 students, 3 of whom were placed in the 1st division. The Muir Central College passed 6 with one in the 1st division. Benares passed 4, but all in the 3rd division; Agra College passed 2, and the M. A. O. College, Aligarh, one. The percentage of

successful candidates was 45.1 for the North-Western Provinces and Oudh, the percentage for Bengal being 40.93, and the total percentage for the presidency 41.04.

In the first arts examination the North-Western Provinces and Oudh passed 51 candidates out of 127, against 42 out of 82 in the preceding year; the percentage of success being 40.1, against 33.9 of Bengal and 34 of the whole presidency. The percentage of our successful candidates in 1881 having been over 50, the results of the last examination show a falling off in this respect, but in the total number passed there is a fairly satisfactory increase. Canning College passed 16 with one in the 1st division; the Muir Central College 13 with two in the 1st division; Benares College, passed 7; Agra College, 4; the M. A. O. College, Aligarh, 7; St. John's College, Agra, 1; and the London Mission College, Benares, 2.

The oriental colleges or departments at Benares, Aligarh, and Lucknow are doing satisfactory work. The Benares Sanskrit College is not connected with a university, being rather itself a Sanskrit university for the whole of India than a provincial college or a mere examining board. It maintains its popularity and its high reputation both in India and in Europe, and without anglicizing the college, such changes and reforms as appear to be advisable are gradually introduced. We have still to deplore the abolition of its Anglo-Sanskrit department, which was a mistaken and unfortunate measure. From the oriental department of Canning College two candidates from the first Sanskrit class passed the Prājña examination, and three from the second Arabic class the Maulavi examination of the Panjab university, two of the latter gaining the first and second places on the list.

In the law classes also a fair measure of success has been obtained and the number of students has increased considerably. Several candidates passed the High Court pleadership examination, and two students—one from the Muir College and one from Canning College—passed the examination of Bachelor of Law of the university of Calcutta.

REVIEW BY GOVERNMENT.

During 1882-83, 13 institutions were open for university education and its equivalent, as compared with 11 in 1881-82. Of these, eight were English arts colleges, three were oriental, and two were colleges for professional training in law. On the 31st March, 1883, 973 students were on the rolls, as compared with 937 on the 31st March, 1882. The average number on the rolls during 1882-83 was 882, and the average daily attendance was 764, as compared with 850 and 741, respectively, in 1881-82. Of the students of 1882-83, 121 were reading for degrees and 852 for the first arts, licentiate, or corresponding examination. As compared with Rs. 2,01,990 in 1881-82, the total cost of all the colleges in the year of review (exclusive of inspection and other general and miscellaneous charges) was Rs. 2,14,979, of which Rs. 1,27,774 was met from provincial revenues, Rs. 4,075 from Government local rates or cesses, Rs. 53,473 from endowments, Rs. 11,947 from fees, and Rs. 17,683 from other sources. The average total cost of educating each student, and the average cost of their education to Government for 1882-83 and the previous year, are shown in the table below:—

		Total cost.	Cost to Government.
Government English Colleges	{ 1881-82 ... 1882-83 ...	862 2 1 814 12 5	607 12 2 588 3 1
Aided English Colleges	{ 1881-82 ... 1882-83 ...	366 8 0 442 8 5	131 2 7 155 15 3
Unaided English Colleges	{ 1881-82 ... 1882-83 ...	154 14 9 229 11 5	
Government Sanskrit College	{ 1881-82 ... 1882-83 ...	36 11 1 41 2 8	35 14 9 40 1 11
Aided Oriental Colleges	{ 1881-82 ... 1882-83 ...	108 4 6 72 15 1	41 3 11 26 9 0
Aided Law Colleges	{ 1881-82 ... 1882-83 ...	557 10 0 320 7 6	192 14 0 196 13 8
Total average cost	{ 1882-83 ... 1881-82 ...	272 9 5 281 4 3	166 14 0 172 8 0

There has been a diminution in the cost of education in the Government English colleges during 1882-83. At the Agra College the cost per pupil (Rs. 1,030) is still far too high; but the management has now been taken over by the board of trustees appointed for the purpose, and a further diminution in the average cost of the education of each student may be anticipated. The public spirit and liberality that have been displayed by the native gentlemen who have undertaken to manage and maintain this college as an aided institution are very gratifying indications of a real desire to support the local colleges. And the Lieutenant-Governor hopes that the scheme which you mention, for the restoration of the Bareilly College, may succeed.

The results of the university examinations are summarised in paragraph 9 of the report, and are fully noticed for each college in the 22nd and following paragraphs. In all except the F. A. examination the percentage of successful candidates is higher than in the previous year; and as regards all the standards, including the F. A., it is considerably better than the presidency average; while as the total number of those who passed rose from 244 to 368, the results of 1882-83, as tested by the university examinations, compare very favourably with those of 1881-82. The students of the Muir College (the number of whom continues to increase) particularly distinguished themselves in the examination for Honors in Arts and the M. A. degree, while in the B. A. examination the Canning College was most successful, having passed 15 students out of 24. The remarks of the Principals of the various colleges quoted by you give account of the work of the year, and evince their zeal and solicitude for the progress of their colleges, as well as careful and successful management. Dr. Thibaut, of the Benares Sanskrit College, makes some interesting observations on the present state and progress of Sanskrit learning among the natives. He regrets that the Pandits, superior as they undoubtedly are, even to the best European scholars, in depth of

Sanskrit learning, are doing hardly anything towards research in any branch of Indian literature and antiquities. Since the abolition of the Anglo-Sanskrit department of the college, there is no longer, he says, an opportunity for the Pandits to make themselves acquainted in some degree with Western thought and culture. The point is undoubtedly important in regard to the advancement of learning; and Sir Alfred Lyall will endeavour to ascertain whether the two lines of study can be to any degree re-united. The growing demand for university education, when it can be obtained for little or nothing, is noticed by you with the remark that as yet comparatively few young men, able to pay the fees, are willing to undertake lengthened study at colleges situated at a distance from their homes. There is a natural tendency among students and their guardians in these provinces to look on education in our colleges merely as an avenue to Government employment. It is true that, in making selection among candidates for the Government service, the fact that a young man has taken a good degree or attained high distinction at school or college should always carry much weight; and a high standard of education should be one of the primary qualifications for employ. But appointments under the Government are necessarily limited in number; and the main object of education should be to prepare youths for the various professions and avocations that are rapidly springing up, as the country increases in wealth and civilisation, in Upper India. So long as these professions are not regularly formed and laid out as openings that promise a permanent and honourable livelihood, there will be a pressure for employment in the various departments of the State service; and many candidates will continue to be disappointed. But the Lieutenant-Governor observes with satisfaction the report of the Principal of the Canning College, that students are beginning to look out for a profession for themselves on leaving college, and to trust to their own exertions in a private capacity to earn their livelihood. A similar fact is noticed in the report for the Muhammadan College at Aligarh, some of whose ex-students are continuing in England their studies for the law profession.

MILL'S COSMOLOGICAL THEORY AND MASSON'S OBJECTIONS THERETO.

(Communicated.)

MR. MILL's theory of the Cosmos, or universe, (which theory he calls *psychological* probably because it is a reduction of the cosmos to psychological elements, viz., *conscious states*) is an attempt to account for our belief in matter and in mind on the supposition that neither the one nor the other really exists. The hypothesis is that the only existence is conscious states, or a *thread of consciousness*. This thread of consciousness, by the operation of certain psychological laws, evolves out of itself an illusory self and a not-self. [It might be remarked here, that, as the belief in the existence of a self and a not-self is different from the conscious states, is itself a conscious state, then, on Mill's own theory, there is no more need to account for it than to account for any other conscious state whatever. It would be much more simple, and it would save a world of trouble, to suppose that the

belief in the existence of a self and a not-self is a particular conscious state which ever and anon presents itself in the series.]

We shall give the substance of Mills's theory, 1st, as applied to matter, and (2), as applied to mind.

I.

Mr. Mill, at starting, assumes the following data:—

(1), The existence of conscious states; (2), Expectation, or the anticipation of the recurrence of a conscious state after it has once been experienced; (3), The laws of Association of Ideas, or Conscious States, viz., Similarity and Contiguity; (4), Inseparable Association, which means, not only that conscious states may, by the law of contiguity, become practically inseparable, but that the facts that are supposed to correspond to these states are considered to be inseparable also. It must be noted that, in addition to these explicit postulates, Mill, at least when explaining our belief in the existence of matter, implicitly postulates mind too. As this makes the statement and the understanding of his theory much easier, we shall not quarrel with the assumption just now. Suppose then that we have a mind, and that that mind is the subject of conscious states. Suppose farther that one of these conscious states is Expectation. Suppose still farther the laws of Association among these conscious states. Now Mr. Mill's theory is that these are all that exist. There is really no objective existence; and our belief in an objective world is an illusion which Mr. Mill's theory professes to be able to account for.

Before proceeding farther with our exposition of the theory, it will be well to make a remark which is of considerable importance to the understanding of the theory. Mr. Mill's point of departure is Hypothetical Realism. According to this cosmological theory there is no distinction between Sensation and Perception, or between the Secondary and the Primary qualities of matter. None of the qualities of matter as known are objective; all are subjective, not only color, taste, smell, &c., but also extension, figure, solidity, motion, &c. Consequently all that the mind knows of matter amounts really to nothing at all. It knows only its own conscious states; it infers matter as the cause of some of these. Hence the difference between Mill's theory and that of Hypothetical Realism is, that while the latter holds the objective existence of matter as the unknown cause of our sensations, the former denies the real existence of matter and holds that our sensations are not only subjective in their nature, but also in their origin, there being nothing objective corresponding to them to cause them.

Now it is obvious that Mr. Mill's task at the outset will be to explain how it is that the mind assigns an objective origin to some of its conscious states, while it assigns a subjective origin to the rest,—how it considers the former as coming to it from without, while it considers the latter as coming from within, the fact being that there is no external world—no *without*, and of course no *within*, at all.

Well, according to Mr. Mill, the distinction between objectively caused conscious states and those that are subjectively caused, coincides with the distinction between our conscious states as contingent and as non-contingent, or as he otherwise puts it, with the distinction between our conscious states as occurring in groups and as occurring in a series. We find by experience that certain of our conscious states occur in groups. By this is not meant that we have all these conscious states at one and the same time. But what is meant is that when one or more of a group is actually present, the others are certified as possibly present. Take for illustration the group of sensations called an orange. This group consists of visual circularity, tangible sphericity, yellowness, a certain size, a certain weight, smoothness, compressibility, a fragrant odour, a sweetish sourish taste, motion, rest, &c. Now we find by experience that, when any one, or more, of these sensations is actually present, the rest are potentially present, and may be actually realized through the intervention of certain muscular sensations which we have at the command of our will. The whole of our sensational consciousness consists of such groups as these. Hence, owing to the operation of the laws of Association, it happens that our actual sensations are always attended by an imaginary background of possible sensations. This background is purely imaginary, for a possible sensation is obviously nothing at all. But nothing as this background is, it has an imaginary existence, and is thought of as a permanent something, out of consciousness, but capable of announcing itself to consciousness by actual sensations. Seeing that our actual sensations are transitory, and that when any one of a group passes away, leaving others of the group in actuality, or being substituted by the emergence of some other or others of the group from potentiality into actuality, it becomes a present possibility; and seeing that when all the actual sensations of a group disappear, they are still conceived of as existing in potentiality, the notion of perdurability is attached to the possible groups of sensations, which notion is not associated with the actual sensations. We have now got the notion of permanent groups of possible sensations as something different from the actual sensations. Moreover, whenever a sensation becomes actual, it is conceived of as coming from the possible groups; and when it disappears it is conceived of as going back again into the possible groups. Hence, when we have gained the idea of cause (which, according to Mill, we gain from observing the fixed order that more or less regulates the succession of the sensations of a group, and more especially the succession of the groups), we attach it to the possible part of a group (as being as a rule the larger part, and as having the notion of permanence) of sensations, and conceive of it as the cause of the actual sensations belonging to that group.

Thus we have got permanent groups of possible sensations considered as the causes of our actual sensations; or we have got permanent possibilities of causing sensations; and these, according to Mill, are *bodies*, or the *external world*.

II.

We have thus seen that Mr. Mill identifies those conscious states that we regard as being objectively originated, and as announcing to us the existence of an external world, with those conscious states that occur in fixed groups; and we have further seen that he regards the latent or possible part of these groups as being invested by the mind with an illusory existence and so constituting our notion of matter. It now remains to see how he explains the belief in the existence of mind. His exposition of this part of his theory is exceedingly brief—brief even to obscurity, if it is not, over and above, inconsistent. He says: "Our notion of mind is the notion of a permanent something contrasted with the perpetual flux of the sensations, and other feelings or mental states which we refer to it; a something which we figure as remaining the same while the particular feelings through which it reveals its existence change." He further says that this attribute of permanence would admit of the same explanation when predicated of mind as when predicated of matter. But all the explanation he thinks it necessary to furnish is contained in the following sentence: "There seems no hindrance to our regarding mind as nothing else than the series of our sensations (to which must now be added our internal feelings), as they actually occur, with the addition of infinite possibilities of feeling requiring for their actual realization, conditions which may or may not take place, but which as possibilities are always in existence, and many of them present."

When Mr. Mill speaks of our "internal feelings," he is of course using the language of accommodation, and he must mean those feelings or conscious states other than those which occur in fixed groups, and to which we give the name of sensations. But, with this explanation, there still seems to be a great inconsistency in the above sentence. In the preceding page of his book we find Mr. Mill speaking of our conception of mind as that of a permanent something distinguished from, and contrasted with, its conscious states. Where then is the consistency of speaking of our notion of mind as that of the series of conscious states *plus* infinite possibilities of feeling? We must save Mr. Mill from himself, and must suppose that what he means is, that our notion of mind is that of the infinite possibilities of feeling which he speaks of, and which have developed their illusory existence out of the actual series of conscious states.

But on getting out of this inconsistency we find ourselves involved in a difficulty not less formidable. Mr. Mill has told us that our notion of body is that of *possibilities of sensation*; he now tells us that our notion of mind is that of *possibilities of feeling*. What are we to suppose is the difference between possibilities of feeling and possibilities of sensation? Or are we to suppose that Mr. Mill intends us to understand these as different? I rather think not. By feeling here I think Mr. Mill means conscious states in general, including sensations, emotions, ideas, volitions, &c. But how it may be asked, can the notion of permanent possibilities of one kind of feeling, *viz.*, sensation, be the notion of an external something, *viz.*, body, and at the same

time the notion of a permanent possibility of all kinds of feeling be the notion of an internal something, *viz.*, mind? In answer to this, we point to a distinction which Mr. Mill has not explicitly stated, but which I think is implied in what he says. When he says that our notion of matter is that of permanent possibilities of sensation, I think he means *permanent possibilities of causing sensation*; and when he says that our notion of mind is that of a permanent possibility of feeling, I think he means *a permanent possibility of having feeling*.

But how is this notion of a permanent possibility of having feelings evolved? Here Mr. Mill almost entirely fails us. He says next to nothing about it in the text. By the help, however, of some hints in an Appendix to the 11th and 12th Chapters of his work, we may give some idea of the process of thought by which this notion is evolved. We find that the separate states that constitute the thread of consciousness differ from one another. Yet they have all a common element, *viz.*, Consciousness. Each one is conscious of itself. Moreover this common element applies not only to the present state, but also to the past states. Each present state is not only conscious of itself, but of the states that preceded it. This is implied in the fact of memory. Hence it happens that the series of conscious states are thought of as linked together, and linked together by the common element of consciousness. We abstract this common element and think of it as a tie that runs through and unites the whole series of conscious states, it being permanent, while they are transitory. Thus we get the notion of a permanent something distinct from and contrasted with the series of conscious states, and that notion is our notion of mind. Let us now briefly state and criticize Professor Masson's objections to Mill's Psychological Cosmology. They are four in number.

(1). *It does not seem to account for all that is involved in our notion of mind.* Our notion of mind or self involves an organic union of the present with the non-present, the identity somehow in consciousness of the *was*, the *is*, and the *is to be*. That simply means that the consciousness of the present, the recollection of the past, and the anticipation of the future, appear to us to be acts, or states, of one and the same being. Hence, in order to provide a basis for erecting this notion of mind upon, Mr. Mill, starting with the assumption that the sole existence is conscious states, is obliged to suppose that the series of conscious states *is conscious of itself as a series*.

Now, not to say anything of the initial difficulty of supposing that conscious states can exist without a conscious subject, let us see what is involved in the supposition of a series of conscious states being aware of itself as a series. It would seem that there is involved the supposition that each state, in addition to being conscious of itself, remembers the states that preceded it, and anticipates those that shall succeed it. Now, seeing that the states that preceded the present state never co-existed with it, but had passed into non-existence before it came into existence, it seems impossible to believe that the present conscious state remembers those states that preceded it. Mr.

Mill himself admits that here we have an inexplicability. Consequently Masson's objection may be considered valid on Mill's own admission.

(2). The second objection to Mr. Mill's cosmological theory urged by Masson is, *that it does not show the results of his ultimate analysis.* His Constructive Idealism includes a series of conscious states, a background of permanent possibilities of causing sensation, and another background over against the former of a permanent possibility of having feelings. But Mr. Mill shows that his analysis can reduce these to one existence, *viz.*, a series of conscious states. No other cosmological theory thus half reveals and half conceals itself. When Natural Realism speaks of mind and matter, Pure Idealism of mind and objectized ideas, Materialism of organized matter and sensation as its product, and the ordinary Constructive Idealism of mind and its mental representations of the unknown existence matter, they one and all express the results of their utmost analysis. Mr. Mill's Constructive Idealism alone stops short of this.

(3). The third objection urged by Masson is *that on Mr. Mill's theory our belief in the existence of other minds is a delusion.* Let us see how this objection applies to Pure Idealism, such as that of Berkeley.

The objection as against Berkeleyanism may be put in this way: our belief in the existence of other minds is founded on our perception of other bodies. But Idealism resolves my perception of other bodies into a consciousness of my own ideas. Other bodies therefore are creations of, or at least in, my own mind. But if these other bodies have other minds, as is implied, then they are the creations of those other minds. Hence arises the absurdity that what is a modification of my own mind should also be a modification of another mind. To this the Berkeleyan might reply as follows: Call A and B two separate minds, and call *a* and *a'* A's body as viewed by A, and by B, respectively. Also call *b* and *b'* B's body as viewed by B and A respectively. What

A	B
<i>a</i>	<i>a'</i>
<i>b</i>	<i>b'</i>

then are the conditions necessary to the validity of A's belief in B, and of B's belief in A? These conditions will be met by the following supposition: Let there be produced in the mind A

(whether by God, or by its own inherent energy) the group of objectized ideas *a*; and at the same time in the mind B the group of objectized ideas *a'*. Further let there be produced in the mind B the group of objectized ideas *b*, and at the same time in the mind A the group of objectized ideas *b'*; and let *a* and *b* be directly under the influence of the wills of A and B, respectively, while *b'* and *a'* are only indirectly under the influence of the same. If, from any cause, A regard *a* as its own body, it will regard *b* as B's body, and if from any cause, B regard *b* as its own body, it will regard *a'* as A's body. Thus the existence of B is certified to A, and the existence of A to B.

Let us now see how the objection applies to Mill's theory. It seems to me that Masson puts it in this way: Both myself and my not-self are evolved out of the series of conscious states. That is to

say, my not-self is the conscious states objectized, or viewed as external; while myself is the series of conscious states *subjectized*, or viewed as internal. These two exhaust the whole universe. This amounts to saying that my thread of consciousness is the universe. If, therefore, I believe in, or am acquainted with, other human beings, I must find a place for them in the one or the other hemisphere of the universe. Their bodies undoubtedly belong to my not-self. Their minds, it would seem, must also belong to my not-self. But, in any case, as being parts of the universe they are ultimately reducible, both bodies and minds, to my series of conscious states. Thus the existence of other minds is illusory.

If Mill should say that he starts with the supposition of a plurality of threads of consciousness each of which develops its own self and its own not-self, Masson would reply that this is really to start with a self and a not-self ready made. Plainly, the supposition that there is one thread of consciousness which becomes *myself*, and another thread of consciousness that becomes *yourself*, is virtually to posit a self and a not-self to begin with; and in this Masson would seem to be right.

