

PAPERS

RELATING TO THE

EXAMINATION OF CANDIDATES

FOR

SENIOR SCHOLARSHIPS

IN THE

ELPHINSTONE AND POONA COLLEGES

FOR

1858-59.

BOMBAY:

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POONA:

Office of the Director of Public Instruction,
20th August 1859.

To H. YOUNG, Esq.

Chief Secretary to Government, General Department.

SIR,—I have the honour to hand up the original Report of the Examiners for Senior Scholarships of the Elphinstone and Poona Colleges, together with copy of a Memorandum which I have addressed to the Principals of the Colleges respectively.

2. I have pleasure in recording the names of the following young men who have been favourably mentioned by the examiners :—

ELPHINSTONE COLLEGE.

Bulwuntrao Ramcristna,	Mathematics.
Ardaseer Pestonjee,	ditto.
Framjee Sorabjee,	ditto.
Bala Mungesh,	ditto.
Narayen Mahadeo,	ditto.
Ootumram Nurbheram,	ditto, Guzeratee, and Chemistry.
Mahadajee Vishnoo,	Vernacular.
Heerjeebhoy Aspendiarjee,	ditto, also English.
Dulputram Jeevunram,	ditto.
Kristnajee Bapoojee,	ditto.
Wamon Abajee,	ditto.
Muncherjee Dinshaw,	English.

POONA COLLEGE.

Nana Thosur,	English.
Wamon Bapat,	ditto.
Nowrojee Pudomjee,	ditto.
Damodur Juggonath,	ditto.
Dorabjee Puddumjee,	ditto.
Kristna Gokhlee,	Mathematics.
Narrayen Gokhlee,	ditto.

I have the honour, &c.

(Signed) E. I. HOWARD,
Director of Public Instruction.

To E. I. HOWARD, Esq.,
Director of Public Instruction.

SIR,—We have the honour to submit the following Report on the Senior Scholarship Examinations of the Elphinstone and Poona Colleges, the results of which, in the award of scholarships and free-studentships, have been already made public.

2. The primary object of the examination being the award of scholarships, it also served the purpose, like the "collections" of an English university, of a periodical test of the progress and attention to their studies of the whole body of students. There were thus three classes of examinees, viz., those who were competing directly for scholarships,—those who had previously obtained them, but who, their progress not having answered the expectations formed of them, had been directed to undergo examination in order to maintain their title to the unexpired period of their scholarships,—and, lastly, those who underwent it simply as a college exercise. It was conducted on the principles laid down in your Notification dated May 29th, 1858, which is subjoined as Appendix A to this report. It commenced on Monday, April 25th, and continued during the week subjoined.

3. The papers which were set are in the Appendix. Their number is the result of the latitude allowed to the students in selecting their English books and voluntary subjects, so varied a list having been given in by them as to render necessary the preparation of more than thirty papers in the department of English literature. It might be advisable to place, in future, some restriction on their choice, *e. g.* to give out a list of ten or twelve standard works, half prose and half poetry,*—a plan which, while giving an ample margin for the individual taste of each student, would tend to direct it to a certain extent, and would also save the labour and difficulty, on the part of the examiners, of framing and arranging into the first and second paper so many sets of questions, and in some cases of consulting the books themselves to verify the answers, which has entailed some delay in making public the result of the examination. Specimens of the best answering are also appended.

4. We proceed, without further preface, to the general details of the examination.

* This suggestion has been adopted. See Senior Scholarship Standard for 1860.—E. I. H.

ELPHINSTONE COLLEGE, BOMBAY.

5. *Number of Students.*—Thirty-four presented themselves for examination. Of these 4 were fourth-year men, 6 third-year, 12 second, and the remainder first.

6. The member of our Board who undertook the English department reports as follows:—

“*Handwriting.*—This, though in some instances laboured, is universally clear and legible, and some is remarkably good. I may mention, in especial, Muncherjee Dinshaw, Bhaee Ramchunder, Dinshaw Jewanjee, and Annundrao Harishunkur.

“*Spelling.*—This is generally correct; but there are often faults, which appear the result of hurry or carelessness. I find repeatedly ‘vallid,’ ‘pallace,’ ‘marrige,’ ‘chalange,’ &c., and this sometimes when the word so mis-spelt is actually printed in the questions, and under the student’s eye. ‘Plular’ for *plural*, which seems the consequence of some confusion of ear, often occurs. In a paper on Warren Hastings, the Chief Justice is introduced as Sir *Eliza* Impey; and elsewhere one student, with the question before his eyes, has given the answer, ‘A Sardonic grim is a surpressed grim.’

“*Grammar and Idiom.*—In the papers I have examined, these are generally not more than mediocre. The following are the most common faults: ‘the’ is often omitted, and as often wrongly inserted; ‘will’ and ‘shall,’ ‘could,’ ‘would,’ and ‘should’ are interchanged, and there is great confusion in the sequence of tenses. There is often a straining after fine words without a clear idea of their meaning, which produces the most grotesque effect.

“One mistake deserves particular notice, because almost universal,—the application of the term ‘third person’ to nouns in parsing. This odd grammatical distinction I found so general, that I concluded it must be a peculiar fancy of some one of the instructors; but I understand that they have been repeatedly corrected on this point. They should be informed, therefore, that persistence in this error has told against every man in whose papers it was found.*

“The English of Heerjeebhoy Aspendiarjee and Muncherjee Dinshaw, though not free from occasional mistakes, is remarkably easy and idiomatic, and deserves especial mention.

* *Person* is attributed to nouns in common grammars, such as Hiley’s. It is a superfluous distinction, but not, I apprehend, incorrect.—E. I. H.

" *English Literature Papers.*—In the paraphrases and longer questions given in these, a good general comprehension of the author's meaning has been usually evinced. Of the shorter questions, on allusions, &c., I can hardly speak as favourably. In some cases, the writer, without giving any direct answer, has dragged in a quantity of irrelevant matter, as if to show that he knew something, though not what was required. Frequently the object of the question has not been understood, and a bold verbal paraphrase has been given, leaving the point or allusion unexplained; while in some instances, where the student has been completely ignorant of the right answer, the most reckless guesses have been made at one. This is illustrated sufficiently by the answers given to the following question, set from a book (Goldsmith's *Citizen of the World*), which was taken up by a considerable number of students:—

" Explain:—

" He has infinite taste, *that is flat.*"

To this, besides the correct answer, we have the following:—1. 'His tastes are varied and innumerable, but a detailed enumeration of them is flat, *i. e.* disgusting.' 2. 'That is flat,—*i. e.* is not according to the temper of the time?' while a third has ingeniously twisted the sentence into the following singular axiom,—'He *that is flat of body* has an infinity of tastes in him.' (!) Such extreme cases as these are confined to the first and second-year men; but traces of similar carelessness sometimes appear even among the senior students.

" There are some favourable exceptions to the generally rather loose and prolix style of answering. The papers of Ardaseer Pestonjee are clearly and sensibly expressed, without pretension or waste of words.

" During the first English literature paper, I regret to say that, owing to a misunderstanding, the arrangements as to chairs and tables were imperfect, and the students being seated too near each other, some copying went on. To this is owing that some stupid mistakes, which disfigure the answers to this paper, are reproduced in almost half the number of papers sent in. Steps were taken at once, and I believe with success, to put a stop to this dishonest and short-sighted practice.

" *Logic.*—According to the terms of the notification, this paper was drawn up in a twofold form containing questions for (1), the lower;

(2), the higher standard. On re-consideration, the paper did not appear sufficiently hard for this purpose; but as none of the candidates took up the higher, the error was remedied by instructing them to answer as many of the whole number of questions as they could, the paper thus serving as a lower standard one. The answers generally evince a fair comprehension of the rudiments of logic. The best paper is that of Bala Mungesh.

“Essays and Voluntary Subjects.—Of the writing and expression of the first of these I can speak favourably; specimens of them are given in the Appendix. The subjects given have been, as a rule, sensibly treated, especially by Bala Mungesh and one or two others, but by some writers with a singular confusion of ideas. The writer of one essay, Mahadeo Govind, has thought fit to indulge in foolish and impertinent expressions about the Government which is educating him, and has thus forfeited the marks attached to the longer essay. His shorter one, which is free from such blemishes, is given in the Appendix. The voluntary subject papers are, I think, the best in the whole examination, and evince recollection and intelligence.

“Grammar and Philology.—Not very good. About half the students have gained half-marks, or more, for this paper; none seventy-five per cent. Many of the etymologies given are the result of mere guess-work; and the questions have been frequently misunderstood.

“Vivâ Voce.—This part of the examination was confined to the Elphinstone College, and was introduced as an additional exercise, which my presence on the spot enabled me to give. As the Poona students did not share in it, no marks have been assigned to it in the general list, which would not have been materially modified, had they been assigned. The result was, on the whole, satisfactory. I may mention Narayen Mahadeo, Trimbuckrao Bapoojee, and Mahadeo Govind, as having answered very creditably.”

7. The following is the report of the mathematical examiner on the result of the examination in both colleges:—

“a. In accordance with the terms of a Memorandum, furnished by the Director of Public Instruction for the guidance of the senior scholarship examiners, the mathematical subjects were distributed over two papers.

"The first of these contained questions in arithmetic, algebra to quadratic equations, and the first six books of Euclid. To this paper, which was of an elementary character, twenty marks were to be allotted.

"The second or higher paper comprised Euclid (book XI.), algebra (higher), plane trigonometry, geometrical conics, analytical geometry, and the earlier portion of the differential calculus; and fifty marks might be obtained for these subjects.

"*b.* In the regulations for the examination, it had been ordered that any candidate taking up the higher standard in mathematics, and failing to obtain thirty-five marks for the two papers, should have no marks reckoned to him in the award of scholarships. It appeared to me to be a matter of simple justice to those candidates who had attempted the higher paper, that the standard of required excellence should be materially lowered for that paper. It will be seen that the second paper comprises a variety of subjects. Now any candidate who has read all the subjects so high as geometrical conics, would be justified in attempting that paper; but it is very possible that a candidate might acquit himself creditably in the examination in all subjects so high as geometrical conics, and yet, owing to the unusually severe requirements of the examination, fail to obtain any advantage from his careful course of preparatory study. I had the honour of communicating upon this point with the Director of Public Instruction, and I took the opportunity of indicating (what appeared to me) the very discouraging effect of the proposed arrangement, not only on the candidates themselves, but also on the prosecution of mathematical studies generally at the several Government colleges. Mr. Howard suggested, in reply, that any candidate who should have acquitted himself *fairly* in answering a paper should have half marks awarded him, and that full marks should be given to those only who had exhibited a marked excellence in their papers. I found it difficult, on this principle, to classify the results of the examination. I apprehended, however, that I should not be going beyond the wishes of the Director of Public Instruction, if I were to consider all candidates to have acquitted themselves fairly, who had obtained one-fifth of full marks for the higher paper, and one-half for the lower, *i. e.* who had obtained ten marks, at least, in either paper.*

* The Director of Public Instruction has finally acquiesced in this arrangement.

"c. With regard to the mathematical attainments of the candidates, as exhibited at the late examination, I have the honour to report that the general result was of a most satisfactory character. It could not, in effect, have been obtained without the skilful teaching of no ordinary instructor. The marks of but few of the candidates fell below the required standard of excellence, while the papers of the higher students showed that genuine, thoughtful, and prolonged exertions had been put forth on their part, and not without the reward which usually attends on such efforts. This remark applies in an especial manner to the candidates from the Elphinstone College, and I feel assured that their acquirements in mathematics would compare favourably with those of the upper classes at our public schools at home.