(4.) The fourth objection urged by Masson is *the difficulty or impossibility of reconciling Mill's theory with the new generally received scientific conception of the genesis of the Cosmos*. That conception is that the Cosmos as it now exists is an evolution out of a primitive element of star-mist. On this theory myriads of ages must have elapsed before an organized structure appeared, and myriads of ages more before man appeared. If then the not-self be an evolution out of my thread of consciousness, is it not a contradiction to suppose the existence of the not-self prior to the existence of any thread of consciousness at all, even supposing we grant the possibility of the existence of a plurality of threads of consciousness?

Mill has nowhere noticed this difficulty; consequently it is matter of conjecture how he would have replied to it. Perhaps he would have said that this supposition of science must be interpreted in accordance with the psychological explanation of our belief in matter and in mind. According to this theory, as the not-self is an evolution out of the primitive thread of consciousness, it could not have had its illusory existence prior to that thread of consciousness. But as the existence of the not-self is at best an illusion, the priority of its existence to that of the thread of consciousness must be an illusion too; and if the primitive *neutrum*, of conscious states is capable of evolving an illusory present with a not-self in it, it is just as capable of evolving an illusory past with a not-self in it.

APPOINTMENTS AND LEAVE

Sanctioned by the Director of Public Instruction, during the months of August and September 1883.

R. Chakravarti Aiyangar, B.A., 1st Assistant, High School, Saidapet, to be 1st Assistant, High School, Palghat, but to continue to act at Kumbakonam.

T. R. Srinivasa Aiyar, B.A., *Sub pro tem*, 2nd Assistant, Berhampore College, to be *Sub pro tem*, 1st Assistant, High School, Saidapet.

T. V. Subbarama Aiyar, 3rd Assistant, and Acting 1st Assistant, Salem College, to be 2nd Assistant, Berhampore College, but to continue to act at Salem.

Ullala Raghavendra Rau, B.A., 3rd Assistant, Mangalore College, and *Sub pro tem*, Head Master, High School, Cannanore, to be 2nd Assistant, Calicut College, but to continue to act at Cannanore.

Mr. Paul D. Rozario, B.A., 3rd Assistant, Calicut College, to be *Sub pro tem*, 2nd Assistant, Calicut College.

M. Rameswara Rau Pantulu, B.A., 3rd Assistant, Berhampore College, to act as 2nd Assistant.

T. Janakiramayya, B.A., 6th Assistant, Chittoor, to be *Sub pro tem*, 2nd Assistant, High School, Saidapet.

G. V. Sivarama Aiyar, 6th Assistant, Madura College, to be 6th Assistant, Bellary College, but to continue to act at Erode.

A. Aiyaswami Sastri, B.A., to be *Sub pro tem*, 6th Assistant, Madura College, under the usual conditions.

Privilege leave for 3 months to J. Srinivasa Chari, Assistant Librarian of the O. MSS. Library, with effect from 2nd August 1883.

K. C. Ramunni, 3rd Assistant, Cannanore High School, to act as 2nd Assistant, on Rs. 40 from 1st July 1883.

Varamuniswamayya, Acting Deputy Inspector of Schools, Kolikantla Range, leave without allowances for 3 months from the 16th March 1883.

M. Venkataratnam, B.A., 3rd Assistant, Bellary College, to be 2nd Assistant, High School, Chittoor.

M. Deva Rau, B.A., 2nd Assistant, High School, Chittoor, to be 3rd Assistant, Bellary College, but to continue to act as 2nd Assistant.

P. Venkoba Chari, B.A., 4th Assistant, Bellary College, to act as 3rd Assistant.

T. A. Ramachandra Aiyar, F.A., (trained), Acting 2nd Assistant, High School, Chittoor, to be *Sub pro tem*, 3th Assistant, Bellary College.

T. R. Kartikesam Pillai, 3rd Assistant, High School, Chittoor, to act as 1st Assistant, Middle School, Arni, during the absence of Pundi Sesha Iyengar.

C. M. Srinivasa Charri, F.A., 2nd Assistant, Middle School, Palmanair, and Acting 4th Assistant, High School, Chittoor, to act as 3rd Assistant.

N. Swaminatha Aiyar, leave on private affairs for 4 months from 21st August 1883.

Krishna Bhatta, B.A., to be *Sub pro tem*, 5th Assistant of the Mangalore College, under the usual conditions.

G. Mukunda Rau Nayadu, 2nd Assistant, High School, Chicacole, to act as 1st Assistant.

V. Appayya, 3rd Assistant, to act as 2nd Assistant.

J. Appayya, 4th Assistant, to act as 3rd Assistant.

G. Mahadevan, to act as 4th Assistant.

C. N. Subrahmanya Aiyar, B.A., 4th Assistant of the Berhampore College, to be Deputy Inspector of School, Chicacole Circle.

K. Krishnamurti Pantulu, Deputy Inspector of School, Chicacole Circle, to be 4th Assistant, Berhampore College.

T. Sitaramaswami Pantulu, Deputy Inspector of School, Vizagapatam, 6th Class, is promoted to 5th Class.

Mr. E. R. Perrett, 1st Master, Presidency College, to be Head Master, Salem College, *vice* Mr. Small.

Mr. L. C. Williams, B.A., 2nd Master, to be *Sub pro tem*, First Master, Presidency College.

Mr. J. Small, 3rd Master, to be *Sub pro tem*, 2nd Master.

K. Bashyam Aiyangar, B.A., 4th Master, to be *Sub pro tem*, 3rd Master.

Mr. D. J. Winfred, B.A., *Sub pro tem*, 5th Master, to be *Sub pro tem*, 4th Master.

M. V. Narayanaswami Pillai, B.A., *Sub pro tem*, 6th Assistant, to be *Sub pro tem*, 5th Assistant.

The above to take effect from 1st January 1883.

A. S. Vaidyanatha Aiyar, B.A., to be *Sub pro tem*, 3rd Assistant, Calicut College, on the usual conditions.

Miss H. Bernard, Headmistress of the Practising School, to act as Assistant Superintendent of the Government Female Normal School.

Miss Shanmukham, Headmistress of the Kumbhakonam School, to act as Headmistress of the Practising School.

Privilege leave for two months to P. Vedanta Charri, Deputy Inspector of School, Chingleput Range.

A. Subba Rau, Deputy Inspector of School, South Tanjore, to be 2nd Assistant, Bellary, but to continue to act as 1st Assistant, Calicut College.

Any papers for insertion in this Journal, may be addressed to

THE EDITOR,

Educational Record, Madras.

"Gladly would he learn and gladly teach."

THE Madras Educational Record.

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New Series.

BOMBAY UNIVERSITY.

(Communicated.)

The Matriculation Examination has been put off till the 22nd instant on account of the Duke of Connaught's arrival. There are 22 Examiners, of whom no less than 7 take the papers in English and History; of these 4 are padres, *viz.*, Reverend Messrs. J. M. Hamilton, S. J., A. C. Grieve, G. T. Rea, M.A., and Rev. J. Bambridge, while 3 are laymen, *viz.*, M. P. Lynch, Esq., G. W. Forrest, B.A., (Professor, Deccan College,) and K. T. Best, M.A., (Principal, Guzerat College). In the other Examinations, Messrs. Littledale (Vice-Principal, Baroda College), Barrett, (Professor, Elphinstone College), Oxenham (Deccan College), Macmillan (Elphinstone College), and Hathornethwaite (Elphinstone College), are employed. The rule that no one should examine his own pupil is a good one, but has not been observed in all cases.

THE "ARTHURIAN" LEGENDS.

These legends were so called, because they celebrated the mighty exploits of King Arthur—the last bulwark against the Saxon invaders—and his sixty Knights of the Round Table. They had their origin first in tradition. After the Saxons had displaced their enemies the Britons, the miserable residue of the nation sought precarious shelter amid the wilds and fastnesses of Wales and Cornwall, while some fled to Brittany. Here then (as in Brittany) they spoke in high glee and with genuine pride of the heroic and chivalrous deeds of their famous Knight, King Arthur. All these facts were kept alive by the bards and minstrels then living, till at length they were collected and incorporated by Geoffrey of Monmouth into his semi-fabulous "History of the Britons", who got the sobriquet of "Arthur" from his panegyrising the Prince of that name. His History became the germ of that wide cycle of Romances, which, unexhausted even in our day, has furnished to Mr. Tennyson the canvas upon which he has interwoven his

"Idyll's of the King" (*Flos Regum Arturus*). These Romances soon gained popularity, and were at once translated into French with considerable amplification by Geoffrey Gaimar, and Mæstre Wace, and subsequently by the English Layamon, who introduced them into his "Brut." Meanwhile, an extensive development of the Arthurian Romances seems to have taken place; so much so that at the close of Henry II's reign there were no less than five separate prose fictions or *Romans* upon the subject.

The first of these is the mytho-sacred legend of the Saint Grael, sometimes called the Roman de Joseph d'Arimathie. It gives an account of the Sacred cup from which our Lord drank at the Last Supper, and which Joseph of Arimathea employed to collect the blood welling from the wounds of our crucified Redeemer, conveying both vessel and contents, so runs the tradition, afterwards into Britain:—

"Hither came Joseph of Arimathie

Who brought with him the Holy Grael (they say),
And preach't the truth; but since, it greatly did decay."

(Spenser, Faery Queen.)

Too sacred to be seen by human eye it marvellously vanished, till at last it revealed itself in an ecstatic trance to the spotless Knight Sir Galahad of the Round Table. Having seen this dish, Sir Galahad prayed for a speedy death lest he should desecrate his eyes by gazing on objects less pure.

The second is the Roman of the Welsh Prophet Merlin, the consort of the fairy Vivian (the Lady of the Lake). The third, the Roman de Lancelot du Lac, records the adventures of that Knight and of his incestuous love of Guinevere, the wife of King Arthur. The Quete (*i. e.*, quest) du Saint Grael, which is the fourth, describes the search instituted after the holy cup by Sir Lancelot. The last, the Roman de la Mort Artus, relates the total discomfiture of the cymric race in the battle of Camlan (in Cornwall) and depicts King Arthur as fast ebbing his life-blood on the fatal field, and shadows forth in weird grandeur the mystic hand that rose from the waters and grappled the sword "Excalibur;" when his last Knight took it from the dying hand of Arthur and hurled it afar into the enchanted Lake of Avalon. Robert de Borron wrote the first two, while Walter Map, Archdeacon of Oxford, compiled the remainder. Finally, in the reign of Edward IV, the Arthurian Romances, chiefly those of Walter Map and Robert de Borron, were recompiled by a certain Sir Thomas Malory, and ushered into the world in 1485, from the press of William Caxton.

The following account of Grimm's Law is taken from Professor Meiklejohn's useful work on the English language.

GRIMM'S LAW.

A child will say *toffee* for *coffee*; *poof* for *foot*; and, in many other instances, will find it easier to use one consonant rather than another. In the same way, a Welshman says *poef* for *ben* (the Celtic for *mountain*); *putter* for *butter*; and *goot* for *good*; and a German will say *drei* where we say *three*, and *offen* where we say *open*. We thus see that it is easier for one nation to pronounce one consonant rather than another; and that what we thought a small peculiarity of children, is a vast and wide-spread feature of great peoples. These peculiar preferences have been classified, and have been found to follow a certain invariable course. The Roman said *pater*, we say *father*; the Greek said *pur*, we say *fire*; the Greek

said *gonu*, the Latin *genu*, and we say *knee*. Surely some hidden law guides these changes.

Such a law was discovered by Rask, a great Danish philologist, and was extended and fully applied to the investigation of the Teutonic languages by a still greater philologist, the German GRIMM. It now, accordingly, bears his name. To understand it fully, only two things are requisite:—

1. A knowledge of the difference between lip-sounds, tooth-sounds, and throat-sounds, or *labials*, *dentals*, and *gutturals*. If we say *ip* or *ib*, we press together the lips; if we say *it* or *id*, we strike the tongue against the teeth; and if we say *ih* or *ig*, we employ the throat to stop the continuous stream of air which comes from the lungs.

2. The second requisite is to know the quality of each kind of these sounds. It is plain that *ip* is harder than *ib*; and that *id* is softer than *it*. Again, if when I am saying *ip*, I allow a breath of air to pass through my lips, I do not say *ip*, but *if*. If, when I am saying *it* or *ig*, I allow a breath to pass, the sound becomes *ith* or *igh*. These distinctions give rise to the three kinds of qualities, *hard*, *soft*, and *aspirate*; or, as they are now-a-days more frequently called, *sharp*, *flat*, and *aspirate*.

And now we are in a condition to understand Grimm's law which is divided into three statements:—

(a) An aspirate in a classical language (Sanskrit, Greek, or Latin) becomes a *soft* (or *flat*) in Low-German and a *hard* (or *sharp*) in High-German. The mnemonic symbol for this is ASH.

(b) A *soft* (or *flat*) consonant in the classical languages becomes a *hard* (or *sharp*) in Low-German and an aspirate in High-German. The mnemonic symbol for this is SHA.

(c) A *hard* (or *sharp*) consonant in the classical languages becomes an aspirate in Low-German and a *soft* (or *flat*) in High-German. The mnemonic symbol for this is HAS.

It will be useful to give examples of this law in the three chief kinds of consonants—Labials, Dentals, and Gutturals.

I.—EXAMPLES OF ASH.

	Classical <i>aspirate</i> .	Low-German <i>soft</i> .	O.H.-German <i>Hard</i> .
Lip-letters ...	Frater ...	Brother ...	Pruoder.
Tooth-letters ...	Thugater...	Daughter...	Tohtar
Throat-letters ...	Hortus ...	Garden ...	Karten.

II.—EXAMPLES OF SHA.

	Classical <i>soft</i> .	Low-German <i>hard</i> .	O.H.-German <i>aspirate</i> .
Lip-letters ...	Labi ...	Slip ...	Schleifen.
Tooth-letters ...	Duo ...	Two ...	Zwei.
Throat-letters ...	Ego ...	Ic ...	Ih(=ch.)

III.—EXAMPLES OF HAS.

	Classical hard.	Low-German aspirate.	O.H.-German soft.
Lip-letters ...	Hepta ...	Seven ...	Lieben.
Tooth-letters ...	Tres ...	Three ...	Dri.
Throat-letters ...	Cor ...	Heart ...	Herz.

ON THE RELATION OF LITERATURE TO POLITICS.

In an article contributed by Mr. Alfred Austin on this subject to the *National Review* for September 1883, he endeavours to show that between literature and politics there exists a close and familiar relation; that they are in fact not so much distinct territories as border-lands whose boundaries are not easily defined, and that they continually run into, over-lap, and are frequently confounded with, each other:

"But is it to be desired, even should it appear to be possible, to restrict literature and politics each to its own particular sphere, and forbid either to trespass upon the territory of the other? Would they be gainers by this absolute severance? I am strongly inclined to think that both would lose considerably; and the loss, I fancy, would fall more heavily upon literature even than upon politics. Dickens is said to have expressed his deep regret that, as he worded it, a man like Disraeli should have thrown himself away by becoming a politician. The observation, perhaps, smacks a little of the narrow estimate of life with which that great genius may not unjustly be reproached. But few people, if any, would think of denying that Lord Beaconsfield might have won more enduring distinction in the Republic of Letters than can be accurately placed to his account, had he dedicated himself with less ardour—or, perhaps it would be more correct to say, with less tenacity—to party politics. Like most persons of a contemplative disposition, he read sparingly, and found in the pages of others not so much what they themselves put there, as a provocation and stimulus to fresh thoughts of his own. 'See what my gracious Sovereign sent me as a present at Christmas,' he said to me one day. It was a copy of the *édition de luxe* of *Romola*; and in it was written, in the beautiful flowing hand of the Queen, 'To the Earl of Beaconsfield, K.G., from his affectionate and grateful friend, Victoria.' 'But,' he added, 'I cannot read it.' I ventured to recommend him not to make that confession to everybody, for it would not raise their estimate of his literary acumen. 'Well,' he said, 'it's no use. I can't.'"

The next example taken is that of Wordsworth:—

"If, therefore, Lord Beaconsfield might have been a more distinguished man of letters, had he not been so keen a politician, the proper conclusion is that literature in his case suffered hurt, not from politics, but from an excess of politics. It would not be easy to name a character more utterly unlike Benjamin Disraeli than Wordsworth—a man of letters pure and simple, if we are ever to find one. True it is that Wordsworth loved his country with ardour, and that the word England had for him great and stimulating associations, and on more than one occasion gave to his muse an unusual sonority; but as a rule, he lived remote from human ken, divorced from human business, amid the silence of the starry sky and the

sleep of the everlasting hills. What was the result? I protest that I admire the best and highest poetry of Wordsworth with a fervour and an enthusiasm not exceeded by those who will, perhaps, forgive me for calling them his fanatical worshippers. But I must continue to think that Wordsworth would have given himself the chance of being a yet more admirable poet than he was, had he—I do not say quitted his lakes, and hills, and streams; heaven forbid!—but had he consorted at times more freely and fully with his fellow-creatures, had he been not a poet only, but something in addition to a poet; had he led a rather more mixed life; had he done, in fact, what we feel the various writers spoken of as Homer must have done, and what we know was done by the great Athenian dramatists, by Virgil, by Dante, by Chaucer, Spenser, Shakespeare, Milton, Byron and even by Shelley. With political concerns Wordsworth would have little or nothing to do, except in the most abstract way; and the consequence is that his poetry is the poetry of the individual, and nearly always of the same individual, and is lacking in the element of variety specially in the greatest element of all, viz., action, in which is necessarily included the portrayal of passion and character."

The cases of various great names in literature are then quoted, the author of the *Iliad*, Virgil, Horace, Dante, Tasso, Ariosto, till we reach Shakespeare and Milton:—

"The days of Burleigh were hardly days when the son of a provincial woolstapler was likely to be much heard of in the domain of politics. But the historical plays of Shakespeare traverse a space of more than two hundred years, or from King John to Henry VIII, and could not have been written by one who did not combine with other gifts a lively interest in the politics of his country. Shakespeare is the idol of us all, the only reproach I have ever heard addressed to him being that he was rather too aristocratic in his sympathies, and too Conservative in his views; foibles which can scarcely surprise us in one who had so intimate a knowledge of human nature, and so shrewd an appreciation of its strong and weak points. Nor was it an injury, but a distinct gain, to the prince of dramatic poets, that he should have been compelled to concern himself with the practical affairs of life, and to busy himself actively with the management of a theatre.

"If Conservatism may, in a sense, claim Shakespeare as an authority in its favour, in Milton, on the other hand, I suppose Liberalism would recognise a support; and, as inclining to what he considered a virtuous despotism, Cromwell's Secretary may justly be esteemed a Liberal. At any rate, he was a keen politician, a passionate partisan. I have always thought the allusion made by Walter Scott to Milton in his life of Dryden hasty and unfair. 'Waller was ayed into silence,' he says, 'by the rigour of the puritanic spirit; and even the muse of Milton was scared from him by the clamour of religious and political controversy, and only returned, like a sincere friend, to cheer the adversity of one who had neglected her during his career of worldly importance.' That Milton's controversial writings gave him more conspicuous public standing in his life time than his immortal poetry is indisputable, and not to be wondered at. A man's contemporaries would naturally rather have him useful than ornamental, and while persons whose opinions were furthered by his political writings were, as might have been expected, more interested in these than in poems from which they reaped no advantage, those people, on the other hand, to whom his political writings were obnoxious felt themselves, as might also have been expected, but little disposed to extol, or even to read, his poetry. It may, perhaps, be taken as an absolute rule that a man of letters who is also a politician, thereby debars himself to a considerable extent from literary eminence in his life—

time. I think anyone who has read *Paradise Lost* and *Paradise Regained* will be of opinion that Milton wrote quite as much verse as it was desirable he should write, whether for our delectation or for his own splendid fame."

Coming to the eighteenth century, the writer thinks there would be no difficulty in showing that all the greater men of letters of that epoch were largely indebted for their literary eminence to the vivid interest they displayed in public affairs.

"To mention Dryden,* Swift, Pope, Addison, is to conjure up before the mind chapter upon chapter of English political history. Pope says,

Tories call me Whig, and Whigs a Tory?

and not without some reason, for, like his friend Swift, he cared more for his own career than for either Party in the State. As for Swift, he was for a time, as the writer of the admirable paper upon him in the current number of the *Quarterly Review* asserts, the political dictator of Ireland. When Gibbon buckled to the task of writing that monumental work which, I find, many persons to-day declare to be unreadable, but which, I suspect, will be read when nearly everything written in this generation will be forgotten, he wisely retired to the studious quietude of Lausanne. But he narrates how the description of the tactics of Roman legions and the victories of Roman Pro-consuls was rendered more facile and familiar to him by his previous experience as a Captain of Yeomanry at home, while even his brief tenure of a seat in the British Parliament enabled him to grasp with more alacrity and precision the legislative conduct of the Conscript Fathers."

The nineteenth century is then noticed.

"In the nineteenth century which, despite its many privileges, enjoys no immunity from the general laws of human nature, I think the proposition still holds good that men of letters who aspire to high distinction do well not to disdain altogether the politics of their time. Byron presents a marked contrast in this respect; and I am still impenitently of opinion, which I am comforted to find is shared by most persons who are men of the world, and by men of letters who are something more than men of letters, that Byron is the most considerable English poet since Milton. Byron contrived to crowd into a very short life a vast amount both of poetry and of public activity; acting upon his own recorded opinion that a man was sent into the world to do something more than to write poetry."

The writer does not propose that literary men "should be all vestry-men," and points out that for men of letters to be willing to interest themselves in politics, politics must be interesting.

"The issues raised, must be issues of moment and dignity, issues affecting the greatness of an Empire, the stability of a State, or the welfare of humanity. In a country like our own where Party Government prevails, it is not easy, indeed it is impossible, for a man of letters to interest himself in politics without inclining, through sympathy and conviction, to one Party in the State rather than to the other; and there are occasions, no doubt, when Party issues are synonymous with the greatness of the Empire, the stability of the State, and the welfare of mankind. But a wise man of letters will do well to stand more or less aloof from all smaller issues, and to avoid, as degrading to the character and lowering to the imagination, Party wrangles that are mere Party wrangles and nothing more."—*Indian Review*.

* I speak of Dryden as belonging to the eighteenth century, by the character of his genius, though, it is true, he died in the course of the year before it commenced.

SIR ALFRED LYALL ON EDUCATION.

The annual distribution of prizes by His Honour the Lieutenant-Governor, N. W. P. and Chief Commissioner of Oudh, to the children of the Diocesan Schools, Naini Tal, took place on Friday, 12th October.

Sir Alfred Lyall spoke as follows:—

I think the Committee of Management is to be congratulated, in the first place, on the large attendance that we see here to-day, to hear the Committee's annual report, and to be present at the distribution of prizes. For the assemblage of so many visitors on such an occasion proves that our English community here does feel considerable interest in the education of English boys and girls in India, a matter which, as the report says, concerns us all. And in India, we English are so apt to be occupied with our individual concerns, our special business, our amusements, that we are apt to get out of the way of duties that are habitual to us all in England. I mean the duties of looking after and taking a share in the common interests and institutions of our neighbourhood, our town, our country, or of any other locality where we may happen to be residing. Here at Naini Tal, the Diocesan School is one of the very few self-dependent institutions in which the English are specially concerned, and as we have met pretty often in Naini Tal for the purposes of amusement during the last six months, it is just as well, and it is good for the visitors as well as the visited, that before we separate we should have met to hear the result of the benevolent and disinterested labours of the School Committee, and to learn how the boys are progressing in schooling, in health, and in conduct. To turn to the state of the school, the numbers have slightly increased, which is a good sign, and the teaching staff has been strengthened. Mr. Griffith's report gives the best opinion on the general condition and progress of the school, for boys as well as for girls. To take the girls first, as it is only proper, I find that a number are now being prepared for high standards of education; and I understand that all the first class are going up next year to the University Entrance Examination; that they are studying Latin with some success, and are taking up French and music. In English, which is by far the most important of their studies, Mr. Griffith thinks they have done well, although he says they need a more critical knowledge of the language for the University Examination. But he says that the pronunciation in reciting passages of Shakespeare was excellent, and I think many people will agree with me that for young women in India an excellent pronunciation of the pure English of Shakespeare will in the long run, apart from Examinations, be quite as valuable a requirement as even a critical knowledge of the language. I see that the weak point of the 1st class girls was in mathematics, but the Director of Public Instruction winds up his report by bestowing praise on the proficiency of some of the elder girls in the art of cookery. He especially mentions a pudding, which he put to the proof of eating; so on the whole I think we may set off the pudding against the mathematics. We may, I think, leave to the Committee the question of adjusting the study of Latin, French, and music to the future prospects and circumstances of many of the pupils. These studies at any rate are sure to refine the mind and extend the range of ideas; and if girls pursue such subjects there is nothing like open public examinations for showing them where they are in their subjects, and how far they have really mastered them.

I do not make out that Mr. Griffith's report on the Boys' School is altogether so satisfactory as his report on the girls, though on the whole he is not dissatisfied. There seems to have been a large proportion of failures in certain subjects, while on the other hand some of the boys have done very

creditably as our prizes will show. We have just listened, with some regret I fancy, to the remarks in the Committee's report about the want of energy and of hardiness shown by the boys.

I must ask you boys to bear in mind what the report has said, and to think it over. You have a struggle before you, like most of us, and if you don't cultivate and keep up the English characteristics of energy and hardihood which you have inherited from your fathers; if you don't cultivate the power to do hard work and rough work, you won't make much of life. As they say of English race horses, you must know how to go and how to last; it is a hard world, and a rough world, and you must be ready to turn your hands to anything that is to be done; you must not fall into a sort of caste, and think things beneath you, or that you are too good to do any kind of honest work. I fancy you would be surprised to hear that in the greatest and richest public school of England, the small boys had always, certainly up to my time, to lay the breakfast table and make the tea. Above all, whatever you do, you should do it with all your might, and avoid all slovenly work. If there is anything the English excel in, it is in faithful and thorough work with their hands, and whether you see an English sailor handling a ship, or an English mechanic forging iron, or an English jockey winning by a neck, what you admire is the perfect style and finish, the completeness of the performance, which is only to be acquired by great pains and application. Of course doing your best at school is the best training for success in after life. If you do your best, others will be able to help you. Probably there will soon be very good openings for European lads in the large European industries that employ skilled labour in India, among the railway companies, the manufactories that are springing up, and in all kinds of engineering enterprises that require mechanical skill and knowledge. I think boys and their parents should look more in this direction, and less toward Government clerkships and sedentary occupations, of which there will always be only a very few available, and in which the competition from the natives will always be great. It is my intention to see what can I do towards helping technical education, by arranging, if I can, to establish scholarships to be held by boys at some of the technical Colleges, as the Roorkee College, or the Calcutta Engineering College, where they can follow up studies in mechanics and elementary engineering. But to qualify for employment of that kind a boy must be ready and able to use his hands, and to go through a good deal of out-door labour of a rough and ready kind. I believe there is ample room in India just now for boys and girls who are well educated and hardworking, so I hope you will lay to memory all you learn at this school, and lay to heart the advice and warning you receive from your parents and masters. The report alludes to the project of the Training College, as to which I need now say no more, except that in all these plans for improvement and development the difficulty is naturally how to find ways and means. I see that the Committee fear that the effect of the new Educational Code will be to reduce the Government grant, and the reason why the grant will be diminished is said to be that a great number of the children remain only a short time. Now, I have not examined the Code very closely, but I suspect that this state of things is just what the Code was intended to discourage. For we know that nothing is better calculated to waste the time of the teachers and the pupils, than to send children to school for a short time only, and then to take them away. The girls and boys forget almost all they learnt, and lose their valuable habits of regular industry and diligence. And with regard not only to this question of keeping children at school a sufficient

time, but with regard to the whole question of giving children full advantage of these excellent Diocesan Schools, I must again impress on the parents, as I did last year, that the first responsibility for educating their children lies at their own door. The Government does its part; the general English community, as represented by the Committee and the visitors, does its part; but nothing will be of much use unless the parents fully realise their own duties and act up to them consistently. We are giving a liberal grant to this school, we have helped it in many ways, and I am bound to give warning that the Government cannot do much more. I think there is little more to say, except that the Head Master and Head Mistress merit great credit for their exertions in maintaining the character, discipline, and educational progress of the school. I was very glad to see that the cadet companies of the Volunteer Corps numbered strong this year, and so I trust we may meet again twelve months hence to witness further proofs of continued advancement and extension; and to find that the immense value of education is more and more realized by the community whose wants this school was founded to supply.—*Pioneer*.

REPORT OF THE INDIAN EDUCATION COMMISSION.

THE report of the Education Commission has been presented to Government. It is a bulky volume of over 700 pages, and contains much interesting matter. From the introductory remarks we extract the following summary:—

The Education Commission assembled in Calcutta on the 10th of February 1882, and sat regularly until the 31st of March. Its deliberations during this session were chiefly directed to preparing a scheme, with a view to clearly ascertaining the state of education in each of the several provinces in India. For this purpose, the representative members for each part of India were constituted a Provincial Committee. The Commission elaborated a detailed plan upon which the Provincial Committees were, during the ensuing eight months, to draw up a report dealing with the past history, present condition, and future development of education in their respective provinces. Before it separated, the majority of the Bengal witnesses were also examined by the Commission. At the end of March the first session of the Commission in Calcutta terminated, and the members returned to their own duties in the different presidencies. The next eight months were devoted to the local collection of materials upon which the Commission might base its deliberations during the second session. These materials were of three kinds.

First, the evidence of witnesses in each presidency and province; second, memorials submitted to the Commission by Associations, individuals, and public bodies throughout India; third, the Provincial Reports drawn up for the Commission by its members arranged in Committees so as to represent the provinces to which they respectively belonged. The Commission re-assembled in Calcutta on the 5th of December 1882, and continued its sitting during the following months. It at once appointed six sectional Committees, each of which was instructed to deal with the evidence, memorials, and Provincial Reports bearing on the subjects referred to it, and to prepare recommendations for discussion by the Commission. Having fully deliberated

ated on the materials before it, and agreed to its recommendations, the Commission concluded its collective labours on the 16th of March 1883. Before separating, the Commission placed on record its acknowledgment of the valuable services rendered to it in various ways by its Secretary, Mr. Lewis Rice. The report was then drawn up by the President of the Commission and a representative Committee of five members,—namely, Mr. Croft (Bengal), Mr. Miller (Madras), Mr. Howell (Central Provinces), Mr. Leo-Warner (Bombay), Mr. Deighton (North-Western Provinces). Mr. Jacob was entrusted with the preparation of the statistical tables contained in the report—a task which proved to be one of exceptional difficulty. The Commission had reduced the results of its inquiries to 222 specific recommendations, of which 180 were passed unanimously, while the remaining 42 were carried by a majority. The recommendations are to be accepted as the deliberate decisions of the Commission, and they form the basis of this report. The Draft Report was circulated for approval to the members of the Commission in their respective provinces.

Brief survey of the evidence.—The witnesses were chiefly selected by the Provincial Committees, with a view to representing the various educational interests in India; but a number of them consisted of gentlemen who spontaneously requested to be examined. The Commission prepared a series of questions covering the whole area of its inquiry, and forwarded a copy to each witness for consideration. While inviting answers to the particular questions thus circulated, the Commission did not confine the replies of the witnesses to those subjects, but welcomed the evidence of each witness on any educational matter in which he was interested, or with regard to which he had special knowledge. The number of witnesses thus examined was 193, and their evidence, taken as a whole, forms a unique exposition of the most trustworthy opinion in India regarding the instruction of the people. As the inquiries of the Commission were to a large extent directed to the working of the existing system, the Education Department was strongly represented among the witnesses of each province. The institutions interested in the application of the grant-in-aid principle were numerous represented by Missionaries, both Protestant and Roman Catholic, by delegates selected by Native Educational Societies, and by the head-masters of native schools. Higher education was also represented by many gentlemen who, after a distinguished career in the Universities of Calcutta, Madras, or Bombay, are now actively engaged in Indian professional life. Indigenous and primary education was represented not only by a number of witnesses specially interested in the instruction of the lower classes, but also by Pundits and Moulvis of indigenous schools. The various races of India—Hindus, Mahomedans, Sikhs, Parsis—were impartially heard. Particular care was taken that the educational wants of any class, such as the Mahomedans, who have fallen behind in the race of life under British rule, should receive the fullest consideration. The number of witnesses was approximately fixed at an average of 30 to 40 for each province; but this territorial standard was modified according to the local necessities of the different parts of India.

Local examination of the witnesses.—The examination of the 193 witnesses was conducted at convenient centres in the provinces to which they respectively belonged. The President of the Commission made a tour round India, and held a session with the Provincial Committee in each of the main territorial divisions, for the purpose of hearing evidence. The cross-examination of the witnesses was conducted by the President and Provincial Committees at considerable length. The list of witnesses is given in Appendix B to

this Report, and the number heard in each province is summarised below.* The evidence thus collected throughout India, together with statements connected therewith, aggregates about three thousand printed pages.

Brief survey of the memorials.—The number of the memorials received by the Commission was 323. They came from every part of India, but were most numerous in the Punjab and North-Western Provinces, where the language to be used as the medium of instruction is still a question of keen interest among the people. Of the total number of 323 received throughout India, 140 were submitted by Educational Societies, Municipalities, public bodies, or individuals interested in school work; while 183 may be described as popular manifestos purporting to be signed by 233,819 persons. The list of memorials is given in Appendix C to this Report, and the number received from each Province is summarised below.†

Brief survey of the Provincial Reports.—Seven reports were prepared by the Provincial Committees of the Commission for the territorial divisions of India which those Committees respectively represent.‡ Taken as a whole, they exhibit, on a uniform plan and in complete detail, the past history, the present condition, and the future wants of education in each province of India. They aggregated over 1,100 pages, and have supplied much of the information on which the present Report is based. A copy of each is submitted to the Government with this Report.

Summary of the materials obtained.—The materials collected by the Commission from February to November 1882 consist, therefore, of the evidence of 193 witnesses examined at local centres throughout India;

* Number of witnesses heard in each province :—

Madras	..	..	..	..	..	..	33 witnesses.
Bombay	..	..	..	..	..	..	38 "
Bengal	..	..	..	..	..	..	31 "
North-Western Provinces and Oudh	..	..	..	..	..	..	28 "
Punjab	..	..	..	..	..	..	45 "
Central Provinces	..	..	..	..	..	..	18 "
Total	..	..	..	..	..	..	193 "

Several of the Bengal witnesses were heard by the Provincial Committee, presided over by its own chairman.

† List of memorials received from each province :—

From Madras	..	..	..	..	..	22
" Bombay	..	..	..	..	..	40
" Bengal	..	..	..	..	..	13
" North-Western Provinces and Oudh	..	..	..	..	..	145
" Punjab	..	..	..	..	..	96
" Rajputana	..	..	..	..	..	1
" Miscellaneous	..	..	..	..	..	6
Total	..	..	..	..	..	323

‡ Namely, for Madras, Bombay, Bengal, the North-Western Provinces and Oudh, the Punjab, the Central Provinces and the Hyderabad Assigned Districts. The Bengal Provincial Committee have also forwarded, for the consideration of the Commission, the Annual Educational Report for Assam, drawn up in the form suggested by the Commission, and prepared by Mr. J. Wilson, Inspector of Schools. A report on education in Coorg was prepared by the Secretary to the Commission.

of 323 memorials, chiefly from associations, or from sections of the public interested in education; and of a special report for each of the great territorial divisions of India prepared by the Provincial Committee. The Commission re-assembled in Calcutta on the 5th December 1882, to deliberate upon the mass of printed and manuscript documents thus obtained. It divided the questions before it into six principal branches, as follows: (1) Indigenous and primary education; (2) secondary and collegiate education; (3) the internal administration of the Education Department, including the system of inspection and examination; (4) the external relations of the Education Department, including grants-in-aid, and the withdrawal of Government in favour of native management of colleges and schools; (5) the education of special classes of the community requiring exceptional treatment; (6) educational legislation. A series of proposals were drawn up on each of these subjects by the Committee entrusted with its consideration. These proposals were then discussed and adopted, rejected, or modified by the Commission. The conclusions thus arrived at were, as already stated, embodied in 222 specific recommendations which are to be accepted as the deliberate decisions of the Commission.

Twelve chief divisions of the subject.—The report will accordingly follow the classification indicated in the last paragraph, and treat the questions referred to the Commission by the Government of India in the following twelve chapters:—

- a. Historical review of education of India; Chapter II.
- b. Indigenous education; Chapter III.
- c. Primary education; Chapter IV.
- d. Secondary education; Chapter V.
- e. Collegiate education; Chapter VI.
- f. Internal administration of the department, control, inspection, examinations, text books; Chapter VII.
- g. External relations of the department to individuals and public bodies: grants-in-aid, private efforts; Chapter VIII.
- h. Education of classes requiring special treatment; chiefs and nobles, the Mahomedans, the aborigines, low-castes, and the poor; Chapter IX.
- i. Female education; Chapter X.
- j. Educational legislation; Chapter XI.
- k. Financial Summary; Chapter XII.
- l. Recommendations of the Commission; Chapter XIII.

From a long list of "recommendations" we extract the following, which relate to legislation:—

That the duties of Municipal and Local Boards in controlling or assisting schools under their supervision be regulated by local enactments suited to the circumstances of each province.

2. That the area of any Municipal or rural or unit of Local self-Government that may now or hereafter exist be declared to be a school district, and school boards be established for the management and control of schools placed under their jurisdiction in each district.

3. That the control of each school board over all schools within the said school district be subject to the following provisions:—

- a. That it be open to the Local Government to exclude any school, or any class of schools, other than schools of primary instruction for boys, from the control of such school board.

- b. That any school which is situated in the said school district, and which receives no assistance either from the board or the department, continue, if the managers so desire it, to be independent of the control of the school board.
 - c. That the managers of any institution which receives aid either from the board or the department continue to exercise, in regard to such institution, full powers of management, subject to such limitations as the Local Government may from time to time impose as a condition of receiving aid.
 - d. That the school board may delegate to anybody appointed by itself or subordinate to it any duties in regard to any school or class of institutions under its control which it thinks fit so to delegate.
4. That the Local Government declare from time to time what funds constituting a school fund shall be vested in any school board for educational purposes, and what proportion of such school fund shall be assigned to any class of education.
5. That it be the duty of every school board:—
- a. To prepare an annual budget of its income and expenditure.
 - b. To determine what schools shall be wholly maintained at the cost of the school fund, what schools are eligible for grants-in-aid, and which of them shall receive aid.
 - c. To keep a register of all schools, whether maintained at the cost of public funds, or aided or unaided, which are situated in its school district.
 - d. To construct and repair school-houses or to grant aid towards their construction or repair.
 - e. Generally to carry out any other of the objects indicated in the various recommendations of the Commission, which in the opinion of the Local Government can best be secured by legislative enactment, or by rules made under the Act.
6. That the appointment, reduction of salary, or dismissal, of teachers in schools maintained by the board be left to the school board; provided that the said board shall be guided in its appointments by any rules as to qualifications which may be laid down from time to time by the department; and provided that an appeal shall lie to the department against any order of dismissal or reduction of salary.
7. That an appeal lie to the department against any order of a board in regard to such matters as the Local Government shall specify.
8. That every school board be required to submit to the Local Government, through the department, an annual report of its administration, together with its accounts of income and expenditure, in such form and on such date as shall be prescribed by the Local Government; and thereon the Local Government shall declare whether the existing supply of school of any class, of which the supervision has been entrusted to such board, is sufficient to secure adequate proportionate provision for the education of all classes of the community; and in the event of the said Government declaring that the supply is insufficient, it shall determine from what sources and in what manner the necessary provision of schools shall be made.
9. That it be incumbent upon every Local Government or Administration to frame a code of rules for regulating the conduct of education by Municipal and Local Boards in the provinces subject to such Local Government or Administration.

10. That such code shall define and regulate—
 - a. The internal mechanism of the Education Department in regard to direction, inspection, and teaching.
 - b. The external relations of the Department of private individuals and public bodies engaged in the work of education.
 - c. The scope, functions, and rules of the system of grants-in-aid.
 - d. The character of any special measures for the education of classes requiring exceptional treatment.
 - e. The scope and divisions of the annual report upon the progress of public instruction, together with the necessary forms of returns.
11. That power be reserved to the Local Government from time to time to add to, cancel, or modify the provisions of the said code.
12. That the code be annually published in the official *Gazette* in such a form as to show separately all articles which have been cancelled or modified, and all new articles which have been introduced since the publication of the last edition.—*Pioneer*.