"d. The following candidates exhibited a decided superiority in their papers, displaying an amount of mathematical attainments, in every way creditable to their application :—

"From the Elphinstone College.—Ardaseer Pestonjee, Bulwuntrao Ramcristna, Ootumram Nurbheram.

"From the Poona College.—Kristna Gokhle, Gunesh Narayen Gokhle.

"I would also mention the following candidates as having sent in very excellent papers, in answer to the more elementary questions. Out of the twenty marks allotted to the first paper,—

1. Bulwuntrao Ramcristna	Elph. Coll. obtained	18
2. Ardaseer Pestonjee	" "	17
3. Framjee Sorabjee	" "	17
4. Kristna Gokhle	Poona Coll. "	16
5. Bala Mungesh	Elph. Coll. "	16
6. Narayen Mahadeo	" "	16

"There were other candidates who evidently possessed a taste for mathematical studies, and considerable aptitude for meeting the peculiar difficulties of the subject, whose attainments, however, as shown in the examination, cannot entitle them to be distinguished with the five students first enumerated.

"e. I would here notice the faults which were more generally observable in the papers at the late examination :—An imperfect

acquaintance with the more elementary parts of the subject might, I think, be inferred from the many unsatisfactory definitions given of a 'fraction,' of the 'sine of an angle,' of the 'highest common measure of two algebraical expressions,' and from the fact that the two simple arithmetical problems were solved correctly by a comparatively small number of the candidates, while the ideas entertained by the more advanced students of a 'differential co-efficient,' and of a 'limiting value,' were, in most cases, of the vaguest description. Again, an inaccurate manner of thinking was very generally apparent in the answers given to those questions which involved a certain amount of independent thought in arriving at the required solution. For instance, when asked to 'show that the value of a fraction is not altered by multiplying both numerator and denominator by the same quantity,' the majority of the candidates contented themselves with reiterating the truth of the fact; others illustrated by examples; while, of the few who attempted a proof, the arguments of but one or two could be said to bear any resemblance to a demonstration.

"Perhaps, in the present case, they may be ascribed to an imperfect intercourse, as regards giving and receiving instruction, between the professor and the student; perhaps, also, to the answer being conveyed in a language not native to the candidates. If I were to offer a suggestion, it would be, that by a moderate use of the principle of private tuition, the students be accustomed to write out papers on mathematical subjects, in certain limited times, and aim at neatness and accuracy in the preparation of these 'exercises.' By this means, a habit of close and rapid thinking would be induced, and this is certainly one of the results of a judicious mathematical training.

"*f.* I trust the following remark may not be considered trifling; but I cannot but feel that it will be vain to expect any perfection in the 'style' of replying to examination papers, so long as the candidates are caused to write their answers on the same sheet of paper on which the proposed questions are printed. Whatever may be the motives for the present plan, it cannot but act prejudicially, in so far as it cramps all freedom of action. In an examination in which time is of so much value, too many facilities cannot surely be afforded, with a view to overcoming any annoyances of a mechanical nature.

"g. With regard to future examination papers, I think problems on physical subjects might be advantageously introduced.* The study of applied mathematics forms, I believe, part of the 'course' at the 'senior science school,' being classed under the general head of 'natural philosophy.' A student who has a taste for mechanics, or who has studied with success the sciences of hydrostatics, optics, or astronomy, or who has traced in the 'Principia' of Newton the steps which led to the discovery of the law of gravitation, cannot find a fair field for exhibiting the fruit of his industry, or the bent of his genius, in an examination which comprises only geometrical and analytical subjects. An examination in physical subjects may manifest the possession of qualities, the very existence of which could never have been surmised from a pure analytical test.†

"h. If it be true that examination papers tend to influence the course of study at places of public instruction, then an omission of the character I have alluded to would lead to the neglect of a class of studies, important whether viewed as a means of high mental discipline or in regard to their attractive and valuable results."

8. The examiner in vernacular sends the following remarks:—

"In this branch four papers were given, viz. 1, on grammar and

* "The chair of applied science has been vacant during the year 1857-58. Lectures will however be delivered this year."

† "The Director of Public Instruction has reminded me that the senior scholarship examination is in the middle of the academical course, and presumably attended by second-year men and fresh-men only. This being the case, so advanced a subject as differential calculus should be omitted from the programme of the examination. I have suggested the following scheme of papers to the Director of Public Instruction:—

I. Geometrical.	II. Analytical.	III. Physical.
<ul style="list-style-type: none"> Euclid, I.-VI. Geometrical conics. 	<ul style="list-style-type: none"> Arithmetic. Algebra. Plane trigonometry. Analytical geometry. 	<ul style="list-style-type: none"> Statics. Dynamics. Hydrostatics.

"Any student who has mastered the difficulties of analytical geometry will meet but few obstacles in the study of the elements of the above physical subjects."

Differential calculus has been omitted from the Senior Scholarship Standard of 1860, and physics introduced as a voluntary extra subject.—E. I. H.

and philology; 2, translation (*b*); 3, translation (*a*); and 4, a vernacular essay.

"In grammar and philology Mahadajee Vishnoo and Wamon Abajee answered best amongst the Murathee-speaking students, and Ootumram Nurbheram amongst the Guzerathee-speaking ones. Sixteen out of thirty-four answered 50 per cent. and upwards. There is, however, considerable room for improvement.

"Translation paper (*b*) was attempted by only one student, who failed in doing it even moderately. I believe the college students are not taught to translate in verse, and are unable to translate English verse into vernacular verse, and *vice versa*.

"Translation (*a*). The English passage was fairly translated into the vernacular by the majority of students, the vernacular pieces were not so well rendered into English.

"Nearly one half of the students failed in their vernacular essay. They did not understand what they were asked to write about. Out of fifty-four, only five papers were valued fifty per cent. and upwards, viz. those of Kristnaje Bapajee, Wamon Abajee, Dulputram Jeevunram, Mahadajee Vishnoo, and Heerjeebhoy Aspendiarjee."

9. *Chemistry*.—This subject was only offered by candidates from the Elphinstone College, and is thus briefly commented on by the examiner in the department:—

"I have few remarks to make upon the written answers in chemistry. They were fully equal to those of former years, and were evidently the result of independent reflection. Those of Ootumram Nurbheram were exceedingly creditable.

"The practical testing formed a new feature in the examination. Only three students attempted it, of whom one does not seem to have been present at the written examination. Ootumram Nurbheram was the only student who was tolerably successful. I would not pass a harsh judgment on the failure of the others on this first occasion, but students should remember that without the habit of observation and the tact which can only be acquired by use, the truths of natural science will seldom take a lasting hold of the mind, and that, wanting this, the study will bring but little fruit."

POONA COLLEGE.

10. *Number of Students*.—The number of students who presented themselves for examination was 28; of these 9 were fourth-

year men, 8 third, 3 second, and the remainder first. Considerable delay has been incurred in ascertaining these numbers, owing to the wilful carelessness of the candidates themselves. They were directed (see Paper I., in the Appendix) to enter the date of their entrance at the college according to the form given them; but, with that singular incapacity for obeying a plain order which is often to be observed in this country, they in many instances omitted to do so, and the data supplied were quite inadequate. The proportions here stated had to be subsequently ascertained.

11. The following is the report on the English branch of the examination:—

“*Handwriting.*—That of the papers which I have examined is very fair, though not perhaps quite equal to the writing of the Elphinstone students; and some papers are remarkable for the careless or hurried omission of words and syllables. Some of the best writing is that of Dorabjee and Nowrojee Pudumjee, Bhao Hucee, Munohur Govind, and Gopal Chimnaje.

“*Grammar.*—I can speak favourably on this head. The papers are generally rather more free than those of the Elphinstone students from the mistakes of idiom alluded to in paragraph 3; that of ‘nouns of the third person,’ however, appears not unfrequently. Several of the English essays, though not free from peculiarities, are very well expressed. I may particularise those of Nana Thosur, Wamon Bapat, and Nowrojee Pudumjee.

“*English Literature Papers.*—Many of the questions of these are fairly answered: those which refer to the author’s meaning and to the contents of the book (see above, paragraph 6) are the best. Several of the students, however, do not seem to understand what is meant by paraphrase; and the shorter questions, on allusions, &c., have often not been at all comprehended, the answer failing completely of explaining the point required, and in some cases mixing up two or more questions in the strangest manner. The etymologies in particular give instances of the wildest conjecture, e. g. ‘heaven, from the Latin *heario*, to lift,’ ‘sarcasm, from *sarcus*, black;’ while venial is derived, by different writers, from ‘*rendo*,’ ‘*Venus*,’ ‘*veno*, to come,’ and ‘*vernis*, spring.’

“The paper of Damodur Juggonath on Julius Cæsar deserves especial praise. It shows a good comprehension of the author, joined to a very retentive memory.

" *Logic*.—I have mentioned already the difficulty which arose about this paper, and also how it was disposed of in the case of the Elphinstone students. As the plan adopted, however, did not offer itself until the men were assembled for the paper, it was too late to give the same intimation to the Poona students. Accordingly, the majority have confined themselves to the first division of the paper, although some have answered several of the second portion very creditably. As one has annexed to his paper, 'I know the following questions, but do not attempt them, as I have only taken up the lower standard;' another, 'I know them, but was told by the Principal not to do them;' a third, 'with the permission of the Principal I have answered them;' and a fourth, 'I know them, but was told not to do them by those who have only taken up the lower standard,' (!) it is not easy to discover the real state of the case, but I do not think that such scrupulous abstinence as that professed by No. 1 would have been evinced anywhere but in this country.

" Had there been any competition for scholarships between the two colleges, there would have been considerable difficulty in valuing the papers; but there is none such, the students of each college competing only among themselves. It seemed unfair to give the Poona students twenty marks for only five questions, when the Elphinstone men obtained only twenty for the whole eleven. In this case also, extra marks must have been given to those who answered some of the second division,—a step which was never contemplated. I have therefore settled the question in what appeared the most equitable way. Ten marks have been assigned to the first division of the questions, and the second have been valued according to the previously fixed scale. This seems to meet all cases as nearly as circumstances will allow. Those who took the proper course of consulting the Principal, or who, without asking questions, did all that they could, will obtain the advantage of their industry. The student who says that the Principal forbade him to try the questions, probably labours under some mistake. Those who made a private agreement not to attempt them will pay the penalty of doing so; while in forming an estimate of the comparative logical proficiency of the two colleges, allowance may be made, *à discretion*, for the possibly sincere but (to European ideas) rather suspicious conscientiousness of the remaining body. Damodur Juggonath and Nowrojee Pudumjee have answered the questions

well, and some others very creditably. In consideration to the scrupulous students, all marks gained by them have been counted, even when less than the half number.

“English Essays and Voluntary Subjects.—The essays are generally fair. With one or two exceptions, all have gained half marks, but none have reached 75 per cent. in the longer essay. They are mostly free from gross mistakes, though in one or two instances very oddly expressed. Among the shorter essays, those of Dorabjee and Nowrojee Pudumjee are remarkably good. The former, in especial, is perhaps the best paper that has come before me in any subject. I may take this opportunity to mention the excellent performance of these two students throughout the examination, and the careful and scholarlike style of their papers. Narrayen Kristna's short essay is also good. The voluntary subject papers give very various results. Those of Damodur Juggonath and Nowrojee Pudumjee are the best.