HEALTH AND COMPETITIVE EXAMINATIONS.

Mr. Walter Wren, the well-known "crammer," writes thus to the *London Times* :—

"I have read an elaborate paper read at the Social Science Congress by the President of the Health Department. Your correspondent says the President 'availed himself of the opportunity of giving utterance to thoughts which had forced themselves upon him as a medical man, as a professional teacher, as a university examiner,' in reference to the tendency of modern education, to influence health and physical growth and development. The President said '*Competition had become a plague spot.*' He pointed out that there is competition for the services, for College Scholarships, for Public School Scholarships, and that in the last there is 'severe competition among boys little above childhood.' He said 'The successful boy must bear the strain till he breaks down, or till he began the work of life an exhausted man;' that 'a warning note had come from India on premature failure of health, exhausted faculties, and shattered nervous systems;' that Sir A. Clark asserts that 'of the young men who win appointments in India more than one-tenth become albumenuric;' that Dr. Browne says, 'The future of the race constrains all medical men to preach the wisdom of caution, and the danger of brain-forcing, and to impress on parents and teachers that to over-work the miniature brain is to enfeeble it.' His conclusion was that he 'saw injury to health, degradation of intellect, and a departure from a true ideal of education, because we are importing (he might have said 'have imported') into modern education, hurry, worry, anxiety, selfishness, competition, and feverish desire for success, prize-winning, place-winning, and mark-winning, all tending year by year to grow in intensity and to become more powerful agents."

This is all right enough, and might have been made much stronger. There seems to me a little confusion of thought, because a desire for success is not a crime, or, indeed, anything but a good thing. Prize-winning, too, is not a bad thing in itself, and not necessarily the same thing as "brain-forcing." Sir A. Clark has won the prizes of his profession. Competition and place-winning are always going on among the

leaders of men in all lines of life, and there are rivals for the "place" of Prime Minister and Lord Chancellor, as well as for appointments in Her Majesty's Civil and Military Services, for School and University and College Scholarships, and for "a first" in the University Class Lists. Where there is competition and rivalry, there must be some selfishness and some anxiety, however little. It is the "hurry" and the "worry" which does the mischief. One of my earliest recollections is how Kirke White virtually killed himself by over-work and anxiety in competing for the blue ribbon of the year at Cambridge—to be Senior Wrangler. There is a well-known case at Cambridge of a man who read 12 hours a day for three and-a-half years to get "a double first"—got it, never recovered from the strain, and ultimately committed suicide. There are doubtless many other cases, both at Oxford and Cambridge, which could be quoted; but I never heard that any one wanted to abolish the Classical and Mathematical Triposes at either Oxford or Cambridge because of them. And why? Because the cases are so few. Similarly, we never hear any of those sad stories about young men who have won appointments in the home Civil Service. The reason is plain. Most young men did not injure themselves reading for University honours, because they did not compete till, say, 23 years of age. Similarly, candidates for the home Civil Service can compete up to 24. The President of the Health section made a point when he drew attention to the fact that "The marvellous opening out of the field of natural science compelled the Universities to widen their borders and give the younger sciences a place beside the elder sisters." He might have added that whereas, not so very many years ago, there were only Classical and Mathematical Class Lists at Oxford and Cambridge (the Classical and Mathematical Triposes), there are now law, history, moral science triposes, as well as for "natural science." As there is more to do for an earnest student, you might have expected that a little more time would be allowed. In bygone days men went up to Cambridge occasionally at 24 and 25, and sometimes even older. The best instance I remember is Mr. Todhunter. He, not choosing to be hurried, did not go up until older than most men when they take their degrees. Then the theory was started that such cases defrauded really cleverer though younger competitors, and a rule was made in some Colleges that candidate for College Scholarships must be "under 20 years of age." And quite lately the age has been cut down to 19. The best men, therefore, must either go without Scholarships) which very few like to do, or will afford to do if they can help it) or take their degrees at latest when they are 23. Hence it appears that the cleverest and sharpest and most promising little boys are carefully coached for Public School Foundation Scholarships, for which they must be "under 14"—are then carefully coached for College Scholarships, for which they must be "under 19"—and are then carefully coached for their degrees in honours, which they take (or miss) when "under 23." The worst of this is that you risk ruining the best intellect. It has always been known that the reputation of Eton has been kept up for years by the Foundation Scholars, who were carefully coached and looked after, 60 or 70 in number. The other 600 or 700 picked up what they could. Hence some of those who were luckily for them ignored have come out the best. I have known more than one case of brain failure during the last quarter of a century among the Fellows of King's. I have heard of no cases among the successful competitors for the Home C. S. They compete up to 24. Candidates for the Indian Civil Service originally could compete up to 23. There were no "albumenurics" then. But there were what the aristocracy thinks worse

—viz., clever young men of lowly birth who, having time before them to do it in, studied their subjects alone or with such help as they could get, and won the prize. I knew a school "usher" who got one. A Chemist's shopman got one. This was intolerable. The high born aristocrats of Haileybury pronounced them "socially unfit" for the service. And as they could not keep them out any other way, the age was lowered. Candidates were to be "over 17, under 21." Allowing boys of 17 to compete did a lot of mischief, and accounts for the "albumenurics," "premature failing of health, exhausted faculties, and shattered nervous systems." But even that did not stop the "socially unfit" men. If allowed to compete up to 21, some could get in. So the age was lowered again, and candidates must now be "over 17, under 19." There will soon be a far larger number of albumenurics, and more ruined health and shattered systems. Similarly with the engineers and artillery. When the Crimean war broke out, or was breaking out, officers were wanted. Commissions in the "Scientific Branches" were thrown open to public competition. Candidates could compete up to (I think) 22. Young men who meant to live on their pay jumped at this chance. In the very first competition a scholar of my own College succeeded. Some of the "socially unfit" class got in, and they have cut down the age at which candidates can compete for Woolwich to "over 16, under 18."

The remedy is plain enough. Raise the age. The more you cut down the limit of age, the more cramming, brain-forcing, pressure, &c., and the more ruined health and shattered systems will you have. Not long ago I heard a distinguished M. P., who ought to have known better, say, "the standard should be lowered." You cannot lower the standard. So long as there is any competition, the boys will keep the standard up. Lower the age to 12, and examine them on the Lord's Prayer, and nothing else, and there is room for good teaching, as well as for cramming and brain-forcing. The cutting down of the age has done the mischief, and will do more. The more you cut down the age the more severe will be the competition and the worse the breakdowns. We have reached the climax of folly. Boys under 14 who compete for Public School Scholarships are examined in nine or ten subjects—viz., in English—in (1) religious knowledge, (2) geography, (3) English history, (4) dictation; in languages—in (5) Latin, (6) Greek, (7) French, grammar and translations; and also in (8) Latin prose and (9) Latin verse composition; in mathematics—in (10) arithmetic, (11) algebra, (12) euclid, and lastly, handwriting.

There is room for plenty of breakdowns here. "Religious knowledge" is a middling wide field. You cannot put a quart of beer into a pint pot. You cannot put five years' work into three. Still less can you put 15 years' work into nine. You cannot make babies do boys' work. And you cannot make boys with immature brains do young men's work without injuring those brains, and, mark, the brains always give way before the physical health suffers. If you put too many irons into the fire of a boy's mind, and keep on blowing at that fire to see whether you can keep all those irons hot, you will very soon burn that fire right away to dust and ashes. This has been done in many cases. The longer you keep the age down, the more there will be."

TENNYSON:—THE PRINCESS.

Two of Tennyson's best poems are his *In Memoriam* and the *Princess* which appeared respectively in 1847 and 1850. The latter is styled a medley; it is in fact a fairy tale, full of sentiment and emotion—a delightful reverie, indeed, from beginning to end. The plot of the story—if story it may be called—is this:—The Princess Ida, daughter of Gama, king of the South, is affianced in her childhood to a beautiful Prince of the North. When the time comes for him to seek her hand, she repudiates the alliance. A self-willed and headstrong girl, such as she, stuffed with theories of all kinds is not to be bound by the will or word of others. She is irritated against the tyranny of men and takes into her head to work out the freedom of women. In her opinion, women are treated as slaves by men, or, at the most, pretty dolls fit to be dandled and she wishes therefore to unfurl the banner of women's rights. Marriage, after all, is bondage—the binding oneself to 'love, honour and obey man.' Her object is:—

"To lift the woman's fall'n divinity
Upon an even pedestal with man."

For this purpose, she founds an University for her sex, far away from the haunts of men. Pretty sight indeed! An University of girls; the sweet *girl graduates* in their golden hair, fluttering about the halls! No man may enter these maiden precincts except on pain of death. Even the land for miles about was "tilled by women and, all the swine were sows."

The Prince, with two of his friends Cyril and Florian disguise themselves as girls approach the abode of the maids. Far off they behold the "college lights glitter firefly-like in copse and linden alley." What a sight meets them, as they near the palace gates! :—

"Further on we gained
A little street half garden and half house;
But scarce could hear each other speak for noise
Of clocks and chimes, like silver hammers falling
On silver anvils and the splash and stir
Of fountains spouted up and showering down
In meshes of the jasmine and the rose:
And all about us peal'd the nightingale,
Rapt in her song, and careless of the snare."

They are admitted into the college, for they pass as three ladies from the Northern Empire and being brought before the Princess, she makes an eloquent harangue:—

"O! lift your natures up:
Embrace our aims: work out your freedom, Girls
Knowledge is no more a fountain seal'd:
Drink deep until the habits of the slave,
The sins of emptiness, gossip and spite
And slander, die. Better not be at all
Than not be noble."

Pretty maiden fancies these! But what woman indeed, is free from such as these, in one form or other? They had to listen that day to the discourse of Lady Psyche, who by the bye, is Florian's sister. Her pretty lips spout out indignant words against the tyranny of men; we cannot help listening to her, though her scientific knowledge is far from being accurate.

Woman's presumption, of course, is easily pardoned. This is how she begins her eloquent discourse:

"This world was once a fluid haze of light,
Till toward the centre set the starry tides
And eddied into suns, that wheeling cast
The planets, then the monster, then the man
Tattoo'd or woaded, winter clad in skins
Raw from the prime, and crushing down his mate.
As yet we find in barbarous isles; and here among the lowest."

Then she goes on to say:—

Some said their (women's) heads were less,
Some, men's were small; not they the least of men;
For often fineness compensated size:
Besides the brain was like the hand and grew
With using, thence the man's if more was more;
He took advantage of his strength to be
First in the field: some ages had been lost;
But woman ripen'd earlier and her life
Was longer;"

After this discourse is over, Florian reveals himself to his sister and they tell her the mission on which they have come. She could not, of course, expose them, for her brother is also one of the party. She entreats them therefore to be silent and then for a moment clung about her brother.

"And between them blossom'd up
From out a common vein of memory
Sweet household talk, and phrases of the hearth,
And far allusion, till the gracious dews
Began to glisten and to fall."

The Princess, with her train and three new-comers spend the afternoon "near a coppice-feathered chasm." Cyril becomes heated with wine and trolls a "tavern catch of Moll and Meg, and strange experiences unmeet for ladies." This betrays the secret and the Prince and his two companions are taken prisoners. Meanwhile the father of the Prince, comes down upon Gama and seizes him as a hostage because of his not having given his daughter in marriage to his son. The Princess Ida is, therefore, obliged to release the prisoners.

It is, at last agreed that a combat should settle the whole thing. If the Prince wins, then Ida is to become his; if not she is to be free. But in the struggle, the poor Prince falls wounded. She yields at last, takes him to her palace and tends him. How quickly does pity expand to love in her! This woman who was so unbendable before, having her own way and not condescending to be led by man, melts so easily at the sight of suffering; and the very man, she shunned not long ago, is now her instructor. He points out to her woman's proper sphere of labour; it is something entirely different from what she had dreamed; her duty is to love. Woman can never work independently of man; neither can man do without the tender sympathy and the soft divine influences of the woman. Each has separate duties, but common interests; neither is superior nor inferior; but they are planted side by side to work together, sympathise with and lead each other:—

"The woman's cause is man's: they rise or sink
Together dwarfed or god-like, bond or free:
For she that out of Lethé scales with man
The shining steps of Nature, shares with man

His nights, his days, moves with him to one goal,
Stays all the fair young planet in her hands—
If she be small, slight natured, miserable,
How shall men grow? but work no more alone!
For woman is not undeveloped man,
But diverse:
Yet in the longer years liker must they grow;
The man be more of woman, she of man;
He gain in sweetness and in moral height,
Nor lose the wrestling thews that throw the world;
She mental breadth, nor fail in childward care,
Nor lose the childlike in the larger mind;
Till at the last she set herself to man,
Like perfect music unto noble words."

What would our lives be, were we deprived of the tender influence of women. All the joy, the peace, the untainted sweetness of home life—are they not due to the presence of women? How many lives have been saved from wreck and ruin, and preserved calm and pure by the loving care of a mother, the sweet sympathy of a sister or the unselfish devotedness of a wife! Happy, indeed, is the man, who has one such angel of love and tenderness to cheer the weary days of his life, to soothe his troubles and help him in the little work he does in this world. We cannot help quoting one more passage from the poem, which beautifully sets forth the sacred influence of a mother. The Prince says:—

"Alone, from earlier than I know,
Immersed in rich foreshadowings of the world
I loved the woman; he, that doth not, lives
A drowning life, besotted in sweet self,
Or pines in sad experience worse than death,
Or keeps his wing'd affections elipt with crime:
Yet there was one thro' whom I loved her, one
Not learned, save in gracious household ways,
Not perfect, nay, but full of tender wants,
No Angel, but a dearer being, all dipt
In Angel instincts, breathing Paradise,
Interpreter between the gods and men,
Who look'd all native to her place, and yet
On tiptoe seem'd to touch upon a sphere
Too gross to tread, and all male minds perforce
Sway'd to her from their orbits as they moved,
And girdled her with music. Happy he
With such a mother! faith in womankind
Beats with his blood, and trust in all things high
Comes easy to him, and tho' he trip and fall
He shall not blind his soul with clay."

Notwithstanding the "occasional quaintness and obscurity of expression, with some incongruous combinations of low and familiar with poetical, images" and blendings of the real and the conventional, the farcical and the sentimental, still we cannot help admiring this *medley*. There are subtle touches of thought and satire and the poem is sweetly written and it is

interspersed with some exquisite lyrical pieces. Tennyson has nothing finer than the following:—

The splendour falls on castle walls,
And snowy summits old in story;
The long light shakes across the lakes,
And the wild cataract leaps in glory.
Blow bugle, blow, set the wild echoes flying;
Blow, bugle; answer echoes dying, dying, dying.

O hark, O hear! how thin and clear,
And thinner, clearer, farther going!
O sweet and far from cliff and scar.
The horns of Elfland faintly blowing.
Blow let us hear the purple glens replying;
Blow, bugle; answer echoes dying, dying, dying.

O love, they die in yon rich sky,
They faint on hill or field or river:
Our echoes roll from soul to soul,
And grow for ever and for ever.
Blow, bugle, blow, set the wild echoes flying,
And answer, echoes, answer, dying, dying, dying.

(Madras Monthly Magazine.)

CENTRAL COLLEGE, BANGALORE.

ENGLISH PROSE.

I. Paraphrase freely:—

- It is the old story of the quarrel between Philistia and Bohemia.
- The business of a poet is to examine not the individual but the species; to remark general properties and large appearances; he does not number the streaks of the tulip or describe the different shades in the verdure of the forest.
- To live according to nature, is to act always with due regard to the fitness arising from the relations and qualities of causes and effects, to concur with the great and unchangeable scheme of universal felicity; to co-operate with the general disposition and tendency of the present system of things.
- The scissors are a very superior implement to the pen considered as a tool of literary trade.
Comment upon (c).

- Classify the principal works of Johnson. Give the dates of the six most important ones. Under what circumstances was the latest of them composed? Give some account of its range, and the author's plan.
- Give a definition of "mannerism." In what did Johnson's "mannerism" consist? In what works is it seen at its highest and lowest points respectively?
- What was Johnson's favorite theme? Enumerate as many of his works as you can in which you can trace its influence.

- What were Johnson's opinions on:—(1) Poring over a catalogue of a library; (2) State interference in ecclesiastical matters; (3) Women preachers; (4) Free-will of man.
 - Relate the "negotiation to which there was nothing equal in the whole history of the *corps diplomatique*."
 - Explain briefly:—The King's Evil—endowment of research—cave of Adullam—the Monument—*arbitrator elegantiarum*—respectable Hottentot—all virtue consists in respectability—a *propos* of nothing—phoenix of convivial felicity—they pay you by feeling—operation for cataract—wretched little Della Cruscan society—a turnspit in the wheel—a rhinoceros snort of contempt—smart snip-snap of Macaulay.
 - What do you know about:—Poet's Corner, Evelina, Temple Bar, Covent Garden? How are they associated in your mind with Johnson?
- Point out wherein lie the utter outrageousness, and yet undeniable truth of Johnson's criticism of *Lycidas*? What is Mr. Stephen's estimate of Johnson's judgment of Milton?
 - "The true characters of men may be found in their letters, and he who writes to his friend lays his heart open before him." Criticise this, after Johnson.
- Whence are these taken:—(a) The world was all before him; (b) most gates were barred with gold and opened but to golden keys; (c) little, nameless, unremembered acts of kindness and of love?
 - What line in Johnson's first poem was printed in small capitals?
 - Quote a well known couplet from his second poem. Explain the lines.
- "There are few of England's departed heroes and statesmen and philanthropists and poets whom, when all has been said, we can love so heartily as Samuel Johnson."

Give reasons for this.

PART II.

I. Explain fully:—

- Britain had been insensibly moulded into the elegant and servile form of a Roman province.
- It was the combination more than once seen in modern Europe where the subtle and rich and cultivated Southern nature has been braced and tempered into purpose and energy by contact with the bolder and more strong-willed society of the North.
- You are choosing a pretty dress to figure at the head of your monks at Canterbury.
- Chaucer was our first English artist.
- No one could hit off a character better.

II. Explain:—Inglorious repose, the kiss of peace, bracelet-giver, the Portreeves of London, customary tenants, a clerical education, "no poppet to embrace."

- What are the inherent inconsistencies in the Romance of Arthur?
- Give some account of the birth of English poetry.
- How did Alfred's labours in the cause of education differ from those of Charlemagne?
- What was the influence of French and Italian poetry on Chaucer?

GENERAL ENGLISH.

- I. a. From what foreign sources has the English language been enriched in its vocabulary? Give 3 examples from each source.
- b. If a long and a short form of a Latin word exist in English, which is usually the older, and why? Give four such pairs of words.
- c. Give six examples of English words that have changed, their meaning during the last three centuries, with their former and present meanings.
- II. a. What is *Case*? State the rules for forming the Possessive, singular and plural, in modern English. What was the old Genitive/singular termination? What later corrupt form of the possessive can be traced to it?
- b. Explain the construction in:—"Him destroyed, all this will soon follow"; "Villain, knock me at this gate"; "Thou away, the very birds are mute"; "Lady-day"; "Lord's day"; "It is Othello's pleasure, our noble and valiant General."
- III. a. What were Adverbs originally? How have Conjunctions arisen? Give examples.
- b. Explain the forms:—*Wonderous, godly, else*.
- IV. a. Show that the following words were originally compound nouns:—*Orchard, Stirrup, Bridal*.
- b. Tell what you know of the Teutonic and Classical abstract suffixes in English.
- c. What do you know of the powers of the prefixes *a-* and *be-* in composition?
- V. What is meant by a Figure of Speech? Tell what you know of Metaphor and Simile, Metonymy and Synecdoche, Climax and Anti-climax, and Hyperbole; and their proper uses.
- VI. Punctuate the following extract from the description of what was seen out of the window of an hotel in a town where a fair was being held:—
There seemed to be a great bustle outside my dress—coming to grief for always full of curiosity—I jumped up suddenly and it tore to ribbons such a herd of cattle looking out of a window—I saw all—a whole drove passed by driving a squealing pig in a yellow wig a blue coat and drab continuations—A little humpbacked man followed behind with a long whip riding my dog—always on the *qui vive* gave tongue to his loud 'Bow-wow'—What a horrible din Quack quack—Gobble gobble an old woman—red in the face with hobbling after her ducks and turkeys—grunted and groaned the bag-pipers puffing and blowing discordantly—the motley crowd further diversified by the acrobats performing their monkey-tricks to the sound of 'nigger' minstrelsy.