“Grammar and Philology.—This paper is not very good. The questions have often been misunderstood. ‘Construction’ has been usually confounded with ‘derivation,’ and the etymologies are very careless. The average amount of marks on it, however, is fair. This paper affords an instance of what I have before mentioned,—the mixing up of separate questions, which is singular enough to merit quotation. In question 6 (see Appendix), two short passages are given whose construction is to be explained. These one student has *combined*, and given a *paraphrase* of them as follows:—‘But if his sauce was poignant and sharp, and all his gear ready, *it was because his cook was a woe whom neither death nor danger ever could dismay.*’

“Concluding Remarks.—Most of the observations called forth by the examination have already been made in noticing the various subjects. I may mention, in conclusion, as one of the principal faults that struck me, the little *reflection*, as compared with the extent of *memory*, evinced. There is too much learning by heart, and too little independent thinking. This is shown in the many answers given almost in the words of the books, and in the many cases where the terms of the question have not been fairly understood. Again, few students have hesitated to give the Greek or Latin derivation of a word; but, passing over the cases where the answer has been absolute nonsense and conjecture, 75 per cent. of the

correct derivations have been wrongly spelt. In explaining to the students the etymology of the words which they encounter, great care should be taken that the roots which they do learn be correctly learned; while in many cases it would be quite sufficient for them to know that the word is derived from the Latin or Greek, as the case may be. To the ambitious superficiality which has an inaccurate knowledge of everything, all young students, and especially orientals, are quite sufficiently prone. The best papers, on the whole, are decidedly the English essays and the historical papers. Some of these are exceedingly creditable. I may mention, lastly, that in adding up the marks gained by the students, considerable changes were made by the carrying out of the principle laid down in the Director of Public Instruction's notification, that less than half marks gained in any subject should have no value assigned to them in the award of scholarships."

12. The mathematical report for both colleges has been given after paragraph 7. The vernacular part of the examination is thus commented on:—

"In grammar and philology, ten out of twenty-nine answered fifty per cent. and upwards.

"Translation (*b*) was not at all attempted. In translation (*a*) some of the students came out fairly. From the paper, it appeared to me that students of very unequal standing were mixed in this class. The disparity in the merits of the different productions is, in some instances, great.

"Of the twenty-nine competitors, only two have received more than fifty per cent. of marks in vernacular composition; two wrote no essays at all; and seventeen could not make out the subject matter of their essay. The language of some of them was far from being good."

13. The remarks suggested by the perusal of the papers on the several subjects have been given in the separate reports of the members of our Board, at sufficient length to render it unnecessary to say much in conclusion on the general result. Considering the papers quoted in the report of last year's Government examiners to represent the best answering, there does not appear to be much difference between them and those of this year.

14. The defects apparent in the examination to which we may, in concluding, direct attention, are (*a*), the careless and random

style in which some of the papers were done, as shown in cases where the candidates have attempted to give an answer of some sort to questions about which they were totally ignorant; and (b), imperfect or inaccurate knowledge of the ground-work of a subject, on the part of those who have attempted its higher branches to a considerable extent. On the bad effects of these faults, which have been already mentioned in the separate reports, there is no need to dilate. The first of them, which is so repugnant to European ideas of the serious character of an examination as a mental discipline, will be remedied in the natural course of things, as a scholarlike and academic feeling is by degrees established among the students; to the second can only be opposed very careful and systematic cultivation of accurate rudimentary knowledge, and discouragement of prematurely ambitious study.

15. Lastly, we would respectfully recommend to the Director of Public Instruction's consideration, our proposal as to limiting the subjects in literature to be offered by candidates. The books in which, on this occasion, variety and eccentricity of choice have been displayed, are those which the students have offered as subjects after their own private study. To restrict these to the limits of a sufficiently copious list, would have the effect of exercising over the private reading of the students a control and direction similar to that exercised by the college course over their public studies, and, without doing violence to the individual taste of any student, of promoting the perusal, in the first place, of our standard authors, with a view to academical distinction, to a greater extent than is effected by the course of works publicly lectured on in the colleges. With this view we beg to recommend the adoption of the measure.

We have the honour to be,

Sir,

Your most obedient servants,

(Signed)

ROBERT HAINES,
CAWASJEE SHAPURJEE,
WISHWANATH NARAYEN MUNDLIK,
HERBERT M. BIRDWOOD,
W. H. NEWNHAM,

Government Examiners.

Bombay, 3rd August 1859.

APPENDIX A.

NOTIFICATION.

ELPHINSTONE AND POONA COLLEGES.

SENIOR SCHOLARSHIP STANDARD, 1859.

A.—LANGUAGE.

	Marks.
1. ENGLISH BOOKS.	
(a) Lower Standard	20
One book of prose (length of Bacon's Essays)	
One book of poetry (length of a book of Paradise Lost)	
Minimum	
(b) Higher Standard	50
Two books of prose, and two of poetry (as before)	30
Minimum	
2. TRANSLATION of PROSE and VERSE, English and Vernacular :—	
(a) Lower Standard, into prose	20
(b) Higher Standard, into prose and verse	70
	50
3. ORIGINAL COMPOSITION. An Essay.	
(a) Lower Standard, Vernacular	20
(b) Higher Standard, English and Vernacular	50
	20
	30
4. GRAMMAR and PHILOLOGY. English and Vernacular	40

B.—MATHEMATICS.

(a) Lower Standard ; Arithmetic ; Euclid, Books I. — VI. } Algebra to Quadratics	20
(b) Higher Standard ; Arithmetic ; Algebra ; Euclid, } Books I. — VI., and 21 Propositions of Book } XI. ; Trigonometry, including Series ; Geo- } metrical Conics ; Analytical Geometry ; 1st part } of Differential Calculus	70 { 20 50

C.—LOGIC.

	Marks.
(a) Lower Standard ; School Logic from any ordinary compendium	} 20
(b) Higher Standard ; Logic as a subject.....	50

D.—VOLUNTARY SUBJECTS.

One of the following :— 50

1. Chemistry or Botany.
2. History of Greece, Rome, or England,—a *period* to be selected by the candidate.
3. Physical Geography.
4. Sanskrit—Grammar, and Translation from and into English.

Candidates are at liberty to take up either the Higher or Lower standard, (a) or (b), in each branch ; but in the award of Scholarships, no account will be taken of marks gained in any branch unless they amount to one-half of the full number of marks attached to the subject. For instance, if a candidate taking up the Higher Standard in Mathematics, gain less than 35 marks, no marks at all will be counted to him for Mathematics in the award of Scholarships. If any Candidate gain less than half the marks assigned to the Lower Standard of any branch, he will be held disqualified for a Scholarship or Free Studentship.

The examination will commence, at Bombay and Poona, on the fourth Monday in April, and will last for six days, as follows :—

Monday.—English Books (a) and (b) ; Translation (a) and (b).

Tuesday.—Original Composition (a) and (b) ; Grammar, &c.

Wednesday.—Mathematics (a) and (b) ; Logic (a) and (b).

Thursday.—English Books (b) only ; Translation (b) only.

Friday.—Original Composition (b) only ; Mathematics (b) only.

Saturday.—Voluntary Subjects.

Candidates must transmit to the Director of Public Instruction, before the 1st of April, an application for leave to compete, containing a statement of the subjects in the printed standard which they take up for examination, together with certificates that they have not passed their 21st birthday, that they have passed at least

one year in College study, and that they have the permission of the Head of their College to compete for a Senior Scholarship.

Ten Senior Scholarships, and five Free Studentships, will be awarded at the Elphinstone College.

Eight Senior Scholarships, and five Free Studentships, will be awarded at the Poona College.

E. I. HOWARD,

Director of Public Instruction.

Bombay, 29th May 1858.

APPENDIX B.

QUESTIONS

SET AT THE SENIOR SCHOLARSHIP EXAMINATION,

25th to 30th April 1859.

Fill up the following table :—

Name	
Age last Birthday	
College	
Date of entrance	
Scholar or otherwise	
Whether or no Candidate for Senior	}
Scholarship; and if so, at which	
College	

ENGLISH BOOKS.

RASSELAS.

1. Give a short sketch of the plot of this story, and the moral conveyed by it.

2. The *solstitial* rains, and the *equinoctial* hurricanes.

(a) Give the etymology and meanings of the words in italics.

(β) Explain the passage.

3. "One day, as he was sitting on a bank, he *feigned* to himself an orphan virgin robbed of her little portion by a treacherous lover, and crying after him for restitution and redress."

What is the usual meaning of the word *feigned*? and what does it mean here?

Distinguish between *restitution* and *redress*.

4. "The Prince perceived that this was one of those philosophers, whom he should understand less as he heard him more."

Point out the satire in this passage.

5. Give the etymologies and meaning of the following words :—
Lutanist, perspicacity, peculiar, diversion, instilled, querulous.

WARREN HASTINGS.

1. Who was Imhoff? and what transaction took place between him and Hastings?

2. Explain the following expressions :—

(a) Fiefs of the spear.

What vernacular word, used in Revenue business, best corresponds to this?

(b) The *golden days*, when the Affghan princes ruled in the vale of Rohilcund.

(c) "A tempestuous sensibility which domineered over all his faculties."

3. Distinguish "unjust" and "illegal."

2. Explain the expression :—

Gentlemen who *write above their abilities*.

The records of every consultation were filled with *acrimonious minutes*.

5. Give the etymologies and meanings of the following words :—
Option, refund, levée, technical, composure, acquiesce.

HERODOTI EUTERPE.

1. What is Herodotus's opinion of the former state of what is now the country of Egypt? and how does he think it was formed?

2. Explain :—

(a) Men of *mark* and wisdom.

(β) The *Etesian* winds.

(γ) Its *perimeter* is nine *schœnes*.

(δ) The eight gods, who, they say, existed before the twelve.

3. Give Herodotus's reason for the Nile overflowing in summer.

4. "Amasis had been . . . in *no respects seriously given.*"

Paraphrase the words in italics.

5. Give the etymology and meaning of—Trireme, person, mysteries, rituals.

BUTLER'S ANALOGY. Part I.

1. State briefly what Bishop Butler proposes to show in this treatise.

2. Explain :—

(a) Moral discipline.

(β) Necessary agent.

(γ) Free agent.

(δ) Moral obligation.

3. Distinguish Presumption and Probability. How does Presumption tend towards Moral Certainty? .

4. Give as concisely as possible the argument to prove that "necessity, supposed possible and reconcileable with the constitution of things, does not destroy the proof that the author of Nature will render his creatures happy or miserable, as they behave well or ill."

5. Give the etymologies and meanings of—Revelation, credible, prejudiced, tradition, evidence, demonstration.

GOLDSMITH'S TRAVELLER AND DESERTED VILLAGE.

1. (a) For wealth was theirs, *not far removed the date,*
 When commerce proudly flourished through the state.
 At her command the palace learn'd to rise,
 Again the long-fallen column sought the skies.
 The canvas glow'd beyond e'en nature warm,
 The pregnant quarry teem'd with human form.

What is the syntax, and meaning, of the words in italics? Point out the metaphors in this passage. Explain fully the two last lines.

- (β) "No vernal blooms their torpid rocks array,
But winter ling'ring chills the lap of May."

Paraphrase this.