PART II.—COMPOSITION.

I. Paraphrase:—

The Scholar.

My days among the Dead are past;
Around me I behold,
Where'er these casual eyes are cast,
The mighty minds of old:
My never-failing friends are they,
With whom I converse day by day.

With them I take delight in weal,
And seek relief in woe;
And while I understand and feel

How much to them I owe,
My cheeks have often been bedewed
With tears of thoughtful gratitude.

My thoughts are with the Dead; with them
I live in long-past years,
Their virtues love, their faults condemn,
Partake their hopes and fears,
And from their lessons seek and find
Instruction with an humble mind.

- II. Describe in a letter to a friend (not more than three pages in length) what you saw and did either in the Dipavali or the Mohorrum festival.

- III. Rewrite the following passage, altering into simpler English the parts underlined:—

It is no unpleasant matter of speculation to consider the recommendatory epistles that pass round this town from hand to hand, and the abuse people put upon one another in that kind. It is indeed come to that pass, that instead of being the testimony of merit in the person recommended, the true reading of a letter of this sort is: "The bearer hereof is so uneasy to me that it will be an act of charity in you to take him off my hands; whether you prefer him or not, it is all one, for I have no manner of kindness for him, or obligation to him or his." As negligent as men are in this respect, a point of honour is concerned in it; and there is nothing a man should be more ashamed of, than passing a worthless creature into the service of a man who has never injured you.

- I. Explain fully the forms *worse, next, best, last, least, nearer, foremost, first, furthest, more*.

Derive *eleven, hundred, score, dozen*.

- II. Tell what you know of the past and present use of the Second Personal Pronoun in its Nom. and Acc. cases, singular and plural.

Also of the Inflections of the Third Personal Pronoun, in singular and plural.

- III. Define 'Verb', and show how a classification of verbs may be founded upon differences in the form of the past tense.

What do you mean by 'Gerund'? 'Gerundial Infinitive'? Explain clearly the origin of each, and discuss Bain's "infinitive in *-ing*."

- IV. Explain the italicised words in the following passages:—You ought him a thousand pound; "I own I have done wrong"; "How do you do?" "By that faith I shall to GOD and you"; Me rather had my heart might feel your love; "I were better."

Account for the italicised parts of the following words:—*wist, every, not, olden, loved, am*.

- Explain the form *wast*, and why we cannot say *he musts*.

- V. Briefly discuss:—

(a) "An adjective denotes the quality of a noun."

(b) "We (*sc.* Who and Which) are descended of ancient families, and kept up our dignity and honor many years, till the Jack Sprat That supplanted us."

c "What is a compound relative."

d "'Let us go' is the first person plural imperative of the verb *go*."

e The so-called 'Potential' and 'Optative' moods.

PART II.

- I. Write an essay on the following subject, not exceeding three pages in length:—
 "Diligence includes all virtues in it that a student can have."—
 Carlyle.
- II. Paraphrase:—
 Knowledge and wisdom, far from being one,
 Have oft times no connexion. Knowledge dwells
 In heads replete with thoughts of other men;
 Wisdom in minds attentive to their own—
 Knowledge a rude unprofitable mass,
 The mere materials with which wisdom builds,
 Till smoothed and squared, and fitted to its place,
 Does but encumber whom it seems to enrich.
 Knowledge is proud that he has learnt so much,
 Wisdom is humble that he knows no more.—Cowper.
- III. Correct the following sentences, and give reasons for your corrections:—
 1. He would make a better statesman than a lawyer.
 2. Which I had no sooner drank, but I found a pimple rising on my forehead.
 3. Let us like Horace and Lydia agree;
 For thou art a girl as much brighter than her,
 As he was a poet sublimer than me.
 4. Whom the Gods love die young.
 5. I would be obliged if you should kindly lend me your book.
 6. I am not certain that either of us were there.

CARLYLE'S RECTORIAL ADDRESS.

SENIOR B.A. CLASS—SYMOND'S SHELLY, pp. 141—188.

- I. 1. Describe the course of events that led to the composition of *Hellas*.
 2. What is the real lesson of Shelley's life and writings.
 3. How does Masson distinguish between subjective and objective poetry? What were Shelley's faults as an artist, from which Wordsworth, Keats, and Byron, were comparatively free?
- II. Paraphrase freely the following passages bringing out fully the sense of the poet:—
 1. He is a portion of the loveliness
 Which once he made more lovely: he doth bear
 His part, while the One Spirit's plastic stress
 Sweeps through the dull dense world, compelling there
 All new successions to the forms they wear;
 Torturing th' unwilling dross that checks its flight
 To its own likeness, as each mass may bear;
 And bursting in its beauty and its might
 From trees and beasts and men into the Heaven's light.

Boccaccio (Giovanni, or John, 1313-1375) was the author of the *Decamerone*, or *Book of Ten Days*, a collection of one hundred stories told by ten ladies and gentlemen who had fled from Florence to a country-house from the plague of 1348. The form of the book is said to have suggested to Chaucer the framework of his *Canterbury Tales*. Petrarch and Boccaccio were contemporaries of Chaucer, though Dante had been dead seven years before Chaucer was born. Italian influence is also strongly visible in the poems of Surrey and Wyatt in the sixteenth century, and also in Shakespeare, Carew, and other writers of the seventeenth.

3. The Period of French Influence belongs to the reign of Charles II. The Royalists who had fled from England after the execution of Charles I. and the defeat of his cause, naturally betook themselves to France, and there became acquainted with French modes of thinking and with French literature. Molière (1622-1673), the great writer of comedies, Corneille (1606-1684) and Racine (1639-1699), the two great French tragic authors, were the chief influences in English literature in the end of the seventeenth century. But it was Boileau (1636-1711), the intimate friend of Molière, Racine, and La Fontaine, and the admirer and defender of Pascal who gave critical and conscious direction and regulation to the dramatic and poetic literature of our country at this time, by his *L'Art Poétique*. Most of the best remarks and precepts in Pope's *Essay on Criticism* are drawn from this book. The chief external marks of this influence on our poetry are; that it discouraged and banished the use of blank verse, and even plays (such as Dryden's) were written in rhymed couplets, and that it demanded great clearness and high polish. These tendencies grew, in Pope's time into what is sometimes called "The Artificial School of English Poetry." "The condition of the English mind at the close of the seventeenth century was such as to make it particularly sensitive to the magnetism which streamed to it from Paris. . . . The effect on English literature appeared chiefly in neatness and facility of turn, and in point and epigrammatic compactness of phrase. . . . Hence a decline from imagination to fancy, from passion to wit, and from metaphor to simile."

4. Our modern literature may be said to belong to the Period of English Influence. This is of two kinds. In the first place, the poets of modern times have gone back to the Old English writers of the fourteenth and the seventeenth centuries, and have looked to them for form and for inspiration. In the second place, the prose-writers, and especially the novelists, have written for the people, and have found their matter and their form in the ordinary events of English life, which are daily happening in every stratum of society.—Morell's *English Series*.

APPOINTMENTS AND LEAVE

*Sanctioned by the Director of Public Instruction, during the month of
October 1883.*

- N. Vaidyanatha Aiyar, M.A., 4th Assistant, Kumbakonam College, to act as 3rd Assistant.
S. Ramadas Aiyar, B.A., 5th Assistant, to act as 4th Assistant.
K. Sundararama Aiyar, B.A., 6th Assistant, to act as 5th Assistant.
S. Narayanaswami Aiyar, M.A., 7th Assistant, to act as 6th Assistant.
R. Chakravarti Aiyangar, B.A., 1st Assistant, High School, Palghat, to act as 7th Assistant, Kumbakonam College.
V. Govindaswami Nayanar, B.A., to be *Sub pro tem*, 3rd Assistant, High School, Cuddapah.
G. S. Abboy Nayudu, Headmaster of the Government Middle School, Anantapur, to be Deputy Inspector of Schools, Anantapur Range, on Rs. 75.
P. Krishnama Chari, Deputy Inspector of Schools, Anantapur, to be Deputy Inspector of Schools, Gooty.
C. Ramalinga Aiyar, Head Clerk of the Inspector of Schools, 4th Division, to act as Deputy Inspector of Schools, Hosur Circle.
K. Dakshnamurti Sastri, Deputy Inspector of Schools, Cocanada Circle, privilege leave for two months.
P. O. Pothan, Deputy Inspector of Schools, Southern Range, Malabar, leave on Medical Certificate for six months.
T. V. Vaidyanatha Aiyar, 2nd Assistant, Bremen High School, Tellicherry, leave on private affairs for four months.
T. Janakiramayya, B.A., to be *Sub pro tem*, 2nd Assistant, Saidapet High School, from 23rd April 1883.

November 1883.

- M. Chidhambara Sastri, 2nd Assistant, High School, Tiruvalur, leave on Medical Certificate for eight months.
N. Subrahmanya Aiyar, 3rd Assistant, to act as 2nd Assistant. Viraraghava Aiyangar, Deputy Inspector of Schools, Hosur, privilege leave from 18th July to 2nd September 1883, and sick leave from 8th September to 8th October.

(By order)

D. S. WHITE,

Asst. to the Director of Public Instruction.

"Gladly would he learn and gladly teach."

THE
Madras Educational Record.

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{ New Series.

OVER WORK IN SCHOOLS.

All who are interested in education—nay, all who are possessed of the ordinary feeling of humanity—must have been shocked at the disclosures recently made with reference to the over-working and under-feeding of many of the children in the primary schools in England. There is little hope that these painful reports have been in any way exaggerated, the danger probably lies in the opposite direction, and it may be that thousands of children, who are almost as incapable of making their voices heard as the dumb creation, have been prematurely hurried along in a half-starved condition, into the vortex of our feverish jostling world. Result grants have to be earned, teacher's salaries have to be paid, iron-hearted Inspectors with their inexorable demands have to be satisfied, and so the screw must be put on tighter and tighter. From the top to the bottom of the educational scale the standard required is raised almost every year. The competition for good posts grows daily more intense, and the cry 'what are we to do with our boys?' grows louder and louder; and so the syllabus of class instruction, and the style of examinations, are adapted to the capabilities of candidates of first rate ability only, and the crowd get trampled down in the fight for position, the mediocre many suffering because of the brilliant few. Not very long ago, the present Bishop of Carlisle (Harvey Goodwin) acknowledged that although he had been a writer of mathematical books, and an examiner in the Mathematical Tripos, the standard had been raised to such an extent that he not only could not now solve the problems set, but he could not even understand what the questions meant. All who know Cambridge are well aware how truly this illustrates the immense rapidity with which the standard is being raised. It cannot be a very long time since Bishop Goodwin's books were put into the hands of fresh alumni, but at least ten years ago no one ever dreamed of using such insufficient books, and the expression used of those who had trusted to his text books, and so come to grief had passed into a bye word: "So-and-so has been wrecked on

the Goodwin sands." The competition at this examination (the Mathematical Honor's degree) has grown so severe that numbers drop off in the course of the three years, or woefully disappoint their friends from the sheer physical impossibility of keeping up under so terrible a strain. Besides this, it often happens that several of those who have gained the coveted honors become mere wrecks after the examination is over and are quite unfit for putting into practice what they have learnt at such great cost to mind, body, and purse. This is no alarmist picture, but a plain sketch of what all have experienced for themselves who have once got sucked into this intellectual whirlpool. We know how true it is of many of the civil servants in India. Nor must we forget that one examination of necessity affects others. If the Tripos is so difficult a one, only the best scholars can hope to compete successfully; hence scholarship examinations for fresh men become stiffer, and hence also the school examinations which lead up to these initial university ordeals. Similarly with the advance of high class education, there must be a corresponding advance of middle and lower class examinations. 'The weakest to the wall'—'the survival of the fittest': such are the cries on all sides. How cruel is the disappointment, how acute the pain of the immense crowd of those who do not come up to the average strength of mind and body, and so after their utmost efforts fail in grasping the prize—perhaps one prize for fifty—can only be realized by those who have experienced it.

Now if this is true in any degree of England, how much more awfully true is it of India in the present day. Our excellent Director of Public Instruction was never expected to talk fluently in Latin and Greek at twenty years of age; nor to be thoroughly conversant with a host of scientific and other subjects of which his father had never even heard the names, and yet this is what he and every other educationist in India expects from Indian youths as a matter of course. Whatever Oxford, Cambridge and London have effected after centuries of development, to that must Madras attain in less than the half of one century. So too to look at the other end of the scale: a small urchin, with a couple of square inches of clothing, more or less, is captured in some out of the way village, where his ancestors for perhaps a thousand years have lived on terms of equality with their buffaloes and cows. The said urchin is put into the mill and before many monsoons have burst he is put down to translate English into the vernacular, and *vice versa*—translation at times which the deputy himself who is appointed to examine him cannot do—[this is no imaginary case]—and perform other similar feats, or else bring discredit on his teacher, a loss of money on the manager of the school, and a disappointment on himself more acutely felt than most people imagine.

Of course it is easy to reply to all this that the fault lies initially with the people themselves and not the Educational Department: that the people are not contented with the same positions that their fathers and grandfathers were satisfied with, but wish to push themselves into higher posts, and all that the Examiner has to do is to see who

2. The One remains, the many change and pass;
Heaven's light for ever shines, Earth's shadows fly;
Life, like a dome of many-coloured glass,
Stains the white radiance of Eternity,
Until Death tramples it to fragments.

3. Little profit brings,
Speed in the van and blindness in the rear,
Nor then avail the beams that quench the sun,
Or that with banded eyes could pierce the sphere
Of all that is, has been, or will be done.
So ill was the car guided—but it past
With solemn speed majestically on.

III. Interpret the following lines according to the so-called language of flowers:—

His head was bound with pansies over-blown,
And faded violets, white and pied and blue;
And a light spear topped with a cypress cone,
Round whose rude shaft dark ivy-tresses grew
Yet dripping with the forest's noon-day dew,
Vibrated, as the ever-beating heart
Shook the weak hand that grasped it.

IV. Explain:—

1. Some of us have in a prior existence been in love with an Antigone, and that makes us find no full content in any mortal tie.
2. What still is dear
Attracts to crush, repels to make thee wither.
3. By what sublime philosophy he proposed to resolve the discords of this revelation more soul-shattering than Daniel's *Mine*, we cannot even guess.
4. Byron's elemental worldliness and pungent satire do not liberate our energies or cheer us with new hopes and splendid vistas.
5. A Promethean conqueror, A pathological specimen of humanity,
A panathenaic pomp, The contagion of the world's slow stain,
The folding star of Bethlehem.

V.

1. What is Carlyle's "Gospel of work."
2. State his opinions about the permanence of a Democracy, and his theory of a Hero-king.
3. Show how Carlyle contrasts Phocion with Demosthenes. What lesson does he draw from the contrast?

VI.

1. Carlyle's style is called "the involved disrupted style." Explain the remark.
2. State the meanings given by Carlyle to cramming, virtue, wisdom, veracity, Ehrlureht.
3. Give some account of Sir Francis Rous, the resignation of Barendse's Parliament, the encampment of Dunse-hill of the Scottish army.

VII. Explain:—

1. The clearest of sceptical men had not anything like so clear a mind as that man had—freer from cant and misdirected notion of any kind than any man in these ages has been.
2. Their position is essentially sceptical. Plan is emphatically in that condition that he will make only a temporary explanation of anything.

3. It does not appear as if of late times endowment was the real soul of the matter. Give Carlyle's views regarding the "endowment of research."
4. And he defines that as being the soul of the Christian religion—the highest of all religions; a height, as Goethe says, to which the human species was fated and enabled to attain, and from which having once attained it, it can never retrograde.
5. We are in an epoch of anarchy—anarchy plus the constable.

VIII. Paraphrase:—

But heard are the voices,
 Heard are the sages,
 The worlds and the ages:
 "Choose well: your choice is
 Brief, and yet endless."
 Here eyes do regard you
 In Eternity's stillness;
 Here is all fulness,
 Ye brave, to reward you,
 Work and despair not.

PHYSIOLOGY.

- I. How do lymphatic capillaries differ from those of blood, and the lymphatic trunks resemble small veins? Whence is lymph derived? How does lymph differ from blood?
- II. 1. What are the effects of exposing the red corpuscles of blood to carbonic acid gas and oxygen alternately?
 2. What is the easiest way to produce blood-crystals?
 3. How do the corpuscles of blood differ chemically from the plasma?
- III. 1. What is the difference between night and day as regards the absorption of oxygen?
 2. What effect has the asphyxiating process upon the circulation of blood and the action of the heart?
 3. What are the effects of breathing sulphuretted hydrogen and carbonic oxide gas?
- IV. 1. State the quantity and composition of the renal excretion.
 2. Where is bile produced, and how is it removed to the gall bladder? What are the ultimate branches of the hepatic duct?
 3. Where are the white corpuscles of blood believed to be produced?
- V. 1. Give two instances in which arterial blood has to pass through two sets of capillaries before it flows into veins.
 2. In what vessel is the blood purest?
 3. Through which two ways is oxygen absorbed into the blood?
- VI. How is the temperature of blood regulated by the nervous system?

- VII. What is the two-fold action upon fats in the processes of digestion? What vessels are concerned in their absorption?
- VIII. 1. Describe the hip joint, and show how the head of the femur is kept in its proper position.
 2. Give the functions of (a) the cilia, (b) the check ligaments.
 3. How are the vocal chords rendered parallel and tight?

PSYCHOLOGY.

- I. Give the meanings of consciousness. What is the knowing or intellectual consciousness of Hamilton and the Germans. Give Bain's account of self-consciousness.
- II. What is the importance in Bain's Psychology: (1) of Spontaneous Activity, (2) of Muscular feelings?
- III. Analyse fully the notion of Time.
- IV. What is Apparent Size? How is Real Size known?
- V. In the Growth of the Will, show how volition is enlarged by (1) the Word of Command and (2) the Wish to move.
- VI. What does Reid's Classification of the Intellectual Powers really amount to? Why does Bain reject it? What are the uses of an accurate knowledge of the so-called Intellectual Powers?
- VII. What are the Intellectual characteristics useful for a successful Man of Business, a Poet, a discover of Scientific Truths, an inventor of new kinds of machinery? Give illustrations.
- VIII. What are the elements that enter into the constructions of Fine Art?
- IX. What tendencies of the mind incline a man to be a Realist?
- X. Explain "the Psychological Theory of the Belief in an External World." Give Bain's analysis of the notion of Independent Matter, and show how it is superior to Mill's?
- XI. Discuss fully the opinion that a moral agent cannot be held accountable for his actions unless he is a free agent.

MADRAS CHRISTIAN COLLEGE.

GEOMETRY. BOOK VI. (1—18.)

- I. a. What relation does Book VI. bear to Book V.?
 b. Define *Similar Rectilinear* figures, and show that the definition does not include any superfluous condition.
 c. When is a straight line said to be *harmonically* divided?
- II. Explain fully the construction and sense of the phrase '*Ex aequali*.'
- III. Triangles and parallelograms that have equal altitudes, are to one another as their bases.

- IV. Enunciate and prove VI. 2.
 ABC is a triangle and D any point in BC. AB, AC, BD and CD are bisected in E, F, G, H, and AG, AH, GE, EF, and FH are joined, shew that
 1. EG is parallel to FH.
 2. EFGH is a parallelogram and is equal in area to the triangle AGH.
- V. The sides about the equal angles of equiangular triangles are proportionals; and those which are opposite to the equal angles are homologous sides, that is, are the antecedents or consequents of the ratios.
- VI. If two triangles have one angle of the one equal to one angle of the other, and the sides about two other angles proportionals; then, if each of the remaining angles be *not less* than a right angle, the triangles shall be equiangular, and shall have those angles equal about which the sides are proportionals.
- VII. To find a fourth proportional to three given straight lines.
 a. Determine two straight lines, such that the sum of their squares may be equal to a given square and their rectangle to a given rectangle.
- VIII. To find an Arithmetic and Geometric mean between two given lines.
- IX. Why should the properties of a parallelogram and a triangle be separated in the 14th and 15th propositions, and not in the 1st? Demonstrate both from one diagram.
- X. If the rectangle contained by the extremes of three straight lines be equal to the square on the mean, the three straight lines are proportionals.