2. Explain the meaning of the following passages :—

- (α) Drags at each remove a lengthening chain.
(β) With patient angle trolls the finny deep.
(γ) While the pent ocean rising o'er the pile,
Sees an amphibious world beneath him smile.
(δ) The twelve good rules, the royal game of Goose.

3. Parse the words in italics :—

- (α) The watch-dog's voice that *bay'd* the whispering wind,
And the loud laugh that *spoke* the vacant mind.
(β) *Passing* rich with forty pounds a year.
(γ) Rocks, by custom, *turn* to beds of *down*.
(δ) Some high festival of *once a year*.

4. Give as shortly as possible a sketch of the purport of the poem of "The Traveller."

5. The etymologies and meanings of the following words :—
Prime, pensive, charity, torrid, florid, amphibious, spendthrift,
presage, mole.

PARADISE LOST. Book I.

His spear, to equal which the tallest pine
Hewn on Norwegian hills, to be the mast
Of some great ammiral, were but a wand
He walk'd with, to support uneasy steps
Over the burning marle, not like those steps
On Heaven's azure: and the torrid clime
Smote on him sore besides, vaulted with fire:
Nathless he so endured, till on the beach
Of that inflamed sea he stood, and called
His legions.

Paraphrase without expanding.

Point out any words here which are (α) unusually spelt, (β) used in an unusual manner.

2. Explain the following passages :—
- (a) Above the Aonian mount.
 (β) The rebel king
 Doubled that sin in Bethel and in Dan,
 Likening his Maker to the grazed ox.
 (γ) Babel and the works of Memphian kings.
 (δ) That Pygmean race
 Beyond the Indian mount.
3. Parse the words in italics :—
- Witness* the streets of Sodom, and that night
 In Gibeah.
 These were the *prime* in order and in might.
 To mitigate and 'suage
 With solemn *touches* troubled thoughts.
 Such *resting* found the sole of unblest feet.
4. Give the etymology and meaning of the following words :—
 Fanatic, horizontal, levied, mineral, nathless, sonorous.
5. Translate into your vernacular :—
- (a) Let us not slip the occasion.
 (β) The rest were long to tell.

—————

LADY OF THE LAKE. Cs. i. ii. iii.

1. Paraphrase :—
- (a) The stag at eve had drunk his fill,
 Where danced the moon on Monan's rill.
 (β) The wily quarry shunn'd the shock,
 And turned him from the opposing rock.
 (γ) My sire's tall form might grace the part
 Of Ferragus, or Ascobart.
2. Parse syntactically the words in italics :—
- (a) *A Douglas thou,*
And skun to wreath a victor's brow.
 (β) As stoops the hawk upon his prey,
 The henchman *shot him* down the way.
 (γ) The best of Loch Lomond lie dead on *her* side.
 (δ) And instant *cross* the lake it shot.

3. Explain :—
- (a) The signal roused to *martial coil*,
The sullen margin of Loch Voil.
 - (β) Banochar's groans to our *slogan* replied
 - (γ) Muster'd his breath, his whinyard drew.
4. Give a short character of Ellen Douglas.
5. Give the etymology and meanings of—Burgeon, monument, suppressed, Naiad.

LADY OF THE LAKE. Cs. iv. v.

1. (a) Red Murdoch, bribed to be his guide,
Has charge to lead his steps aside,
Till in steep path, or dingle brown,
He light on those shall bring him down.
- (β) Each to his post! all know their charge.

Paraphrase.

2. Explain the following expressions :—
- (a) It was a stag, a *stag of ten*,
Bearing his *branches* sturdily.
 - (β) Nor saw I aught could sugar scathe.
 - (γ) Brave Gael, my pass, in danger tried,
Hangs in my belt, and at my side.
 - (δ) FitzJames's blade was sword and shield.
3. What oracle was obtained by the Gaels? and by what ceremony was it obtained?
4. Who was Blanche of Devan?
5. Give the etymology and meaning of the following words :—
Feint, knight, collation, expert, valour.

LAY OF THE LAST MINSTREL.

If thou would'st view fair Melrose aright,
Go visit it by the pale moonlight:
For the gay beams of lightsome day
Gild but to flout the ruins grey.

When the broken arches are black in night,
 And each shafted oriel glimmers white;
 When the cold lights uncertain shower
 Streams on the ruin'd central tower:
*When buttress and buttress alternately
 Seem fram'd of ebon and ivory;*

Then go, but go alone the while,
 And view St. David's ruined pile:
 And home returning, soothly swear
 Was never scene so sad and fair.

Paraphrase without expanding; criticise the passage in italics.

2. (a) The moonbeam kissed the holy pane,
 And threw on the *pavement* a bloody stain.
- (β) The keystone that locked each ribbed aisle
 Was a fleur-de-lys or a quatre-feuille.
- (γ) Alike to him was tide or time,
 Moonless midnight or *matin prime*.
- (δ) He marked the crane on the Baron's crest.

Explain these passages.

3. (a) He was *waspish*, *arch*, and *litherlie*.
- (β) He of his *service* was *full fain*.

Paraphrase the words in italics.

4. Give the etymology and meaning of the following words:—
 Curfew, scutcheon, amice, corbel, alarum, gorse, fell, cairn, tarn,
 sheeking.

5. Quote any passages which illustrate the state of the Border
 at the time of the story.

TRANSLATIONS.

MARATHI.

Translate into English Prose:—

१. कित्ती एक पुरुष भवे अवताहेत, कीं त्यांयामून लोकानस पाहिजे
 तितका उग्रद्व होणे, त्याच्या ते विचारून करित नाहींत; लहानसा एकादा
 त्यांच्या स्वार्थ साधला म्हणजे झाले. एक घर नागनायान सांपडावे म्हणून

सगळी आळीची आळी पेटवितां चोर मागें पुढें पाहत नाहींत. कळ पेटविणारे आहेत ते विचार करित नाहींत कीं, ह्या आपल्या लाजलाविनें कितिकांचा भैत्री तुटतील, व कितिकां कुटुंबांमध्ये विरोध उत्पन्न होतील. राजकारस्थानी पुरुषांमध्ये कित्तीएक असे आहेत कीं जागीं राजकारणांत चौघांचें एकचित्त होऊं देऊंच नये; फुट पाडीत असावें; जेणेकरून लढाया लागून रक्तांचे पूर वाहतील; तसें तसें करित असावें. सर्व राष्ट्रांचें वाटोळें होऊन आपले हातीं सत्ता येते, असें जर आहे, तर तसें करायास ते अनमान करित नाहींत. रांडावलेल्या बायकांचीं आंसवें, पोरके मुलांची ओरडाओरड, दुःखित लोकांची हायहाय हीं त्यां पुरुषांचा अंतःकरणास द्रव आणीत नाहींत. ते दीवरासारखे मनाचे षट्ट होऊन आपला स्वार्थ साधित असतात, आणि पुसलें असतां म्हणतात कीं, असें केल्यानांचून आमचाने राहवत नाहीं. हायहाय! काय हो क्रूर कामें हीं! आणि काय हो वेडेपणा हा! तर जांचा हृदयांत नीतीचा लेश आहे, आणि जे लोकांचे हितकरें, त्याणीं असल्या अधर्माचा कर्मास शक्ति चाले पर्यंत हाणून पाडावें.

Translate the following, for the Lower Standard into Prose; for the Higher, into Verse :—

यज्वेपंडितमानो म्हणुनि भ्रमलो बरी असाक्षरता ॥

ज्ञानाभिमान नसता करगतपरमार्थ कां असा क्षरता ॥ १ ॥

दुस्तरसंकट पडतां मारितिशक्रादिहाकवीराजा ॥

त्या जगदीशाकरवीं हूं म्हणुनि हयांस हांकवी राजा ॥ १ ॥

बाइम्यां उयवतांचरवीला ॥ दाटघालुनि दधीचरवीला ॥

त्यांत गे फिरवितांचरवीला ॥ सारकादुनि हरीचरवीला ॥ १ ॥

GUJARATI.—

Translate into English Prose :—

२. केटलाएक पुरुष एवा होय छे के, तेमनायकी लोकांने गमे वेटलो उपद्रव थयो, तेनो तेओ विचार करता नथो; एकादूं थोडूं सरखूं तेमनुं काम थयूं एटले बस. एक धर लुटवाने मले माटे सवली ओलनी ओळ सळ-

ઘાવતાં ચોર આપું પાછું જોતા નથી. કંકાસ કરાવનાર છે તેઓ વિચાર કરતા નથી કે, આપણા સાચા જૂઠાથી કેટલાએકોની મિત્રાઈ ટુટશે. અને કેટલાએક કુટુંબોમાં વિરોધ ઉપન થશે. રાજકાજના પુરુષોમાં કેટલાએક એવા હોય છે કે, જેઓ રાજના કારણમાં ચારજગાનું એકચિત્ત થવાજ નહીં દે ; ફૂટ પાડતા રહે : જેનેકરીને લડાડયો લાગે, અને લોહીના પૂર વેહે, તેવું કરતા રહે. આલ્ખો મુલુલ ધૂલ મલીને પોતાને હાથ સત્તા આવે એવું હોય તો તેમ કરવાને તેઓ આનાકાની કરતા નથી. રાંડી રાંડોના આંસુ, ન્હાના બાલકોના રડારોલ, દુખિયારા લોકોની હાયવલાય, એ તેવા પુરુષોના અંતઃકરણને પિગ લાવતા નથી. તેઓ ટીમરના જેવા કઠણ મનના થઈને પોતાનો સ્વાર્થ સાધે છે, અને પૂછિયે ત્યારે કેહે છે કે, એમ કચાવગર અપ્હારાથી રહેવાતું નથી. હાયહાય! કેવા એ ક્રૂર કર્મો! અને કેવું એ ગાંડાપણું! માટે જેના હૃદયમાં નીતિનો લેશ છે, અને જેઓ લોકોના હિત-કર્તા, તેમને એવા અવમ કર્મકર્તાને શક્તિ ચાલે ત્યાંહાંસુધી હળી નાચવા.

Translate the following, for the Lower Standard into Prose ; for the Higher, into Verse :—

કુંજર રૂપતળો નહિપાર લઈ આવ્યાતક્ષકનેપાસ ॥

તક્ષક ધરમાં શોભાષળી સ્ફટિક ભીંત જડશુભમળી ॥ ૧ ॥

અંગેઅંગા મૂષગ ઘણા તેના મૂલ નવજાણે કલ્યા ॥

વાજે વાજાં કનકજાલિયાં સત્ય મોવન મંદિર માલિયાં ॥ ૨ ॥

તક્ષકે દીઠો રાજકુમાર ક્રોધકરી બોલ્યા તેળીવાર ॥

આવાલક કોણ લાવ્યું અંહીં કહો સાવું એશીગત થઈ ॥

ENGLISH.

1. Translate into Prose in your Vernacular :—

“While he was yet speaking, a Doe came bounding by them and the king, who had his bow ready, shot her through the heart : telling the Dervish that a fair opportunity now offered for him to show his art. The young man immediately left his own body

breathless on the ground; while at the same instant, that of the Doe was re-animated. She came to the king, fawned upon him, and, after having played several wanton tricks, fell again upon the grass: at the same instant, the body of the Dervish recovered its life."

2. Translate into your Vernacular, for the Lower Standard into Prose; for the Higher, into Verse:—

Among the deepest shades of Night,
Can there be one who sees my way?
Yes—God is like a shining light,
That turns the darkness into day.

ENGLISH COMPOSITION.

Write an Essay in your Vernacular on the changes in Indian Society which have taken place since the days of Manu.

Write a short English Essay on *one* of the following subjects:—

- (a) The History of the Emperor Akbar.
- (β) Rise and Progress of the Maratha Power.
- (γ) The Pindaree and Burmese Wars.
- (δ) The Monsoon, and its successive stages.
- (ε) Hypocrisy.
- (ζ) The difference between Pride and Vanity.

GRAMMAR AND PHILOLOGY.

A.—MARATHI.

I.—मला गांवांस जावें लागलें.

1. Parse the words in this sentence, and state the कर्ता, कर्म (if any), प्रयोग and क्रियेचें रूप, as therein given.

2. Difference between the nature of भावी and भावकचेरि प्रयोग. Illustrate by examples.

3. Decline the verb चानें.

II.—*सद्गुणी पुरुषास* सर्वदा* उत्तेजन* देणे* हें स्वदेश-हितेच्छुंचें* मोठें कर्तव्य* आहे.

1. State under how many समास you can bring the word सदगुणी.
2. Parse the words marked with an asterisk.

III.—1. Explain the etymology of the following words, and their primary and derived significations, and mention any other words you know derived from the same roots :—

सचैल, चंचल, अध्याहार, लम, तर.

2. Give some of the common affixes and prefixes used in the Marathi language, both such as are purely Marathi, and such as are imported from Sanskrit, Persian, and Arabic.

B.—GUJARATI.

I.—मनें गामि जवूं पड्यूं.

1. Parse the words in this sentence, and state the कर्त्ता, कर्म (if any), प्रयोग and चातुर्य रूप, as therein given.

2. Difference between the nature of भावी and भावकर्त्तरि प्रयोग. Illustrate by examples.

3. Decline the verb जवूं.

II.—सद्गुणी पुरुषनें* हमेशा* उत्तेजन* आपवूं* आय स्वदेशनूं कल्याण* चाहानारोनुं मोटूं कर्तव्य* छे.

1. State under how many समास you can bring the word सदगुणी.
2. Parse the words marked with an asterisk.

III.—1. Explain the etymology of the following words, and their primary and derived significations, and mention any other words derived from the same roots :—

उत्तेजन, लम, चौबदार, संहार, सत्यवादी, ज्ञानी.

2. Give some of the affixes and prefixes used in the Gujarati language, both such as are purely Gujarati, and such as are imported from Sanskrit, Persian, and Arabic.

C.—ENGLISH.

EPITAPH.

1. Below this marble monument is laid,
All that Heav'n wants of this celestial maid,
Preserve, O sacred tomb, thy trust consigned,
The mould was made on purpose for the mind;

And she would lose, if, at the latter day,
One atom could be mixed of other clay.

- (a) What words here are of Greek, and of Latin derivation?
- (β) What figures of speech are used here?
Distinguish between metaphor and allegory.
- (γ) Give the different meanings of "want," "mould."
- (δ) What is the meaning of "latter" here?
- (ε) Distinguish "sacred" and "holy."
- (ζ) "She would lose." Explain this.
- (η) Scan these lines, and mark the accents.
What is the name of this metre?

2. What is the construction of the words "reliance" and "confidence?" Give examples.

- (β) Explain the words "dispense" and "dispensation."
- (γ) Give the different meanings of the word Reflection.

3. What is the etymological meaning of the word Impertinent? Whence derived? What is its usual sense? Derive also Impudent, and Insolent.

(β) Give the etymology of the following words:—Venial, irrelevant, sarcasm, connive, unprecedented, reluctant, sequestered.

4. { They gave him little encouragement.
 { They gave him a little encouragement.
 { He could but weep.
 { He could not but weep.

What different meanings do these sentences convey?

(5.) Give an instance of the nominative absolute in English; and show for what other construction it is substituted.

(β) Explain and illustrate, by example, the "Historic Present."

(6) Explain the following poetical constructions:—

- (a) "Whom death nor danger ever could dismay."
- (β) "Woe was his cook, but if his sauce were
 Poignant and sharp, and ready all his gear."

(7) Correct any mistake, or awkwardness of expression, which you may observe in the following sentences:—

(a) "They used to quote this from some Sanskrit Shlok, like the Persian treaties quoted a verse from the Koran."

(β) No sooner he reached his destination than he commenced active measures:

(γ) The Chinese are attaching great importance to filial duty.

(δ) Who is the eldest of you two?

(ε) The Almighty, addressing to the elements, said, "O ye that are not still in existence, arise and occupy the respective places."

(Extract from an Exercise.)

(κ) He tuned the strings of the instrument, so that they may produce a pleasing sound.

(η) Unless matters turn out different, I fear we'll be disappointed.

MATHEMATICS.

1. The imperial gallon contains 277·27 cubic inches, and a cubic foot of water weighs 62·42 lbs., find the weight of a pint of water correctly to two places of decimals.

2. A workman A can complete 7 cubic feet of trenching in 5 hours; B can do 10 cubic feet in 3 hours: in what time could A and B working together dig a trench 21 yards long, 7 feet deep, and 4 feet wide?

3. Define a fraction. Show that the value of a fraction is not altered by multiplying both numerator and denominator by the same quantity. Add together the fractions:—

$$\frac{a^2 - bc}{(a + b)(c + a)}, \frac{b^2 - ca}{(b + c)(a + b)}, \frac{c^2 - ab}{(c + a)(b + c)}$$

4. Define the Highest Common Measure of two Algebraical expressions.

Find the H. C. M. of

$$(x^4 - x^3 + 2x^2 + x - 3) \text{ \& } (x^4 + 2x^3 - x - 2)$$

6. Solve the following Equations:—

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

$$\frac{1}{2} \left(x - \frac{a}{3} \right) - \frac{1}{3} \left(x - \frac{a}{4} \right) + \frac{1}{4} \left(x - \frac{a}{5} \right) = 0. \dots\dots\dots (2)$$

$$\frac{3 - 5x}{4} = \frac{5x}{3} (x - 1) \dots\dots\dots (3)$$

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

Show how the corners of a triangular piece of paper may be turned down, so as to demonstrate the latter part of the above proposition.

7. If a straight line be divided into any two parts, the sum of the squares on the whole line and one of the parts is equal to twice the rectangle contained by the whole line and that part, together with the square on the other part.

Produce a given straight line, so that the sum of the squares on the given line and the part produced may be equal to twice the rectangle contained by the whole line thus produced, and the part produced.

8. If a point be taken within a circle from which there fall more than two equal straight lines to the circumference, that point is the centre of the circle.

PQ are two points, at distances PM, QN from the given straight line MN : With centre P & Q and radii PM, QN , arcs of circles are described, touching the given line (in M & N) and intersecting in S . Show that the point of intersection of the bisectors of the angles MPS, SQN is the centre of the circle passing through the points M, S, N .

9. The angles in the same segment of a circle are equal to one another.

10. To describe a circle about a given triangle.

11. When is the first of four magnitudes said to have the same ratio to the second as the third has to the fourth?

The sides about the equal angles of equiangular triangles are proportionals.

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

LOGIC.

I.—LOWER STANDARD.

1. Explain the defects incident to the different operations of the mind.

What is the use of words?

Explain First and Second Intention.

2. Give instances of—

- (a) Categorical Propositions.
- (β) Impossible Matter.
- (γ) Contradictory Propositions.
- (δ) Subaltern Propositions.

3. Convert (1) Simply, (2) Per accidens, the following Proposition:—

“Bombay is a city.”

4. What is the “*Dictum de Omni et Nullo*?”

- 5. All Virtue is good.
Prudence is good.
Therefore Prudence is a virtue.

Criticise this Syllogism.

II.—ADDITIONAL QUESTIONS FOR THE HIGHER STANDARD.

6. “Queen Elizabeth was a courageous woman, for she despised the threats of her enemies.”

What is this sentence, in its present form, called?

Alter it into a complete Syllogism.

7. Explain the nature of a *Dilemma*. Give an example.

8. What is the difference between *deductive* and *inductive* reasoning?

9. “I recommend you to leave that house. It is situated too near the Main Drain. Succaram lived there before, and he was taken ill. Pestonjee was obliged to leave it for the same reason. Dadabhoj certainly lived there without being hurt: but his constitution is very strong. Yours is much weaker; you had better go.”

Show in a logical form the arguments in this passage.

10. Give a short sketch of the uses of Logic.

11. Explain the Composition of Causes.

ENGLISH BOOKS.

VICAR OF WAKEFIELD.

1. Explain briefly how the younger Thornhill's schemes were defeated.

Distinguish between Remorse and Repentance.

2. (a) "Though I did not entirely believe all the fellows told me, yet I reflected that the number of witnesses was a strong presumption they were right, and St. Gregory, upon Good Works, professes himself to be of the same opinion."

(β) "He assured me that the whole secret (of criticising pictures) consisted in a strict adherence to two rules—the one always to observe that the picture might have been better if the painter had taken more pains: the other, to praise the works of Pietro Perugino."

Point out and explain the satire in these passages.

3. "We shall shortly see which is the fittest object of scorn, you or me."

Point out any grammatical errors in this sentence.

4. Explain the following expressions:—

(a) May I die by an anodyne necklace.

(β) A train of accidents.

(γ) This tawny Sibyl.

(δ) A true Sardonic grin.

(ε) Fudge.

5. Give the etymologies and meanings of the following:—
Consummate, adulation, eccentric, *vacant hilarity* (meaning of this expression), analytical, arraign.

WARREN HASTINGS.

1. Give a short history of Nuncomar.

2. Explain the following expressions:—

(a) To *buy rotten boroughs* in Cornwall.

(β) High usury and bad security generally go together.

(γ) Elaborate tissues of circumstantial falsehood.

(d) A man to whom every sort of villany had been repeatedly brought home.

(e) Bengal would defray its own charges.

3. Paraphrase:—

With all his softness, the Bengali is by no means placable in his enmities or prone to *pity*.

The public curiosity, *long* suspended, seemed to be revived.

Parse the words in italics.

4. Distinguish between a government *de facto* and a government *de jure*.

5. Give the etymologies and meanings of—Alluvial, sheriff, indiscreet, phantom; and the various meanings of—Abuse, capital, contracts.

TRENCH'S ENGLISH, PAST AND PRESENT.

1. "The first and foremost step to all good works is the dread and fear of the Lord of Heaven and Earth."

Paraphrase this, substituting words of foreign origin for the Saxon.

"The ancient Persian religion fell with the Government, but the language remained totally unaffected by the Revolution in *its* grammatical structure and character."

What words here are foreign and what Saxon? Parse "*its*."

2. From what languages are the following words derived?—Cherub, tariff, lilac, potato, bamboo, charlatan, palaver, yacht.

3. What was the period of the chief addition of French words to the English language?

4. Distinguish—

Antic and antique, human and humane, happily and haply, ordinance and ordnance, poesy and posy.

5. Parse cedarn, glode, clomb, housen.

BUTLER'S SERMONS.

1. State briefly the argument of Bishop Butler that we were made for society and to do good to our fellow-creatures.

2. Explain the meaning of (a) Benevolence; (3) Self-love; (7) the Affections; and show the distinction between them.

What part of the animated world does the possession of Conscience distinguish? and what is meant by men being *a law to themselves*?

3. They *negligently*, nay even *knowingly*, are the authors of their own ruin.

Explain clearly the difference between the words in italics.