PRESIDENCY COLLEGE.

HISTORY OF ENGLISH LITERATURE.

- I. a. Enumerate the principal "Metrical tests" that have been recommended for fixing the order of Shakespeare's Plays.
 b. *Very briefly* mention what other "internal evidences" help us in the same matter.
 c. What approximate dates have been suggested for the appearance of the following Plays:—*Midsummer Night's Dream*, *Romeo and Juliet*, *King John*, *Merchant of Venice*, *Twelfth Night*, *Lear*, *Julius Caesar*, *Tempest*.
- II. Define "tragi-comedy" and "masque" and give examples of each.
- III. (1.) Name the authors of the following Plays,
 (2.) Write against their names the period at which they lived and
 (3.) The names of two other works written by them:—
Sejanus, *The Maid's Tragedy*, *Friar Bacon and Friar Bungay*, *The Fatal Dowry*, *The Conquest of Granada*, *Venice Preserved*, *Mourning Bride*.
- IV. a. What explanations have been given for the degraded moral tone of the Drama on its re-appearance after the Restoration?
 b. Point out and, if possible, illustrate the foreign influences apparent in the new Drama.

PSYCHOLOGY.

Examiner:—D. DUNCAN, M.A., D.S.C.

- I. State what is known as to the microscopic structure and function of nerve-cells and nerve-fibres.
- II. What views have been held as to the nature of the nerve-force? How is it correlated with the other forms of energy?
- III. Can objective tests be applied to subjective phenomena? Discuss the question.
- IV. Two of the intellectual faculties enumerated by Sir W. Hamilton are the Conservative and Reproductive. Criticize Hamilton's view.
- V. What are the impediments to the revival by Similarity, and how may they be best overcome?
- VI. Distinguish between Genius and Talent, pointing out the psychological foundations of each?
- VII. Distinguish between the *interpretation* and the *estimate* of Feeling? On what principles do they rest, and what precautions have to be observed in carrying them out?
- VIII. Describe briefly the following Laws:—
 The law of Relativity.
 „ Self-Conservation.
 „ Emotional Exclusiveness.
 „ Emotional Expression.
 „ Motives to the Will.
 „ Stimulation.
 „ Diffusion.
 „ Parsimony.

ENGLISH HISTORY.

- I. a. Draw a map of England, showing the various Saxon settlements that were founded in it in the fifth, sixth and seventh centuries, A.D.; and give the names of the chiefs that founded them and the dates of their settlements.
- II. a. Mention the leading features of the feudal system introduced into England by the Normans.
 b. Explain the following terms, *boc-land*, *ridings*, *frank pledge*, *gilds*, *relief*, *Primer seizin*, *villeins in gross*.
- III. a. What reform did Henry II effect in the administration of England?
 b. What gave him importance among the Sovereigns of Europe?
 c. What were his political plans and how far did he succeed in carrying them out?
 d. Give a very brief account, of the ecclesiastical struggle in which he was engaged.
- IV. a. Mention the three leading events of the reign of John and their political consequences.
 b. State the important provisions of the Magna Charta.
- V. a. Mention the important legal reforms that were effected in the reign of Edward I.
 b. What were the sources of public revenue at the commencement of Edward I's reign, and how were they augmented by him?

- VI. Give a very brief sketch of the wars between England and Scotland during the reigns of Edward I and Edward II.
- VII. Note the principal events of the reign of Edward III under the following heads,—
- a. Foreign policy, (b) Home legislation, (c) Fiscal difficulties.
- VIII. a. Note in chronological order the important steps in the growth of the British Parliament during the rule of the first three Edwards.
- b. What are the claims of Simon de Montfort to be regarded as a patriot?

MAHARAJAH'S COLLEGE, PUDUKOTA.

F. A. EXAMINATION.

MILTON'S PARADISE LOST—BOOK IV.

Examiner:—E. WINCKLER, B. A.

- I. a. Into what *passions*, according to the 'Argument', does Satan fall while contemplating the prospect of Eden?
- b. What did Satan gather from the discourse of Adam and Eve?
- c. How did Uriel know Satan to be a bad angel?
- II. a. What is the metre of Paradise Lost? What was Milton's opinion of Rhyme?
- b. Scan the following line noticing any peculiarity.
1. Hung amiable—Hesperian fables true.
 2. Slowly descended and with right aspect.
 3. Diurnal or this less voluble Earth.
 4. Not likely to part hence without contest.
 5. With violence of this conflict, had not soon.
 6. Turned fiery red, sharpening in mooned horns.
- III. Annotate the italicised words in:—
1. And like a *devilish engine* back recoils. (2) They little know how dearly *I abide* that boast so vain. (3) The ascent of that steep *savage* hill. (4) Through veins of porous Earth with *kindly* thirst up-drawn. (5) Hath spied in some *purlicue* two gentle fawns at play. (6) I *described* his way. (7) Till the moon rising in clouded majesty at length *apparent* queen unveiled her peerless light. (8) These soft fires not only enlighten, but with *kindly* heat of various influence. (9) And wrought *mosaic*. (10) Jove's *authentic* fire. (11) Proud *liminary* cherub, (12) The *signal* each of parting and of flight.
- IV. a. Write grammatical notes on the italicised parts in the following:—
1. Which he who saw the Apocalypse *heard cry*. (2) *Me* miserable! (3) So *comb* this first grand thief. (4) Hell shall unfold her *wilest* gates. (5) Thou hadst in Heaven the esteem of *wise*. (6) Lives *there* who loves his pain.
 - b. Criticise the following:—(1) And in the lowest deep, a lower deep. (2) Adam, the goodliest man of men since born his sons; the fairest of her daughters, Eve.

- V. a. In what sense does Milton use *distempers*; *pensive*; *error*; *described*; *voluble*; *sly*?
- b. Explain—the *crisped* brooks; *irriguous* valley; *umbrageous* grots; a *platane*; *impregns* the clouds; *stellar* virtue.
- c. What traces of Italian influences are there in the IV Book?
- d. Quote the passage in which Milton forgets the chronology of the Poem.
- VI. a. Paraphrase—
1. now conscience wakes despair
That slumbered, wakes the bitter memory
Of what he was, what is, and what must be
Worse; of worse deeds worse sufferings must ensue.
 2. I understood not that a grateful mind
By owing owes not, but still pays, at once
Indebted and discharged.
 3. Sole propriety
In paradise of all things common else.
 4. Not to know me argues yourselves unknown,
The lowest of your throng, or if ye know,
Why ask ye, and superfluous begin
Your message, like to end as much in vain?
 5. O loss of one in Heaven to judge of wise,
Since Satan fell, whom folly overthrew,
And now returns him from his prison escaped,
Gravely in doubt whether to hold them wise
Or not who ask what boldness brought him hither
Unlicensed, from his bounds in Hell prescribed.
 6. While thus he spake the angelic squadron bright
Turned fiery red, sharpening in mooned horns
Their phalanx, and began to hem him round
With sported spears. On the other side Satan, alarmed,
Collecting all his might, dilated stood,
Like Tenneriff or Atlas unreinforced;
His stature reached the sky, and on his crest
Sat horror plumed nor wanted in his grasp
What seemed both spear and shield.
 - b. Supply such words in each of the following as will make the construction or the meaning plain:—
 1. Therefore as far
From granting he, as I from begging peace.
 2. if no better place,
Thank him that puts me loth to this revenge.
 3. Knowledge forbidden?
Suspicious, reasonless.
 4. Think not revolted spirit thy shape the same,
Or undiminished brightness, to be known
As when thou stoodst in Heaven upright and pure.
- VII. 1. What traces are there in the Book of Milton's Puritanism?
2. Give the epithets applied to Pan, Dis, Cham, Bacchus?
3. To illustrate what, does Milton use the story of Narcissus?
4. In what circumstances was Satan found by Ithuriel?
5. Give the substance of the dialogue between Gabriel and Satan.
6. It has been said that in this Book Milton protests against the education of Females. Criticise this statement.

LOGIC.

QUESTIONS WITH ANSWERS.

Describe the nature and use of Hypothesis. Distinguish Hypothesis and Empirical Law. How may a valid be distinguished from an invalid Hypothesis?

Hypothesis is derived from the Greek words *ὑπό* and *τίθημι*, to place under, and is equivalent to the Latin word *suppositio*; it is a supposition suggested with more or less plausibility to account for a certain number of phenomena which we observe, but which we cannot explain scientifically. Scientific explanation means the resolving a uniformity, which is not a law of causation, into the laws of causation from which it results, or a complex law into simpler laws. If beneath these phenomena we can place some sufficient reason why they exist together, or why they accompany each other, we are said to refer them to their origin, or scientifically to trace cause and effect. But we are not always able to do this off-hand, so that we have to start many hypotheses which may not always even be true; for true theories are often preceded by false ones. For instance, the theory of planetary motion, namely, that the planets moved in circles, was false, and Kepler himself is said to have started nineteen false theories before he hit upon the true one, namely, that the course of the planets is elliptical. The same thing happens in almost all branches of science.

I. Hypothesis must never be confounded with proof, but one point in which it is serviceable is to lead the way to proof; for sometimes even a hypothesis, false in itself, will suggest a true one, as we have seen in Kepler's case. But the truth of the hypothesis depends on subsequent verification: hence we get one rule for hypothesis, that *it must be capable of proof or disproof*. For imagination or fancy is the parent of hypothesis, and if we had not some such rule as this, there would be no end to the fanciful suppositions that might be started.

II. Another use of hypothesis, if it can be applied to all the known facts, is to bind them together, and bring them under one point of view. Hence we get a second rule, that *the hypothesis must be adequate to the explanation of all the observed phenomena*. The instance of inadequate hypothesis made by Voltaire, that 'the marine shells found on the tops of mountains are Eastern species, dropped from the hats of pilgrims, as they returned from the Holy Land,' is amusing; for it does not account for the number of the shells, or for their being found far from the tracts of pilgrims, or for many of them not being Eastern at all.

III. Again, hypothesis *must be consistent with the laws of thought*, and must not be known, or even suspected to be untrue, for it would be manifestly absurd to endeavour to discover truth from what is known to be false beforehand. The validity of hypothesis, then, depends on the observance of these three rules, and if they are duly

observed, the hypothesis is called legitimate. Now, that we have investigated the nature of hypothesis, it will be easy to distinguish it from an Empirical Law. 'Scientific enquirers,' says Mr. Mill, 'gave the name of Empirical Laws to uniformities which observation or experiment has shown to exist, but which they hesitate to rely in cases varying much from those which have been actually observed, for want of seeing any reason why such a law should exist.' We see, then, that the difference consists in this: hypothesis refers to a law supposed to exist, Empirical Law is one known to exist, though the reason of it is not understood. The following are instances of Empirical Laws: that certain changes of the weather are indicated by certain appearances in the sky; that after the fusion of metals, the alloy is harder than the elements; and many others; all of which are known to be true from repeated observation, but cannot be resolved into simpler laws, which would give the reason for them.—*Palæstra Oxoniensis*.

II.

PROBABLE REASONING.

All knowledge searches after truth; and as all knowledge differs in kind, so also must it differ in the degree of its truth. An important part of inductive knowledge, not having attained to what is universal and uniform, only amounts to approximation to such truth. Conclusions which rest on probable evidence are drawn from approximate generalisation, and there is no reason why the degree of the knowledge we have attained should not deserve reliance, although unable to conform to the more precise accuracy of logical uniformity. Now here more than in Social Science and in Politics are we compelled to utilise probable evidence, and approximate generalisations. When sufficient induction has not occurred, we cannot make a general law for the purpose of deduction; and as the complexity of social phenomena cannot be easily deciphered, nor can results be prescribed with exact assurance, we must therefore be content with probable evidence. Probability upon probability can so strengthen modified Premises as finally to make the conclusion sufficiently sure, morally certain, and this is the nature of circumstantial Evidence. Probable arguments may be combined together, as so many links in a chain, each concentrating upon the same conclusion, and the accumulative testimony of so many instances is often in exact proportion to their numerical value. But the comparative value of circumstantial evidence must always be tested by the strength or weakness of counteracting testimony. Logic and common sense would alike ignore a negative fraction contrasted with a positive unit; but if the multiplication of independent testimony points directly to the same conclusion, that conclusion must be valid, and the moral certainty it thus establishes must amount to scientific truth. The only danger of these conclusions is, that they are often the approved result of violent presumption, and all probable arguments,

especially circumstantial evidence are only too liable to overlook negative instances and 'the benefit of the doubt.' The value of circumstantial Evidence is this, that its strength is often in weak and trivial details which in accumulative testimony furnish Positive Proof. In great matters Direct Evidence often breaks down, owing to Misrepresentation, Delusion, or wilful Perjury; the point blank oath of isolated testimony is not such reliable moral certainty as the striking convergence of numerous circumstances, and the striking concord of numerous tests. Circumstantial Evidence may therefore be defined as a series of probable circumstances, accumulated together, and tending towards the same conclusion. But only when we have fairly exhausted every supposition for and against, must we cautiously strike the balance in favour of such Presumptive Evidence.—*Palæstra Oxoniensis*.

MR. PORTER ON EDUCATION IN INDIA.

THE following address was delivered on the 12th November, by Mr. W. Porter, M. A., Private Secretary to H. H. the Maharajah of Mysore, on the occasion of the distribution of prizes to the boys of the Marimallappah's Charities at Mysore:—

GENTLEMEN,—It is now my pleasing duty to congratulate the Trustees of this institution on the prosperous state of their funds, and both Trustees and teachers on the progress of the school during the past year. Briefly stated their position is this. The income of the Trust Fund, together with the school fees, amounts in round numbers to Rupees 200 a month. This, with the grant-in-aid, gives them a monthly sum of Rupees 300. Their present establishment is Rs. 225 a month, leaving a considerable surplus which the Trustees propose to employ partly in assisting deserving boys to continue their studies beyond the standard of this school, and partly in raising salaries of some of the lower masters. A recent change in the investment of the funds has enabled the Trustees, not only to make a patriotic investment, but at the same time to add Rs. 150 to their annual income. The school seems to be rapidly growing in favour as compared with March 1882; the increase in one year was more than 50 per cent. There used to be a wholesome custom at Cambridge of keeping alive the memory of those who had left funds in aid of learning. In each College on Founders' day the names of all benefactors were solemnly read out in the presence of the assembled masters, fellows, and scholars. This day of distribution of prizes may very well pass for Founders' day of this institution, and the Trustees have properly taken advantage of it to remind the public of Mysore how much of its present flourishing condition they owe to the late Mr. Runga Charlu. Without him in all probability, the funds would never have been available for education at all. He deserves in fact to be called its second founder. That remarkable man, amidst all his multifarious duties, never forgot the paramount claims of education. The highest duty which the generation that has risen owes to that which is rising is to see that they receive a good education. I have no need to claim for school training more than what fairly belongs to it. I know very well that education is not all got at school. Some is got at home and some from companions. A good deal is picked up in the street and in the bazaar. But the multifarious and desultory influences, some of which are good and some often bad enough, go a very little way in fitting a youth for the struggle of life. It is in school

that systematic training is obtained. There a boy learns attention and application. He gets the habit of fixing his thoughts, and applying his mind to a given task for a certain time. There, too, he learns order, discipline, and obedience, and then surely are the habits and virtues needed for making one's way in life and becoming a good citizen. Further he acquires at an early stage those great accomplishments of reading, writing, and arithmetic, which open the door to all further knowledge. In speaking of the value of school training, even when it stops at a comparatively early stage, I have in view the important announcement contained in the Report just read, that it is determined to reduce the standard to that of a Middle School. The Trustees have felt that with the means at their disposal, it is better to work efficiently within narrower limits, than to attempt a wider range and do it imperfectly. The field is narrowed with a view to greater concentration. The elementary teaching will be greatly improved when the higher masters are not mainly taken up with the classes for matriculation. Our present educational course has several stopping places, each marked by public examinations. You may figure it to yourselves as a journey divided into several stages. Certainly the first stage is not the least important. The germ of all those habits and acquirements that fit one for a useful career are then acquired. In deciding to stop there, leaving the next stage to the Maharajah's College, and the Wesleyan High School, while they direct their own efforts to doing thoroughly well the work of a Primary and Middle School, the Trustees have, I think, determined wisely. But in so determining I am sure they have had to resist some considerations that would urge them in a different direction. In the old coaching days, an ambitious whip liked to end his journey in some conspicuous place where he might enter with blowing of horns and crowds to look on. By stopping at the Middle School Examination, you appear to be halting at an obscure station where there are no instruments of music and no admiring crowds. But this consideration has properly not been allowed to weigh against the solid advantages gained by limiting the range of the school. And even for the reputation of the masters, it is to be considered that the best and the most useful reputation is that which they gain among their fellow townsmen who see and know their labours, and not that which acquires the name of Marimallappah's School appearing in the *University Gazette*. I have now said all that I think necessary with regard to the business immediately before us, but I crave your patience for a minute or two longer, while I refer to an educational topic, connected rather with the Province than with this particular town. During the year I was away, a very important step in advance was made by organizing the teaching of physical science in the Central College at Bangalore. It is only in recent years that the importance of this subject has been recognized in England, and the teaching of it generally introduced. In my time at Cambridge there was nothing of the kind. There was no laboratory where students could work, and no apparatus worth speaking of. Teaching by aid of experiment was spoken of slightly, and put much on the same level as an exhibition of a magic lantern. One famous utterance on this subject I have never forgotten. It was that of a great authority, a mathematical writer of distinction, whose name is well-known to all of you. At this distance of time I cannot give his exact words, nor even the particular illustrations he used. But I believe I can give the spirit and effect of them. "Your teachers," he said, addressing the Cambridge students of the day, "are grave and sober men not likely to deceive you. Many of them are clergymen of high character and blameless life. If you do not trust such men as these when they tell you that the pressure of air is 15 lbs. on the

sq. inch, or that in an exhausted receiver a feather will fall as fast as a sovereign, you are without that confidence in your fellowmen that is necessary to success in life." It sounds like a joke, but you will remember it was written a good many years ago. A good many things have happened since then, and the demand now is, that students shall come themselves into close contact with the facts of nature, and not be content with words and propositions about them in books. This Government has shown itself alive to the movement of the time in so promptly affording to its students an effective means of studying physical science without going out of the Province. In Mr. Cook they have been fortunate in finding a man who, by his experience at home and by his devotion to the subject, is peculiarly qualified to make the teaching of science a success, and I think I am not mistaken in predicting that at no distant period we shall have a school of science in this Province second to none in Southern India. The *Pioneer*, speaking of the late meeting of the representative assembly here, and just after the recent meeting of the British Association, said chaffingly (and the illustration was a very happy one) that the address of the Dewan was as much abreast of the times as that of Professor Cayley. Well, I will say without chaff, and I hope without unbecoming brag, that it is the aim and purpose of this Government to keep abreast, as far as may be, of the best ideas of the time, and education is one of the departments in which they are peculiarly anxious not to lag behind. And, perhaps, it is not too much to hope that with this end in view, and aided by a closer knowledge of native wants, they may not only keep abreast, but now and then have the good fortune to show the way.—*Madras Mail*.

ELEMENTARY EDUCATION.

It is quite a fashionable fad in these days to sing the praises of Higher Education; most people seem to regard it as creditably reflecting on their own intellectual power to talk of the advantages of Universities and the good accruing to the land from the passing out of gentlemen with literal affixes to their names who are supposed to hand the torch of knowledge to their less enlightened brethren. When therefore, any one steps forward to say a good word on behalf of the humbler elementary education which is so useful to the masses and which, therefore, is of great interest to the politician and social philanthropist, we think a note should be made of the occurrence. Especially ought this to be the case when the champion of the 3 R's is known to be a distinguished educationist and to have lent no inconsiderable hand himself in the forwarding of University training.