4. What is a Final Cause? What are the final causes of Compassion?

Distinguish Compassion and Sympathy, as generally used. Is this distinction *etymologically* correct?

5. "All things are double *one* against the other." Explain.

Give the etymologies of—Liberality and bounty, mitigation and relief; and the different meanings of the word *overlook*.

GOLDSMITH'S CITIZEN OF THE WORLD.

1. Paraphrase:—

A well-timed shrug, and admiring attitude, and one or two exotic notes of exclamation are sufficient qualifications for men of low circumstances to curry favour.

2. Explain the following:—

(a) *Pare my Nails*, ye powers of Heaven! ere I would consent to such an exchange.

(3) How would a Chinese be regarded, should he carry all his good manners *beyond the Great Wall*?

(7) Another (lady) was brighter than the morning star, but he disapproved of her *fang xhang*.

3. Explain the words in italics:—

(a) He has infinite taste, *that is flat*.

(3) A fellow of *smart parts and pretensions*.

4. When Parmenio the Grecian had done something which excited an universal shout from the surrounding multitude, turning to a philosopher who stood near him, "Pray, Sir," says he, "pardon me, I fear I have been guilty of some absurdity."

Point out the satire contained in this passage.

5. Give the etymologies and meanings of—Sanguine, opulent, back-writer, toad-eater, insidious, sated.

SAMSON AGONISTES.

1. Paraphrase:—

He must allege some cause, and offer'd fight
 Will not dare mention; lest a question rise,
 Whether he durst accept the offer or not:
 And that he durst not plain enough appear'd.
 Much more affliction than already felt
 They cannot well impose, nor I sustain.
 But come what will, my deadliest foe will prove
 My speediest friend, by death to rid me hence.
 The worst that he can give, to me the best.

2. Explain:—

- (a) ——— to stain my vow of Nazarite.
 (β) (Gifts)—draw a scorpion tail behind.
 (γ) Breath of vernal air from snowy Alp.

3. Who, to save her country from a fierce destroyer, *chase*
Above the faith of wellock bands.

Of whom is this said? Parse the words in italics.

4. (a) Reap nothing but repulse and hate.
Bid go with evil omen.
 (β) *Smile she or lour.*
 (γ) All that *band* them to resist.
 (δ) Calm of mind, *all passion spent.*

Parse the words in italics.

5. Give the etymology and meanings of—Acquist, lavers, lyrick, hypocrisy, balm, reius, turbulent.

PARADISE LOST. Book i.

What though the field be lost?
 All is not lost: the unconquerable will,
 And study of revenge, immortal hate,
 And courage never to submit or yield,

And what is else not to be overcome ;
 That glory never shall his wrath or might
 Extort from me. To bow and sue for grace
 With suppliant knee, and deify his power,
 Who from the terror of this arm so late
 Doubted his empire : that were low indeed..

Paraphrase as shortly as possible, and point out any peculiar constructions in this passage which you observe.

2. (a) A multitude like which the populous North
 Pour'd never from her frozen loins, to pass
 Rhene or the Danaw, when her barbarous sons
 Came like a deluge on the South, and spread
 Beneath Gibraltar to the Libyan sands.
- (β) Smooth Adonis from his native rock
 Ran purple to the sea, suppos'd with blood
 Of Thammuz yearly wounded.
- (γ) Uther's son,
 Begirt with British and Armoric knights.
- (δ) The Dorian mood
 Of flutes and soft recorders.
- (ε) That small infantry warr'd on by cranes.

Explain these passages.

3. ——— The ocean stream.

Do you know any old belief which explains this expression ?

4. Give the etymologies and *all* the meanings of the following words :—Disastrous, expatiate, subtle, considerate, lucid, horrid.

5. Translate into your vernacular the following sentences :—

- (a) After the toil of battle to repose
 Your wearied virtue.
- (β) Flown with insolence and wine.

COWPER'S WINTER MORNING WALK.

1. Paraphrase :—

- (a) There, like the visionary emblem seen
 By him of Babylon, life stands a stump,
 And filleted around with hoops of brass
 Still lives, although his pleasant boughs are gone.

(β) • There is Paradise that fears
No forfeiture, and of its fruits he sends
Large prelibation oft to saints below.

2. Explain the words in italics :—

(a) The *moral sense* how sure,
Consulted and obeyed, to guide his steps
Directly to the *first and only fair*.

(β) The *still small voice* is wanted.

(γ) They *demi-deify* and *fume* him so.
• • *Inflated* and *astrut* with self-conceit,
He *gulps* the windy diet.

3. Forth goes the woodman, leaving *unconcerned*
The cheerful haunts of men : to wield the axe,
And drive the wedge, in yonder forest drear,
From morn to eve *his solitary task*.

4. No frost can bind it (the water) there ; *its* utmost force
Can but arrest the *light* and smoky mist,
That in its fall the liquid sheet throws wide.

Parse grammatically and syntactically the words in italics.

5. Give the etymology and meaning of—Pensioner, asunder, intoxicating, emancipate,

POPE'S ILIAD. Book i.

1. Paraphrase :—

(a) Let great Achilles, to the gods resign'd,
To reason yield the empire o'er his mind.
By awful Juno this command is given.
The king and you are both the care of Heaven.

(β) A prophet then, inspired by Heaven, arose,
And points the crime, and thence derives the woes.
Myself the first the assembled chiefs incline
To avert the vengeance of the power divine.

Point out any peculiarity in these four lines.

2. Explain :—

(a) Fir'd with the thirst which *virtuous envy* breeds.

(β) With *pure lustrations* and with solemn prayers.

- (γ) The *warlike maid*, and *monarch of the main*.
 (δ) Returning with the twelfth revolving light.
3. Give a short sketch of the occurrences in this book.
4. (α) The generous Greeks their *joint consent* declare
 The priest to *reverence* and release the *fair*.

Parse the words in italics.

(β) The rosy morn had purpled o'er the sky.

Do you observe any peculiarity in this line? and how do you explain it?

5. Give the etymologies and meanings of—Hecatomb, resentment, dome, tribunal, ethereal, pest.

ENGLISH COMPOSITION.

HIGHER STANDARD.

Write an English Essay on—

The Effects of Railroads on Civilization.

Illustrate by examples, from this Country.

MATHEMATICS.

1. To draw a straight line perpendicular to a plane, from a given point above it.

2. Find the number of permutations of n things taken all together.

The sum of all the Combinations of n things taken 1, 2, 3, . . . n together = $2^n - 1$.

3. Sum the following Series—

$1 - \frac{1}{2} + \frac{1}{4} - \frac{1}{8} + \&c.$ *ad infinitum*.

$1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \&c.$. . . to n terms.

$1^2 + 2^2 + 3 + 4^2 + \dots$ to n terms.

4. Define the sine of an angle, and trace the changes of the sign and value of the *sine* through the four quadrants.

Investigate the general expression for all angles whose sine = x .

Prove the Formula $\sin(A + B) = \sin A \cos B + \cos A \sin B$ when $(A + B)$ lies between 90° and 180° , and both A and B are less than 90° .

5. Supposing the Earth to be a sphere of radius 4,000 miles, find the height of a mountain, the top of which is just visible at sea, at a distance of 36 miles.

6. Deduce an expression for the area of a triangle in terms of the sides.

7. The straight line bisecting the angle between the focal distance of any point of a parabola, and the perpendicular from the point on the directrix, meets the parabola in one point only.

Tangents at the extremity of any focal chord in a parabola intersect at right angles in the directrix.

8. The perpendiculars from the foci of an Ellipse upon any tangent intersect the tangent in the circumference of the circle described on the axis major as diameter. If SY , HZ be these perpendiculars, prove that the rectangle SY , $HZ = (\text{semi axis minor})^2$.

9. Show that the General Equation of the First Degree $Ax + By + C = 0$ between two variables, represents a straight line. What are the intercepts on the axes made by the above straight line?

Interpret the Equation $C = 0$.

10. What conditions must be satisfied by the co-efficients of the Equation

$$Ax^2 + Bxy + Cy^2 + Dx + Ey + F = 0$$

in order that the locus represented by it may be (1) two intersecting straight lines, (2) two parallel straight lines, (3) a point? What loci are represented by the Equations

$$x^2 - a^2 = 0; (x - a)^2 = 0; x^2 + y^2 = 0 \\ xy = 0.$$

11. Show that the Equations

$$x = a \sec \phi; y = b \tan \phi$$

represent an Hyperbola, and give a geometrical interpretation of the angle ϕ .

12. State clearly what is meant by the expression "the limit of $f(x)$ when $x = o$."

Define a differential co-efficient.

Assuming that $L^t (1+x)^{\frac{1}{x}} = e$ when $x = o$, find the differential co-efficient of a^x with respect to x . Differentiate the following functions—

$$(6x^5 + 30x^3 + 5)(x-2)$$

$$x^m a^x (\log x)^p$$

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

HUME'S ENGLISH HISTORY.

REIGN OF QUEEN ELIZABETH.

1. Give an account of the Spanish expedition to Ireland.
2. Give an account of the Duke of Anjou's negotiations with England.
3. What are the reasons given by Hume for the execution of Mary Queen of Scots?
4. Give a short account of the Irish Rebellion.
5. Describe (1) the laws passed against the Catholics, (2) the principal plots concerted by them against the Queen.
6. Give an account of (1) the Poor-Laws, (2) the Laws about Monopolies passed in this reign.
7. Who were Queen Elizabeth's chief foreign Enemies?
8. State what you know about (1) Essex, (2) Bothwell.
9. Give a short account of English Maritime Affairs in this reign.
10. Enumerate the principal (1) Navigators, (2) Statesmen, (3) Authors of the time of Elizabeth.

CHILDE HAROLD, C. iii.

1. (a) There sunk the greatest, *not* the worst of men,
 Whose spirit antithetically mixt
One moment of the mightiest, and then
 On little objects with like firmness *fixt*,
Extreme in all things: had'st thou been betwixt,
 Thy throne had still been thine or never been;
 For daring made thy rise as fall.

Paraphrase. Whom do these lines describe? Parse syntactically the words in italics.

- (β) His life was one long war with self-sought foes,
 Or friends by him self-banished: for his mind
 Had grown suspicion's sanctuary, and chose
 For its own cruel sacrifice the kind
 'Gainst whom he raged with fury strange and blind.
 But he was frenzied,—wherefore, who may know?
 Since cause might be which skill could never find:
 But he was frenzied by disease or woe
 To that worst pitch of all, which wears a reasoning show.

Paraphrase. Point out (1), any incorrect expressions; (2), any words unusually spelt; (3), any peculiarity in the versification; (4), any elliptical expression, which you may observe.

2. Explain the following allusions:—

- (a) Ehrenbreitstein, with its shatter'd wall,
 Black with the miner's blast.
 (β) Julia, the daughter, the devoted, gave
 Her youth to heaven.
 (γ) The Pythian's mystic cave of yore.
 (δ) Lausanne and Ferney! ye have been the abodes
 Of names which unto you bequeath'd a name.

3. Explain minutely the following expressions:—

- (a) When Albion's *lessening* shores could grieve or glad mine eye.
 (β) In *pride of place* here last the eagle flew.

Whence are the words in italics borrowed?

- (γ) A populous solitude of bees and birds.
 (δ) Nature's pages glass'd by sunbeams on the lake.

4. Parse the words in italics :—
- (a) The stranger *fain* would linger.
 - (β) To stone converted by *amaze*.
 - (γ) Sweet as if a sister's voice *reproved*.
5. Give the etymologies and meaning of the following words :—
Pyramid, sophist, carnage, degraded, creed, convulsion.
-

HISTORY OF GREECE.

PERSIAN WARS—TO PLATÆA AND MYCÆLE.

1. What circumstances first led to the invasion of Greece by the Persians?
 2. What was the fate of the expedition under Mardonius? Did any Greek state take part with Persia?
 3. Describe the battle of Marathon. What causes, in your opinion, led to the victory? and what were its moral results?
 4. Describe concisely the operations of the Persian army from the check at Thermopylæ to the final repulse of Xerxes.
 5. Who were the Grecian generals at Platæa and Mycæle, and what coincidence is there with regard to these battles?
 6. Draw a map of Athens and of the surrounding country. By whom and when were the long walls constructed?
 7. Give some account of the life and character of (1), Themistocles; (2), Aristides; (3), Æschylus.
-

JEFFREY'S ESSAY ON SOTHEBY'S SONG OF TRIUMPH.

1. "We are still too near that great image of Deliverance and Reform which the genius of Europe has just set up before us, to discern with certainty its just *lineaments*, or *construe* the true *character* of the *aspect* with which it looks onward to futurity."

Give a grammatical analysis of this passage. What personifications are used here? Remark anything singular which you observe about any of them. Give the etymologies and meanings of the

words in italics. What are the different meanings of the word *genius*? What is the meaning of the rhetorical figure called "abstract for concrete?" Give an instance from this passage.

2. What is the *original* meaning of the word 'legitimate?' What is a legitimate prince?

3. "That vivifying spirit of ambition . . . burning at a few detached points on the summit of society." Explain the meaning of this. Whence is this metaphor taken?

4. What are (1), absolute monarchy, and (2), constitutional government? Which did the power of Buonaparte, as described in this Essay, more resemble?

5. Give the etymologies and meanings of the following words:—Panacea, empiric, fantastic, theory, enormous, ratified, hierarchy, noxious, diametrically, inveterate.

APPENDIX C.

ANSWERS.

BY MUNCHERJEE DINSHAW,

Senior Scholar, 2nd Class, Elphinstone College.

ON "RASSELAS,"—SEE PAGE 19.

[Three hours' time allowed.]

It was a custom prevalent in Abyssinia to shut up the younger members of the royal family in solitary confinement, where neither the ills nor the temptations of the world could have access, & where they lived a life of continual pleasure. The spot chosen for this purpose was a rich valley surrounded by mountains on every side. Here the Princes & Princesses of Abyssinia together with their servants made their abode. Once in a year the Emperor paid them a visit, when those dissatisfied persons of the world who desired to enter the Happy Valley (as it was called) were allowed admission on their showing such skill in their arts as would tend to impart amusement to the royal-inmates of the Valley, & on condition of remaining there for ever. Rasselas one of the younger sons of an emperor of Abyssinia had passed twenty six years of his life in the place and tasted of every pleasure it contained; but afterwards (he did not know how) he began to feel as if he wanted something more to make him happy, than what his habitation afforded. He sought opportunities & solitudes, and there bemoaned the hard fate which allowed him only such pursuits as he had followed before, & which had now become irksome to him. At last

it came into his mind that afar in the world there might be blessings to be enjoyed, from which the mountains around now debarred him; & he resolved to leave the valley. For a long time he could find no means whereby he could execute his purpose, but at length he chanced to make the acquaintance of Imlac who was one of the inhabitants of the Valley and was as much disgusted with his present life as the Prince Rasselas himself. He was also a poet & described what he had seen in the world with so much force & feeling that the Prince became more anxious for leaving the Valley. In a few days both the Prince & the poet set themselves to effect their escape. In this they succeeded. But they went out not alone. Their design was accidentally discovered by Nekayah the sister of Rasselas, & she persuaded her brother to take her along with him. The first place to which Imlac conducted them was Cairo, & there they mingled with various persons, and minutely enquired into their condition, in order to determine what kind of life gave most happiness. Their object in preferring a life of observation & wandering to the sensual pleasures of the Happy Valley was to make the choice of a life of happiness. The Prince at first joined a circle of men young as himself whose time was passed in feasting & revelry, but he soon found that their mirth was hollow, & such a life gave him no happiness. He left them with a piece of advice which was hooted. Next they searched for happiness among the high & the low, the hermit & the scholar, but every where they heard the murmurs of complaint & discontent. Happiness they found not in the world, but they acquired wisdom, and at last after a vain search returned to their native country.

The moral conveyed by this tale is to show that no certain state or profession can impart happiness. Happiness can be found in any state if men would only labour and try to live as good & virtuous men. The Prince & his sister were *really* happy when they were labouring for one particular end, that of choosing a life of happiness. The tale also shows that worldly misery or worldly happiness is not a result of a sinful or virtuous course of life.

2. Solstitial is derived from Solus—the sun & stuo—to stand. It signifies the standing places of the sun, that is the most distant points of the ecliptic from the equator on the terrestrial globe, from whence the sun returns towards the equator without proceeding any farther towards the poles.

Equinoctial—is derived from two Latin words signifying equal nights. The points where the ecliptic cuts the equator are so called, because when the sun comes on these points on the terrestrial globe the day and night have the same extent of 12 hours each.

“The solstitial rains & equinoctial hurricanes” here means the rains which fall when the sun is in the solstitial points and tempests which blow when the sun is in the equinox.

3. *Feigned*—usually means *assumed, not real*; here it means *imagined*.

4. The satire is contained in the two words *less & more*. In explaining a difficult passage more words are made use of than the passage itself possesses, but if the explanation itself were less understood than the passage, then the foolishness & the absurdity of the explainer is apparent.

5. *Perspicacity*—clearness of judgment—derived from *Per-* through and *Specio*—I see.

Peculiar—strange, or what belongs to one without belonging to many others.

Diversion—*Di*—from; *verto*—I turn.—amusement.

Instilled—infused.

Querulous—complaining.

ON “CHILDE HAROLD,”—SEE PAGE 43.

1. At that place was overturned the greatest among men but not the worst, whose mind antithetically occupied itself at one moment with the most grand objects, and at another moment again fixed itself with the same firmness of purpose on trifling objects. In all things he was at the extremity, but if his course had been between the two extremes, he would have never lost his throne, or never would have acquired it, for he owed his ascendancy as well as downfall to his courage.

These lines describe Napoleon the Great.

Not—is a verb auxiliary to *sunk*.

One moment—one is an adjective qualifying the noun *moment*,—*moment* is a common noun of the neuter gender third person singular,

& in the objective case by the preposition *with* understood. First— is a regular transitive verb of the indicative mood, past tense, & singular number, & agreeing with its nominative *spirit*.

2. (a.) Here the poet alludes to the dismantling of the castle of Ehrenbreitstein by the French. It was one of the strongest castles in Europe, and had defied for a long time the siege of General Marceau of the French, & was at last taken by famine.

(b.) Julia was a priestess. She had a father whom she loved entirely. He committed a crime which required his life in extenuation. The child tried to save him by her tears & entreaties to the judges, but the judges did their duty, and the unhappy child of the unhappy father ceased to live with the being she loved and was buried in the same grave with him.

(c.) The Pythian's mystic cave was that enclosure in the temple of Apollo at Delphi whence the priestess of Apollo, or the Pythoness (as she was called) delivered the oracles of the Sun-God.

(d.) Lausanne is a town in Switzerland. It is celebrated from its being the residence for a long time of Gibbon who wrote his "Decline & Fall" there. Ferney—is a small town on the north eastern frontier of France. It is celebrated for being the place where Voltaire passed the last years of his life and wrote some of his most remarkable works.

3. (a.) Lessening that is vanishing out of sight by degrees. Byron was sailing away from England and he alludes here to his having seen the shores of England growing less & less as he advanced on his course.

(b.) Pride of Place—the highest eminence the eagle could attain in his flight towards heaven. Here it is used metaphorically for the Emperor Napoleon whose sign on the flags was an eagle. This term—Pride of Place—is a term in the art of falconry.

(c.) Populous because the place the poet here refers to was full of bees & birds, and the poet calls it a solitude because there was no trace of man there.

(d.) As scholars derive delight by perusing the pages of a volume of philosophy or history, so the poet amused himself by musing on the shades of mountains or trees which were mirrored on the surface of the Lake by the rays of the sun.

BY BALA MUNGESHII.

Elphinstone College.

ENGLISH ESSAYS,—SEE PAGE 40.

[Four hours' time allowed.]

Civilization rightly understood is that condition or stage of human life, in which external and internal improvements go hand in hand. A nation is not said to be civilized if it only possesses the arts and manufactures, that produce things satisfying the necessities conveniences and luxuries of human life. The inhabitants of Mexico, when Cortes visited them knew how to spin, & weave, how to build comfortable houses, how to work in metal, & how to cultivate the soil—in fact they possessed all things that could then make life comfortable and easy, but were immensely deficient in the other element of civilization—growth of thought. The characteristic feature of all ancient civilization was the cultivation of thought to the neglect of the conveniences of life: and it was owing to this defect that it gave away before the attacks of strong and fierce barbarians. The Roman with his Cicero and Cato, and the Greek with his Plato and Aristotle, could not withstand the attacks of the hordes that poured upon them; one after another, from the north. What the Romans and the Greeks did in Europe the Hindu Bramins did in India, but still to a greater degree than both. Securely lodged on the banks of the Ganges, requiring very little labour to provide themselves with the necessaries of life, they became a race of thinkers and neglecting to live, cultivated literature, chama, logic mathematics, astronomy &c. and soon gave way to the warriors that poured upon them from the north west.

Modern civilization however has acquired a new and very important characteristic: to progress or to remain stationary. The danger of a complete overthrow of civilization has passed away. The civilized man is now prepared to stand his ground against the savage, with his gunpowder, his gigantic "Steam" and rapid "Electricity." Having thus seen that the elements of civilization must always go hand in hand, that improvements in mind and morals must be accompanied with improvements in the conveniences of human life, we shall now proceed to see how much of this has been effected by Railroads.

It is known to all persons that the difficulties of carrying a commodity from the place, where it is produced, to the place where it is required, considerably increases the value of that commodity. Now if these difficulties be removed by some means or other, a double advantage would be gained, viz: 1st, The labour, which was necessary for the purpose of conveyance, would now be profitably employed in producing that or some other commodity: and 2nd, the value of the commodity being diminished there would be a greater demand for it. Railroads immensely diminish the difficulties of carrying commodities from one place to another. Those things which were formerly brought to Poona, thence by long and rough roads taken to the Ghauts, on bullock carts, and thence carried to Panwell, and lastly transferred to Bombay through ships, are now conveyed from Poona to Bombay and from Bombay to Poona in the course of a single day, with very little trouble and cost, which however will be considerably diminished, when the Rail road on the Boreghauts is completed. In India where professions are hereditary this change in favour of Industry is not yet manifest to a very considerable degree. After a few years this disposition will die away and men will take to professions that remunerate most.