We do not think we are wrong in stating that there is an undue haste in India in pushing forward Higher Education, which not only has an unhealthy effect on those immediately brought under its influence, but also tends to retard the tutorial care of the proportionately speaking, far greater number for whom primary education meets all necessary demands. Indeed, so great is the desire for Higher Education among the natives of India—a desire by no means always attended with benefit—that there is a constant yearning of elementary schools to develop into Colleges and to become somehow affiliated to the Presidency University. Such ambition is laudable if circumstances

fitly allow of an upward progress in academical life; but people must learn to walk before they can run, and this simple physical rule is quite applicable to mental movement. The disastrous results of an attempt to run before one can walk,—we refer to intellectual progress—is every day apparent from intercourse with native students and those who having passed “the wearisome bitterness of learning” are trying to put their English education to the best account. It is a golden rule to do things properly, and from our juvenile days we have been taught that things done by halves are never done right. Elementary schools should not be above following this somewhat trite injunction, and they should impart the instruction expected of them in a thoroughly efficient manner. After doing the work required of them in a way to leave nothing to be desired, and that for a sufficient period of time to prove undoubted stability, a pardonable wish may then be expressed for higher development provided the basement can support without damage to the existing building, a higher story, and funds are available for the cost and support of the new structure. In short, *festina lente* ought to be the motto of the educational institutions where the fundamental rudiments of knowledge are imparted. The undue haste which most of them, perfectly unprepared for the expensive transition, at present exhibit to evolve into mushroom Colleges alike doing injustice to the efficient inculcation of primary education as well as of the more expensive requirements of Higher Education, is most reprehensible. A College in affiliation with a University, to be worthy of the name, requires a very expensive upkeep of Professors, library, scientific apparatus, &c.; and it is very foolish and quite needless of recently started institutions to undertake all this pecuniary responsibility, seeing that there are already in most of the large towns, one College at least supported by Government or by Missionary enterprise amply sufficient for the needs of Higher Education.

We have to notice with considerable pleasure that there is one school at all events, which, notwithstanding the usual temptations apparently to bud into a College, has resisted the siren of ambition, and is content to remain an institution doing good in imparting a sound primary education. This school is situated at Mysore and is known as Marimallappah's Charities. At the distribution of prizes there on the 12th November, an address was delivered by Mr. W. Porter, M.A., the well-known ex-Principal of Combaconum College and at present Private Secretary to the Maharajah of Mysore. In the course of his speech, Mr. Porter saw fit to call attention to what he characterised as an important announcement in the School Report and that was that the Trustees had determined not to allow the standard of the school to exceed the teaching required for the Middle School Examination. The worthy Secretary continued: “The Trustees have felt that with the means at their disposal, it is better to work efficiently, within narrower limits, than to attempt a wider range and do it imperfectly. The field is narrowed with a view to greater concentration. The elementary teaching will be greatly improved when the

higher masters are not mainly taken up with the classes for Matriculation." Just so, and we wish the remarks here made would obtain a wide and deep attention from hasty educationists. The speaker pointed out that a Higher Education for the boys attending Marimallappah's Charities could be obtained in the Maharajah's College or the Wesleyan High School, without inconvenience and it was well for the lower institution to direct its efforts to doing thoroughly well the work of a Primary and Middle School. Mr. Porter knowing full well the temptations of educationists, and particularly of Indian educationists, observes on the above "But in so determining, I am sure they have had to resist some considerations that would urge them in a different direction. In the old coaching days, an ambitious whip liked to end his journey in some conspicuous place where he might enter with blowing of horns and crowds to look on. By stopping at the Middle School Examination you appear to be halting at an obscure station where there are no instruments of music and no admiring crowds. But this consideration has properly not been allowed to weigh against the solid advantages gained by limiting the range of the school." These be words of wisdom which should sink into the hearts of all those who are only too ready to sacrifice the solid good to be derived from an efficient elementary education in favor of a half-and-half Higher Education which they have not the means to carry out.—*South India Post*.

THE PERIODS OF ENGLISH LITERATURE.

1. Although for us the central interest of English Literature connects itself with the life and character of the men who produced it, we can see that a certain unity of purpose and idea runs through the character of that Literature, and that this character was modified at different times by influences from other European nations. Before the Railway and the telegraph existed, there was always a strong and eager desire—stronger perhaps and more eager than it is now, to learn what was being written by the great authors of Italy, or of France, or of Germany.

2. The period of which Chaucer is the central figure is generally called the *Period of Italian Influence*. This does not mean that Chaucer and his contemporaries were in the habit of directly imitating Italian writers; but that the works of Dante, Petrarch, and Boccaccio were much read by them, and exercised considerable influence upon their thoughts and modes of expression. Dante or *Durante Alighieri* (1265-1321), is the greatest poet of Italy, and wrote the *Divine Comedy*, which consists of three parts, the *Inferno*, the *Purgatorio*, and the *Paradiso*. It is probable that Chaucer knew him also by his sonnets and songs in his *Vita Nuova* (*New Life*), a poem written on Beatrice, a young lady with whom Dante was in love. Petrarch, or *Francesco Petrarca* (1304-1374), is best known, not by his Latin works, as he expected, but by his *Rhymes and Canzonets* (*Rime e Canzoniere*) which he wrote in honour of a lady called Laura.

* One of the best of these has been translated by Leigh Hunt. It begins: "Clear, fresh, and dulcet streams."

out of a legion of candidates is best fitted for those posts. This is doubtless true to a certain extent, but there are arguments to be brought forward on the other side equally true. In the first place it is a mistake to allow the impression to permeate a country (as it doubtless does in India), that intellectual ability (or more correctly the Science of squeezing oneself through the Examiner's clutches) is the only requisite for a good post: there are the moral and the physical requirements which are certainly of not less importance than the mental. Again the country is so poor, from want of practical agriculture and habits of thrift and morality—matters quite outside the Inspector's ken—that the candidates are as a rule half-fed and in a wretchedly weak physical state. Then again the screw has to be put on so unremittingly all day long in and out of school, that the boys have scarcely half an hour a day they can call their own. So they take no exercise, they never learn how to laugh and romp, as all young healthy children ought to do, and so become solemn pigs with old heads on dwarfed and rounded shoulders. Growing boys ought to have ample time for play, for gardening, for music, for examining the natural objects which lie around them, and fifty things besides which are not encompassed by the examination curriculum. But no boy in India can hope to spend his time in such a way, equally helpful to soul, mind, and body: the examiner won't let him. He has a holiday on Saturday, but what about all those mathematical problems of one sort or another he has to solve, and what about the periodical examinations which fill up such days? The candidate does not rebel, when his so-called holiday is taken from him, and his half hour for exercise is occupied in painfully writing in a foreign language an essay on 'Hygiene,' 'Recreation,' 'The use of a Gymnasium, &c.' In some schools a gymnasium has been provided for reluctant boys:—naturally they have little desire for violent exercise, and the pleasure of the thing is taken away, for does not candidate No. 8,764 reflect that candidate No. 8,765 is now occupied in learning by heart a host of rules, &c., in English in the latest cram book, or else perhaps trying to master those awful lists of places in that most hateful of all books a 'Manual of Geography.'

The teacher looks around his class: the fathers of A, B, and C have written to say their sons are too ill to come back to school for a time. D, E, F. are under treatment for cutaneous diseases produced by want of exercise, and will be replaced by G, H, and K. to-morrow. Two-thirds of the class failed in the recent examination, and the managers threaten to close the school, and the reduced results grants have cut down the teacher's own pay. What is to be done? Humanity says *lente festina*; but self-interest cries, tie down the safety valve, and turn on more steam: the candidates see in this their only chance of ultimately thrusting themselves into some more or less lucrative post, and so full steam is turned on, and some win the race, more burst their boilers, and the rest leap off the lines, or collide in a general *mêlée*. And can nothing be done to stop all this hurrying and forcing? Can no fixed standard be discovered

which would supply all our rational wants as a nation, and yet not work such a vast amount of harm on the great mass of those who are now being over-worked and under-fed. Certainly, something might be done. Government should keep a stricter look out on Inspectors, and see that the full tale of bricks should not be required when straw is not given, and should not allow the stereotyped reply, 'we cannot interfere with the department,' when flagrant cases such as those hinted at are brought to notice. We talk of being a free country and boast of privileges, but so long as a manager of a school cannot get any redress either for himself, his school, or his scholars, when equity and red-tape pull in different directions, and so long as departmentalism is suffered to rule with a rod of iron, and so long as public opinion only rises one degree above zero, we can but entertain poor hopes of improvement in such a country as India.

ARE MORAL DISTINCTIONS DERIVED FROM REASON OR SENSE?

A. Morals have an influence on actions and affections. Reason can exercise no such influence. For Reason exercises itself only in two ways in judging from (a) demonstration, (β) probability.

(a.) The province of demonstration is the world of ideas; that of volition and morals the world of realities.

(β.) In judging of probabilities, Reason may inform us of the existence of a possible pleasure or of the means to attain it, but emotion is required to move us to the pursuits of a pleasure or the adoption of the means. Reason not being able to move us in pursuit, is equally unable to check us, as this can only be done by a contrary impulse.

B. If judgment or reason be the foundation of morals, it matters not for the morality of an action, whether it be avoidable or unavoidable *quod est absurdum*.

C. Agreement or disagreement not admitting of degrees, all virtues and vices are necessarily equal *quod est absurdum*.

D. It may be said, though a mistake of fact may not be vicious, a mistake of right is. But this mistake cannot be the original source, since it pre-supposes an original right and wrong.

G. A person taking another's property in a manner, affirms that it is his own. But property or right is not intelligible without a previous morality. Reason may discover what is right, but cannot furnish the ground of right.

E. Virtue, being, as is argued by Clarke, susceptible of demonstration, must lie in conformity to certain relations. But Reason

cannot inform us why conformity to these relations is good, and non-conformity evil. The good or evil must be pre-supposed.

F. It may be said that morality is a matter of fact, yet we find no matter of fact in a virtuous or vicious action, but the approval or disapproval arising within us, an object of feeling not of Reason. Consequently, as moral distinctions depend not on Reason, they must depend on sense.

Origin of mistake of supposing Reason ground of morality.

1. Reason exerts itself generally without producing any sensible emotion. So do the calm affections such as benevolence and the general appetite to good and aversion to evil. Therefore Reason and then calm affections producing a similar sensation are confounded by observers.

2. Reason often discovers a pleasure or pain.

3. Reason often points out the means of gaining a pleasure or avoiding a pain.

These last two show the province of reason in morality.

CORRESPONDENCE.

THE ENGLISH UNIVERSITY SYSTEM OF EDUCATION.

To THE EDITOR,

M. E. Record.

SIR,—I read your leading article on the above subject in the October number of the 'Record' with great pleasure. I think it is high time to protest against the modelling of the Madras University to so large an extent as that of London—if indeed London is worthy of a higher name than that of an Examination Board. Our present Madras Syndicate seems to be entirely carried away with this new fangled system, which just lacks those important elements which have made Oxford and Cambridge so famous. The examining part at the latter Universities is, one of the least important, and certainly the very least in moulding men's characters and making them really men, and not merely stuffed parrots. Our Madras University, *me judice* is an imperfect copy of a most imperfect University, and the result is that the Madras B. A. is oftener ridiculed than respected by men who always look up to an Oxford or Cambridge man. Religion, morality, honesty (in the full sense of the Latin word) and manliness are carefully kept in the back ground; nay, it is considered quite a virtue to fight shy of them, and to talk nonsensical clap-trap about state neutrality, and freedom of thought, &c. And so the educated Hindu, too often conceited from his position as a B. A. and conceited from his (generally) high caste goes forth into the world without any single one of those sterling qualities that go to make up the average

straightforward, briber-and-lie-hating Englishman. I have a great liking for natives; they possess many admirable qualities; but I believe our Madras University (now dominated by a few London Scientists) is subjecting them to the wrong method of treatment.

As you say we have little or no of the *e-duco*, or the development of the mind, and far too much of the *in-struo* or building up of the grand showy edifices on foundations of sand. The modern B. A. can treat you to an elaborate discussion on the origin of the letter Q, but he can't write a chit without making half a dozen mistakes. He can score his one-third marks, and pass his examination in spite of his mistakes, but his so-called education is of the wrong sort, and often makes him contemptible. Mathematics—the thought—*training* science—*par excellence*—is almost crowded out by a host of *instructing* sciences, and so the average Hindu crams his Euclid and Todhunter, scores his minimum, and passes for an educated man.

Accuracy, depth, modesty, and straightforward manliness are qualities which the Madras University does not aim at, and so does not secure. Of course it is terribly handicapped by this wretched caste system which keeps men apart, and so debar the students of that conjoint life, that daily rubbing off of angular points, that cheerful social intercourse, and that mingling and competing in athletic sports which constitute not the least part of the Oxford and Cambridge 'Varsity' Life.

If our Syndicate would try to cope with these difficulties, and not make a point of being so far 'superior to such trifles (?) we might look for improvement in course of time, but the prospect is anything but reassuring.

I am, dear Sir,

Yours, &c.,

CANTAB.

QUESTIONS IN ALGEBRA.

(Continued from Nos. 8 & 9, page 292.)

14. The logarithms of a given number to different bases will be in harmonical progression, if the said bases are in geometrical progression.

15. If $\frac{x(y+z-x)}{\log x} = \frac{y(z+x-y)}{\log y} = \frac{z(x+y-z)}{\log z}$

prove that $x^y \cdot y^z = y^x \cdot z^y = z^x \cdot x^z$.

16. If a, b, c be all positive, prove that $ab(a+b) + bc(b+c) + ac(a+c) > 6abc < 2(a^3 + b^3 + c^3)$.

17. If x, y, z be three positive quantities whose sum is equal to unity, prove that $\left(\frac{1}{x} - 1\right)\left(\frac{1}{y} - 1\right)\left(\frac{1}{z} - 1\right) > 8$.

18. If $xyz = (1-x)(1-y)(1-z)$, the greatest value of either of these equals is $\frac{1}{8}$, x, y, z being each positive and less than unity.

19. How many numbers can be formed with the digits, 1, 2, 3, 4, 5, 6 and 0. How many of them will be divisible by 5; and how many of them will have the digits 3, 0, 5 in the first, fourth and seventh places.

20. If nC_r denote the number of combinations of n things taken r at a time, prove without the aid of the formulæ, that $nC_r = \frac{n}{r} \cdot n - 1 C_{r-1}$.

21. Required the number of words that can be formed out of seven letters, taken all together, each word being such that three given letters are never separated.

22. Find the number of combinations and then the number of permutations of the letters in the word *corroboration* taken 4 at a time.

23. From the extremities A and B of a straight line AB are drawn p straight lines all passing through A and q straight lines all passing through B so that no two of them are parallel. Find the number of triangles that can be formed with these $p + q + 1$ straight lines.

24. Find the greatest terms in the expansions of

(1) $\left(3 + \frac{1}{x}\right)^{209}$, (2) $\left(1 + \frac{1}{x}\right)^3$, (3) $\left(1 + \frac{3}{x}\right)^{-4}$, (4) $\left(1 + \frac{1}{x}\right)^{-\frac{1}{2}}$.

25. The co-efficient of x^{n+4} in the expansion of $\frac{(1+x)^n}{(1-x)^3}$ is $2^{n-3}(n^2 + 23n + 120)$.

26. To find the co-efficient of x^n in the expansion of $\frac{6x-7}{(x-1)(x-2)(x-3)}$.

27. The sum of the first n co-efficients in the expansion, in ascending powers of x , of $\frac{(1+x)^n}{(1-x)^3}$ is $2^{n-4} \cdot \frac{n(n+2)(n+7)}{3}$.

28. Prove that $nC_r = n + 2C_r - 2 \cdot n + 2C_{r-1} + 3 \cdot n + 2C_{r-2} \dots + (-1)^r(r+1)$

29. Prove that $\left(\frac{1+2x}{1+x}\right)^n = 1 + n \cdot \frac{x}{1+2x} + \frac{n(n+1)}{2} \left(\frac{x}{1+2x}\right)^2 + \dots$

30. $1 - n \cdot \frac{1+x}{1+nx} + \frac{n(n-1)}{2} \cdot \frac{1+2x}{(1+nx)^2} - \frac{n(n-1)(n-2)}{6} \cdot \frac{1+3x}{(1+nx)^3} + \dots = 0$.

SOLUTIONS.

$$14. a^x = b^y = c^z = \&c. \dots\dots$$

$$\text{Let } a^x = b^y = c^z = \dots\dots = p.$$

$$\therefore a = p^{\frac{1}{x}}, b = p^{\frac{1}{y}}, c = p^{\frac{1}{z}} \dots\dots$$

$$\therefore a \cdot c = p^{\frac{1}{x}} \cdot p^{\frac{1}{z}} = p^{\frac{1}{x} + \frac{1}{z}} \text{ and } b^2 = p^{\frac{2}{y}}$$

But $ac = b^2$, because a, b, c are in G. P.

$$\therefore p^{\frac{1}{x} + \frac{1}{z}} = p^{\frac{2}{y}} \therefore \frac{1}{x} + \frac{1}{z} = \frac{2}{y}$$

$$\therefore \frac{1}{x}, \frac{1}{y}, \frac{1}{z} \text{ are in A. P.}$$

(i. e.) x, y, z are in H. P.

In this way it can be shown that if any number of terms $a, b, c, \&c.$, and $x, y, z, \&c.$, are connected by the above relation and if $a, b, c, \&c.$, are in G. P., $x, y, z, \&c.$, will be in H. P.

$$15. \frac{x(y+z-x)}{\log x} = \frac{y(x+z-y)}{\log y} = \frac{z(x+y-z)}{\log z}$$

$$\therefore \frac{y+z-x}{x+z-y} = \frac{y \cdot \log x}{x \cdot \log y} \text{ and } \frac{x+z-y}{x+y-z} = \frac{z \cdot \log y}{y \cdot \log z}$$

$$\therefore \frac{2z}{x+z-y} = \frac{x \log y + y \log x}{x \log y} \text{ and } \frac{x+z-y}{2x} = \frac{z \cdot \log y}{y \log z + z \log y}$$

$$\therefore \frac{2z(x+z-y)}{2x(x+z-y)} = \frac{(x \log y + y \log x)(z \log y)}{(y \log z + z \log y)(x \log y)}$$

$$\therefore \frac{x \log y + y \log x}{y \log z + z \log y} = 1$$

$$\therefore x \log y + y \log x = y \log z + z \log y.$$

$$(i. e.) \log y^x + \log x^y = \log z^y + \log y^z$$

$$(i. e.) \log (x^y \cdot y^x) = \log (z^y \cdot y^z)$$

$$\therefore x^y \cdot y^x = y^z \cdot z^y.$$

Similarly, it can be shown that $z^x \cdot x^z = x^y \cdot y^z$.

$$\therefore x^y \cdot y^z = z^y \cdot y^z = x^z \cdot x^y.$$

$$16. ab(a+b) + bc(b+c) + ca(c+a)$$

$$= a(b^2 + c^2) + b(a^2 + c^2) + c(a^2 + b^2)$$

$$\text{But } b^2 + c^2 > 2bc$$

$$a^2 + c^2 > 2ac$$

$$a^2 + b^2 > 2ab$$

$\therefore$ the given expression is greater than

$$a \cdot 2bc + b \cdot 2ac + c \cdot 2ab (i. e.) > 6abc.$$

Again,

$$2(a^3 + b^3 + c^3) - ab(a+b) - bc(b+c) - ca(c+a) \\ = (a^3 + b^3) - ab(a+b) + (b^3 + c^3) - bc(b+c) + (a^3 + c^3) - ca(c+a) \\ = (a+b)(a-b)^2 + (b+c)(b-c)^2 + (c+a)(c-a)^2$$

But since a, b, c are positive quantities, the expression $(a+b)(a-b)^2 + (b+c)(b-c)^2 + (c+a)(c-a)^2$ is positive.

Therefore $2(a^3 + b^3 + c^3) - ab(a+b) - bc(b+c) - ca(c+a)$ is positive.

$$\therefore ab(a+b) + bc(b+c) + ca(c+a) < 2(a^3 + b^3 + c^3)$$

But we have shown that

$$ab(a+b) + bc(b+c) + ca(c+a) > 6abc$$

$$\therefore ab(a+b) + bc(b+c) + ca(c+a) > 6abc < 2(a^3 + b^3 + c^3).$$

$$17. \left(\frac{1}{x} - 1\right) \left(\frac{1}{y} - 1\right) \left(\frac{1}{z} - 1\right)$$

$$= (1-x)(1-y)(1-z) \cdot \frac{1}{xyz}$$

$$\text{But } x+y+z=1$$

$$\therefore \text{the given expression equals } \frac{(x+y)(x+z)(y+z)}{xyz}.$$

$$\text{But } x+y > 2\sqrt{xy}$$

$$y+z > 2\sqrt{yz}$$

$$z+x > 2\sqrt{zx}$$

$$\therefore (x+y)(x+z)(y+z) > 2\sqrt{xy} \cdot 2\sqrt{yz} \cdot 2\sqrt{zx} (i. e.) > 8xyz.$$

$$\therefore \text{the given expression is greater than } \frac{8xyz}{xyz} \text{ or } 8.$$

$$18. xyz = (1-x)(1-y)(1-z).$$

Since each of x, y, z is positive and less than unity,

$$\text{let } x = \frac{a}{a+1}, y = \frac{b}{b+1}, z = \frac{c}{c+1} \text{ where } a, b, c \text{ are positive.}$$

$$\text{Then } \frac{a}{a+1} \cdot \frac{b}{b+1} \cdot \frac{c}{c+1} = \frac{1}{a+1} \cdot \frac{1}{b+1} \cdot \frac{1}{c+1}$$

$$\therefore abc = 1$$

$$\therefore xyz = \frac{abc}{(a+1)(b+1)(c+1)} = \frac{1}{(a+1)(b+1)(c+1)}$$

xyz will have its greatest value when

$$(a+1)(b+1)(c+1) \text{ is least.}$$

$$\text{The least value of } a+1 = 2\sqrt{a}$$

$$\text{of } b+1 = 2\sqrt{b}$$

$$\text{of } c+1 = 2\sqrt{c}$$

$$\therefore \text{the least value of } (a+1)(b+1)(c+1) = 8\sqrt{abc} = 8.$$

$$\therefore \text{maximum value of } xyz = \frac{1}{8}.$$

Another method.

$$xyz = (1-x)(1-y)(1-z)$$

$$\therefore \frac{xyz}{1-z} = \frac{(1-x)(1-y)}{xy}$$

$$\therefore z = \frac{(1-x)(1-y)}{xy + (1-x)(1-y)}$$

$$\therefore xyz = \frac{xy(1-x)(1-y)}{xy + (1-x)(1-y)}$$

Therefore xyz will be a maximum when $xy(1-x)(1-y)$ is greatest and $xy + (1-x)(1-y)$ is least.

The expression $xy + (1-x)(1-y)$ is least when $xy + (1-x)(1-y) = 2\sqrt{xy(1-x)(1-y)}$

$$(i.e.) xy = (1-x)(1-y) \text{ or } x + y = 1.$$

Therefore $xy(1-x)(1-y)$ must be a maximum subject to the condition that $x + y = 1$.

$$\text{Since } x + y = 1, xyz = \frac{xy \cdot y \cdot x}{2xy} = \frac{1}{2} xy.$$

$$\text{Now } xy = \frac{1}{4} (x+y)^2 - x^2 - y^2 = \frac{1}{4} (1 - x^2 - y^2)$$

$$\therefore xy \text{ is a maximum when } (x-y)^2 = 0 \text{ (i.e.) } x = y.$$

$$\text{And in that case } xy = \frac{1}{4} \text{ and } xyz = \frac{1}{4} \cdot \frac{1}{2} = \frac{1}{8}$$

$$19. \quad 1, 2, 3, 4, 5, 6, 0$$

There are seven digits and we can form $[7]$ numbers taking all of them together; but in some of the numbers above counted we have zero in the first place. The number of numbers in which zero comes first is obviously the number of permutations of the remaining 6 digits taken altogether (i.e.) $[6]$

$\therefore$ we can form $[7] - [6]$ or 6 $[6]$ numbers with the digits above given.

Secondly, the number of the above numbers divisible by 5 is the sum of the numbers of them that end in 5 and 0.

Number of them that end in 5 is the same as the number of numbers that can be formed with the remaining digits taken all together (i.e.) $[6] - [5]$ or $[5]$.

Again the number of numbers that end in 0 is equal to the number of permutations of 6 things taken altogether (i.e.) $[6]$. Therefore the number of numbers divisible by 5 = $[5] + [6] = 11$. $[5]$

Thirdly, the number of numbers that have 3, 0, 5 in the 1st, 5th and 7th places is equal to the number of permutations of 4 things taken all together namely $[4]$.

20. Let nC_r represent the number of combinations of n things taken r at a time. Let there be n letters $a, b, c, d, e, f, \dots$; remove one of the letters a (say) and take the remaining $n-1$ letters $r-1$ at a time. This is represented by $n \cdot n-1 C_{r-1}$. Now bring in a with each of these sets; we have $n-1 C_{r-1}$ sets of r

letters each, in which a occurs; the same in which b occurs; the same in which c occurs; and so on. Hence we have $n \cdot n-1 C_{r-1}$ sets of r letters each. But it must not be forgotten that in this $n-1 C_{r-1}$ sets, we have counted each set r times, since each set contains r letters. Take for instance any set $a, b, c, d, \dots, k$ containing r letters. This set, we see, is a set which contains each of $a, b, c, d, \dots, k$; and the same set contains every other letter in that set r in number. Since we have added all these sets together, we have taken the set $a, b, c, d, \dots, k$ as many times over as there are letters in it (i.e.) we have taken it r times; for the same reason each set of r letters has been taken r times.

$$\text{Therefore } nC_r = n \cdot n-1 C_{r-1}.$$

21. To find the number of words that can be formed out of seven letters taken all together each word being such that three given letters are never separated.

Let a, b, c, d, e, f, g be the seven letters and a, b, c the three letters in the words that are never separated.

Remove the letters a, b, c ; and let us find the number of words that can be formed with the remaining four letters d, e, f, g taken all together.

The number of words that can be formed with four letters, all together is $[4]$. Now introduce the letters a, b, c into each of these words. Taking any words d, e, f, g , we can put in a, b, c , before d or e or f or g or after g . So there are five ways of introducing a, b, c into any one of the $[4]$ words that can be formed of four letters taken all together. So the number of ways of introducing a, b, c into those $[4]$ words = $5 [4]$.

But the three letters, without being separated, can be arranged among themselves in $[3]$ ways. Therefore the number of words that can be formed with seven letters taken all together, such that three given letters are never separated is $5 \cdot [4] \cdot [3]$.

22. corroboration.

This word has 4o's, 3r's, 1c, 1b, 1a, 1t, 1l, and 1n (i.e.) 4o's, 3r's and six other letters, all unlike.

First, let us find the number of combinations of these words taken four at a time, in which all the letters are unlike. Since there are eight unlike letters in this word, the number of combinations of them taken four at a time is equal to $\frac{[8]}{[4] \cdot [4]}$ and since each of these combinations produce $[4]$ different permutations, the number of permutations of them taken four at a time = $\frac{[8]}{[4] \cdot [4]} \cdot [4] = \frac{[8]}{[4]}$.

Secondly, let us find the number of combinations of four words, in which there are two like and two unlike letters (i.e.) those in which o occurs twice and r occurs twice. Now the number of combinations of four words in which o only occurs twice is equal to the number of

combinations of the remaining seven unlike letters taken two at a time (i. e.) $\frac{17}{2 \cdot 5}$; and the number of combinations of four words in which r only occurs twice, is the same (i. e.) $\frac{17}{2 \cdot 5}$. Therefore the number of combinations of four words in which there are 2 like and 2 unlike letters $= 2 \cdot \frac{17}{2 \cdot 5}$. And since each of these combinations produces $\frac{4}{2}$ permutations, the number of permutations of four words of 2 like and 2 unlike letters $= 2 \cdot \frac{17}{2 \cdot 5} \cdot \frac{4}{2}$.

Thirdly, let us find the number of combinations of 4 words of 3 like letters and one unlike letter (i. e.) those in which l occurs thrice and r occurs thrice.

The number of combinations in which l occurs thrice is equal to the number of combinations of the remaining 7 unlike letters taken one at a time (i. e.) 7; and the number in which r occurs thrice is also 7.

Therefore the number of combinations of four words of three like letters and one unlike letter $= 2 \cdot 7$. And since each of these combinations produces $\frac{4}{3}$ permutations, the number of permutations of four words of three like letters and one unlike letter $= 2 \cdot 7 \cdot \frac{4}{3}$.

Fourthly, since we have 4 o 's, we can have one combination of four like letters; and this can produce only one permutation.

Fifthly, we can form one combination with 2 o 's and 2 r 's (with two sets of two like letters each); and this single combination produces $\frac{4}{2 \cdot 2}$ permutations.

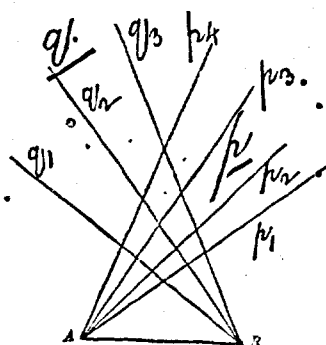
Thus we have exhausted all the possible combinations and permutations of the letters in the word *corroboration* taken four at a time.

Therefore the whole number of combinations alone

$$= \frac{16}{4 \cdot 4} + 2 \cdot \frac{17}{2 \cdot 5} + 2 \cdot 7 + 1 + 1 = 70 + 42 + 14 + 2 = 128.$$

And the number of permutations

$$= \frac{18}{4 \cdot 4} \cdot 4 + 2 \cdot \frac{17}{2 \cdot 5} \cdot \frac{4}{2} + 2 \cdot 7 \cdot \frac{4}{3} + 1 + 1 \cdot \frac{4}{2 \cdot 2} \\ = 8 \cdot 7 \cdot 6 \cdot 5 + 2 \cdot 7 \cdot 6 \cdot 3 \cdot 2 + 2 \cdot 7 \cdot 4 + 1 + 2 \cdot 3 \\ = 1680 + 504 + 56 + 1 + 6 = 2247.$$



23. Let AB be the given straight line, and let p and q straight lines be drawn through A and B respectively, so that no two of them are parallel; to find the number of triangles that can be formed with these $p + q + 1$ straight lines.

First, let us consider all those triangles which have AB for their base. Now any one of the p straight lines through A and any one of the q straight lines through B , can with AB form a triangle. Therefore the number of triangles which have AB for their base is the same as the number of ways in which two straight lines can be selected from the p and q straight lines through A and B respectively (one from p and one from q) (i. e.) pq .

Secondly, let us consider those triangles which are formed by one straight line from the p straight lines and two straight lines from the q straight lines. We can select one straight line from the p lines in p ways and 2 straight lines from the q lines in $\frac{q(q-1)}{2}$ ways, so that the number of triangles formed by one of the p lines with two of the q lines $= p \cdot \frac{q(q-1)}{2}$.

Thirdly, the number of triangles that can be formed by one of the q lines with two of the p lines $= q \cdot \frac{p(p-1)}{2}$.

Hence the whole number of triangles that can be formed with these $p + q + 1$ straight lines $= pq + \frac{pq(p-1)}{2} + \frac{pq(q-1)}{2}$
 $= \frac{pq}{2} (2 + p - 1 + q - 1) = \frac{pq(p+q)}{2}$.

24. To find the greatest terms in the expansions of

$$(1) \left(3 + \frac{1}{3}\right)^{209} \quad (2) \left(1 + \frac{5}{2}\right)^3 \quad (3) \left(1 + \frac{3}{5}\right)^{-4} \quad (4) \left(1 - \frac{12}{13}\right)^{-4} \\ (1) \left(3 + \frac{1}{3}\right)^{209} = 3^{209} \left(1 + \frac{1}{9}\right)^{209}.$$

The greatest term of $\left(3 + \frac{1}{3}\right)^{209}$ is the greatest term of $\left(1 + \frac{1}{9}\right)^{209}$ into 3^{209}

In the expansion $(1+x)^n$ where n is a positive integer, the greatest term is the $p+1^{\text{th}}$ or the $q+1^{\text{th}}$, according as $\frac{(n+1)x}{1+x}$ is an integer p or an improper fraction equal to $q+f$.

Here $\frac{(n+1)x}{1+x} = \frac{209+1}{1+\frac{1}{2}} = 21$. Therefore the 21st and 22nd terms are the greatest terms of $(3+\frac{1}{2})^{209}$,

$$(2) \left(1 + \frac{5}{2}\right)^{\frac{3}{2}}$$

In the expansion of $(1+x)^n$ where n is a positive fraction, the number of terms is infinite, and consequently if x is greater than unity, there can be no greatest term, for after a certain very large number of terms, each term is obtained by multiplying the preceding by $\left(\frac{n+1}{r} - 1\right)x$ (i. e.) by x (nearly) and thus the terms go on increasing for ever. But if we consider those terms of the expansion which we obtain before the multiplying factor becomes negative, then if $\frac{(n+1)x}{1+x} = p$ (an integer), the p^{th} and $p+1^{\text{th}}$ are the greatest terms and if $\frac{(n+1)x}{1+x} = q+f$ (a proper fraction), the $q+1^{\text{th}}$ is the greatest.

$$\text{In the 2nd case } \frac{(n+1)x}{1+x} = \frac{(3+1)\frac{1}{2}}{1+\frac{1}{2}} = \frac{25}{14} = 1\frac{11}{14}.$$

Therefore the 2nd term is the greatest.

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

The greatest term in the expansion of $(1+x)^{-n}$ is the p^{th} or the $p+1^{\text{th}}$ or the $q+1^{\text{th}}$ according as $\frac{(n-1)x}{1-x}$ is an integer (p) or is equal to an integer (q) + f (a proper fraction).

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

∴ the 5th term is the greatest term in $(1+\frac{1}{2})^{-4}$

(4) $\left(1 - \frac{12}{13}\right)^{-\frac{4}{3}}$. The greatest numerical term of $\left(1 - \frac{12}{13}\right)^{-\frac{4}{3}}$ is the same as the greatest numerical term of $\left(1 + \frac{12}{13}\right)^{-\frac{4}{3}}$

$$\frac{(n-1)x}{1-x} = \frac{\left(\frac{4}{3}-1\right)\frac{12}{13}}{1-\frac{12}{13}} = \left(\frac{4}{3}-1\right)12 = 4.$$

∴ The 4th and 5th are the greatest terms of $\left(1 - \frac{12}{13}\right)^{\frac{4}{3}}$

25. Find the co-efficient of x^{n+4} in the expansion of $\frac{(1+x)^n}{(1-x)^3}$.

$$\begin{aligned} \frac{(1+x)^n}{(1-x)^3} &= (1+x)^n \cdot (1-x)^{-3} = \left\{2 - (1-x)\right\}^n (1-x)^{-3} \\ &= \left\{2^n - n \cdot 2^{n-1} \cdot (1-x) + \frac{n(n-1)}{2} \cdot 2^{n-2} \cdot (1-x)^2 - \dots\right\} (1-x)^{-3} \\ &= 2^n (1-x)^{-3} - n(2^{n-1}) \cdot (1-x)^{-2} \\ &\quad + \frac{n(n-1)}{2} \cdot (2^{n-2}) \cdot (1-x)^{-1} + \&c. \dots \end{aligned}$$

The terms after the 3rd in the expansion of $\{2 - (1-x)\}^n$ are left out because they do not, when multiplied by $(1-x)^{-3}$, go on indeterminate.

Co-efficient of x^{n+4} in

$$\begin{aligned} 2^n (1-x)^{-3} &= \frac{3 \cdot 4 \cdot 5 \dots (3+n+4-1)}{[n+4]} \cdot 2^n \\ &= 2^n \cdot \frac{n(n+5)(n+6)}{2} = 2^{n-1} (n+5)(n+6). \end{aligned}$$

Co-efficient of x^{n+4} in

$$\begin{aligned} -n \cdot 2^{n-1} \cdot (1-x)^{-2} &= -n \cdot 2^{n-1} \cdot \frac{2 \cdot 3 \cdot 4 \dots (2+n+4-1)}{n+4} \\ &= -n \cdot 2^{n-1} \cdot (n+5). \end{aligned}$$

Co-efficient of x^{n+4} in

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

Therefore the co-efficient of x^{n+4} in the expansion of $\frac{(1+x)^n}{(1-x)^3}$ is equal to

$$\begin{aligned} &2^{n-1} \cdot (n+5)(n+6) - 2^{n-1} \cdot n(n+5) + 2^{n-3} \cdot n(n-1) \\ &= 2^{n-3} \left\{ 2^2 (n+5)(n+6) - 2^2 \cdot n(n+5) + n(n-1) \right\} \\ &= 2^{n-3} (4n^2 + 44n + 120 - 4n^2 - 20n + n^2 - n) \\ &= 2^{n-3} (n^2 + 23n + 120). \end{aligned}$$

$$26. \frac{6x-7}{(x-1)(x-2)(x-3)} = \frac{A}{x-1} + \frac{B}{x-2} + \frac{C}{x-3} \text{ (say).}$$

$$\text{Then, } 6x-7 = A(x-2)(x-3) + B(x-1)(x-3) + C(x-1)(x-2)$$

$$\text{(i. e.) } 6x-7 = x^2(A+B+C) - x(5A+4B+2C) + 6A+3B+2C.$$

Since this is to be true for all values of x , we must equate the co-efficient of the like powers of x , by the method of indeterminate co-efficients.

$$\begin{cases} A + B + C = 0 \\ 5A + 4B + 3C = -6 \\ 6A + 3B + 2C = -7 \end{cases} \therefore \begin{cases} A - B - C = -7 + 6 = -1 \\ 2A = -1 \therefore A = -\frac{1}{2} \\ 3B + 2C = -4 \text{ and } B + C = \frac{1}{2} \\ B = -5 \text{ and } C = \frac{11}{2} \end{cases}$$

$$\therefore \frac{6x-7}{(x-1)(x-2)(x-3)} = \frac{-\frac{1}{2}}{x-1} + \frac{-5}{x-2} + \frac{\frac{11}{2}}{x-3}$$

$$= \frac{\frac{1}{2}}{1-x} + \frac{\frac{5}{2}}{1-\frac{x}{2}} - \frac{\frac{11}{2}}{1-\frac{x}{3}} = \frac{1}{2}(1-x)^{-1}$$

$$+ \frac{5}{2}\left(1-\frac{x}{2}\right)^{-1} - \frac{11}{6}\left(1-\frac{x}{3}\right)^{-1}$$

The co-efficient of x^n in $\frac{1}{2}(1-x)^{-1}$ is $\frac{1}{2}$

The co-efficient of x^n in $\frac{5}{2}\left(1-\frac{x}{2}\right)^{-1} = \frac{5}{2}\left(\frac{1}{2}\right)^n = \frac{5}{2^{n+1}}$

The co-efficient of x^n in $-\frac{11}{6}\left(1-\frac{x}{3}\right)^{-1} = -\frac{11}{6}\left(\frac{1}{3}\right)^n$

$$= -\frac{11}{2 \cdot 3^{n+1}}$$

Therefore the co-efficient of x^n in

$$\frac{6x-7}{(x-1)(x-2)(x-3)} = \frac{1}{2} + \frac{5}{2^{n+1}} - \frac{11}{2 \cdot 3^{n+1}}$$

27. To find the sum of the first n co-efficients of the expansion, in ascending powers of x , of $\frac{(1+x)^n}{(1-x)^3}$.

$$\text{Let } \frac{(1+x)^n}{(1-x)^3} = 1 + P_1 x + P_2 x^2 + P_3 x^3 \dots P_n x^n + \dots$$

$$(1-x)^{-1} = 1 + x + x^2 + x^3 + x^4 \dots x^n \dots$$

$$\therefore (1+x)^n \cdot (1-x)^{-1} = (1 + P_1 x + P_2 x^2 + P_3 x^3 \dots P_n x^n \dots)$$

$$(1+x+x^2 \dots x^n \dots)$$

Therefore the co-efficient of x^{n-1} in the expansion of $(1+x)^n \cdot (1-x)^{-1}$ is equal to the co-efficient of x^{n-1} in the product of

$(1 + P_1 x + P_2 x^2 \dots P_n x^n \dots)$ and $(1 + x + x^2 + x^3 \dots x^{n-1})$

The co-efficient of x^{n-1} in the latter is equal to $1 + P_1 + P_2 + P_3 \dots P_n$