Travelling must be an important consideration with all persons who wish to be called gentlemen. Without seeing a variety of objects the mind cannot generalize. It wants the materials of thought though the powers are furnished to it by education. An Englishman or a Frenchman, who wishes to be called an educated man, does not rest satisfied till he has made a tour through the principal cities of Europe. He goes to France to see the plain of Waterloo, & he visits Rome for its churches, the pictures it contains from Raphaels brush and the statues it possesses from the artistic hand of Michael Angelo. An inhabitant of Bombay is a miserable creature if he has not seen Poona, Satarah, and Kolapoor where the true spirit of Maratha chivalry once flourished. He does not find a single building in Bombay, built exactly after the Maratha model to contrast it with the Corinthian & Gothic orders he sees. Unless he goes out of Bombay he cannot conceive what a majestic river is, or a mountain covered with silvery streams on a rainy day. Travelling is thus one of the wants of many thinking beings, and it is easily gratified by Railroads.

In ancient times if a province was attacked with famine, other

provinces, that enjoyed overabundance of food, could not send a part of it to save the inhabitants from death. But now Railroads, have opened such an easy mode of communication, as to supply a province, suffering from famine, with food at an instant's notice. Thus then the danger of famine is avoided by Railroads.

To a nation like the Hindus famous for their artistic skill from very remote times such a thing as the steam-carriage must afford a wide field for thought. But at present so little is known about it, that very few Hindus take any interest in it. But when the time comes, a professional class of Hindu mechanics will be formed, and the Hindu Genius once struck with light, may give out some more striking and ingenious inventions. At present even I know a poor, Hindu mechanic, who used to go to Bycullah every day and observe, the different machines, that were laid open, and without asking any explanation of them from the labourers there. At night he prepared models of the things he saw there, and then at last succeeded in preparing a complete set of wheels, cylinders, pistons &c. that were necessary for a steam carriage. He then observed the different parts, put together in a steam carriage; and marking, what he saw, on a piece of paper, succeeded in putting the parts together himself and then took the whole to the superintendent of "steam" carriages at Bycullah. The superintendent was astonished at the work, and immediately employed him on a very good salary in the manufactory.

The immediate effect of Railroads at present in India is a demand for labour. Men who loitered in the interior, as soon as the harvest was over, now find it their interest to come to Bombay or Wassind, and earn money by working as day-labourers in the Railway department.

Another effect is that wherever the Railroad has penetrated, there the inhabitants are under no danger from sudden insurrection. In fact in countries where there are Railroads, and electric telegraphs, there is no great fear from the operations of an enemy. Thus Railroads increase the security of a nation.

BY MAHADEO GOVIND.

Elphinstone College.

ENGLISH COMPOSITION,—SEE PAGE 23.

[Four hours' time allowed for this essay, together with a vernacular one which is not printed.]

ENGLISH ESSAY (β).

To write the history of one's own country is always a pleasing task. The felicity and the pleasure (though a little alloyed with pain when our former power and glory have departed from our nation, when the land knows not its sons for its Masters) are yet still great when one sits to write the rise and progress of his own nation. Misanthropy may like to brood over the mishaps which hastened the ruin, the pusillanimity and the dissensions which precipitated the downfall of one's own country. Amidst a sickness so deadly, and a destruction so complete, as now prevails through the land, a warm and a patriotic bosom may prefer to breathe for a time the purer air of more distant ages when wealth, honor, liberty were the possessions of his nation. With a mind filled with such thoughts, a heart throbbing with such pleasure (though it must be owned, not unmixed with pain) it is that I sit to write the essay. First then who were these Marattas—whence came they?—These are questions which must have been asked by the Mussulmans of Delhi to each other when they received repeated accounts of countries sacked & cities pillaged; No one knows the original seat of these wild marauders (as more civilized conquerors are pleased to call them), the motive that drew them from their hiding place. The Mongul Historians make no mention of them. The Mahomedan conquerors of the Decan met no foe who bore this title. It was only Aurungzebe whose heart first learned to tremble at the name. It was during his reign when he felicitated himself upon the happy termination of all his schemes and ambitions—the death of all his rival brothers, the demise of his aged & insulted father; when he seemed at last to have got the hold of all India in his hands when he thought he had become the greatest man in the East & perhaps in the world—it was at this time that the Marathas rose to

vindicate the rights of India, to retaliate the wrongs she suffered, to chastise her oppressors and to release her sons. When the intolerant followers of Mahomet confident in their complete conquest, believing in the utter prostration of their subjects, began as is customary with heated & bigoted nations to insult our prejudices, to kick at a distance our venerated idols, to raise to the dust our sacred temples & sanctuaries; to drive before our sight the humble, the useful (& still more the sacred) cow to the slaughter house & to dash the gods to pieces for the treasures they contained, when thus our most venerated objects were used it roused the peasantry. And it was this peasantry (who had tilled the soil & fed their flocks in the country lying near the ghauts thus peacefully & contentedly so many years) that became within a century the dreaded Marathas. If it is true that the American Revolution produced a Washington it is likewise true that these bad times produced the famous Shivajee. This unlettered son of an unlettered father, who had been serving as a soldier in one of the Musulman armies of the Decan, became early inspired with patriotic designs. He early learned to venerate the cow. He was instructed in his childhood by a Bramhin in all the romantic tales of antiquity that raise a warrior's soul to flame. He became a firm disciple of one Ramdas a religious teacher & the founder of a sect. He saw with grief the degradation of his nation, the iron yoke which they felt but were quite powerless to remove. He invoked his genius (भगवती) Bhowany & was encouraged in his projects by accidentally meeting a sword while digging for a fortress. Thus inspired with courage & assurance he summoned his country men to assist him in his enterprises. He found the country all filled with Mahomedan armies well paid & provided—the towns filled with a great Mahomedan population. His own followers were poor, undisciplined, unpaid, depending on their daily toil for bread. In this exigency he planned a plan of fighting which however it may be blamed by succeeding generations was the only one which promised of any success. He determined to plunder defenceless places & with that plunder to fortify his country, to confirm the wavering & to entice the pusillanimous. Thus resolved he hoped that a persevering in his plans would at last prove to the Mohomedans their utter inability to hold the awakened country & force on them the necessity of abandoning the Kingdom. Thus originated the rise of the Maratha

nation—a band of robbers (if robbery be the proper name for what Shivajee did) led by a successful chief laid the foundation of an immense empire. Shivajee was forced to rob for no other plan promised the slightest success under the eaglelike sight and tyranny of Aurungzebe. Shivajee lived to see his plans nearly realized. He was crowned in 1674 as an independent king. But unfortunately for the nation this great man died in 1684 and immediately the tide of Mahomedan conquest returned over Maharastra & Shivaje's family was captured & his son butchered by the inexorable Aurungzebe. But the spirit had been awakened. All the former chiefs had tasted liberty and therefore were not willing to exchange it for slavery. In the mean time Aurungzebe died. His great pressure was removed. The man whom every one feared & who & who alone was able to keep even a surface resemblance of peace throughout India breathed his last & everyone found his shackles at once taken off. This event accelerated the progress of the Maratha arms. A Grandson of Shivajee who was bred up by Aurungzebe returned to his Native land and after some slight quarrels with a previous ruler was crowned the ruler of the Marathas. In his reign the Maratha power advanced with rapid strides. All India was defenceless & was the property of the first bold adventurer. About this time began the fame of the Great house of the Peishwas. Balajee Vishevnath a clerk when he entered Shahoo's service but who in a few years rose to the dignity of a prime Minister forced the Delhi Emperor to pay him the tribute of the Chouth and Surdeshmooki. His son Balajee Bajeerao still more famous than his father parcelled the countries thus conquered among his brave comrades & thus established the houses of Scindia, Holkar, Bonsla &c. Under his successor was fought the famous battle of Paniput—which was sufficient to seal the fate of any other nation but the Marathas. It was at this time & before this battle that the height of the Maratha power was reached. Punjab had been conquered by a Bramhin warrior. His brother was the acknowledged lord of all India. His nephew was placed on the peacock musnud of Shahjehan. The peishwa had ready at a moment's call a whole nation in arms. The slaughter at that unfortunate battle was immense. But immense as it was it in no way daunted other Marathas from following the tracks of their ancestors. Thus was this empire founded by robbers, & strengthened by robbery. It

prospered by robbery too. After this battle the martial ardor of the nation was a little cooled & they betook themselves to their former peaceful pursuits of agriculture & sheeptending. They flourished till the beginning of this century when their power began to wane till in 1818 Poona was occupied by a western nation who dwelt in an island 15000 miles distant. Though the Peishwas have sunk under this superior pressure yet the other great houses of the Marathas still flourish with diminished lustre.

Don't read { (1) which enabled it to dispose of thrones & empires
at its pleasure.
(2) which shone with lustre on every one's face &
made all other nations to respect every one of
his ancestors.

BY MUNCHERJEE CURSETJEE,

Elphinstone College.

ON "HISTORY OF GREECE,"—SEE PAGE 44.

[Four hours' time allowed.]

1. What circumstances first led to the invasion of Greece by the Persians?

1. The rash expedition of the Persian monarch Darius against Scythia would have terminated in his death along with those of his numerous host, had it not been for Histæus the tyrant of Miletus and one of his allies in that expedition, who prevented the Ionians from betraying their trust by attempting to break down the bridge over the Danube, which was the only passage for the retreat of the Persian King. In gratitude for this important service, Histæus was assigned a place in Thrace which he afterwards colonised under the name of Myrkinus. But the favours of absolute princes were not of uniform nature. Finding the tyrant of Myrkinus growing too powerful, Darius called him back to Susa to act with him as a friend & adviser in the affairs of the government, thus detaining him in his presence. The government, of Miletus, in place of

Histæus, was entrusted to his nephew Aristagoras. Now the Naxian nobles being driven from their country by the People besought Aristagoras to reinstate them in their respective places. Aristagoras instantly complied with their requests, and with the assistance of a large Persian fleet marched against the island. From a quarrel with the Persian general, the expedition was proved fruitless. Aristagoras now feared the resentment & wrath of the Persian monarch, and besides, he had incurred a large amount of debt which he was unable to pay. Under these circumstances he meditated a revolt against the Persian king; and ere he had formed his design he received a message from his uncle Histæus to the same effect. The plan was now matured. With his Ionian allies and other Greeks, he marched against Sardis, and before the Persian Artaphernes could come to its rescue, he burned it to the ground. This was the principle cause that produced so much animosity in the breasts of the succeeding Persian monarchs against Greece.

2. What was the fate of the expedition under Mardonius? Did any Greek state take part with Persia?

2. The expedition sent by Darius under Mardonius against Greece, suffered a severe storm while doubling Mount Athos; in consequence of which the Persian fleet was so much disabled as to oblige Mardonius to return home without effecting any thing on his part.

3. Describe the battle of Marathon. What causes in your opinion, led to the victory, and what were its moral results?

3. Such was the dread of a Persian army and a Persian fleet, entertained by the Greeks at those times, that when the army of Datis was known to be approaching near Athens, the Athenian generals who were appointed to make head against the Persians, were unwilling to fight a battle. Nothing but the undaunted spirit and firm resolution of a man like Miltiades could now induce them to fight. The superior intelligence of this excellent person singled him out from among the ten generals, as the worthy commander; and he now arranged his whole army in the plain of Marathon just opposite to the Persian host. He then ordered his men to advance at a running pace, so that this sudden and vigorous attack on their part, might throw the Persians into terror & confusion & perhaps, oblige them to retreat. His manœuvre proved wholly

successful; the Persians were quite baffled and confused when they saw a small band of Grecians thus venturing to attack their far superior number. After a sharp contest the Persians were totally defeated and obliged to retreat. The defeat of such a vast host of the Persians by a handful of the Grecians is attributable to two causes. First, the want of discipline in the Persian army; secondly, the *speedy march* and *precipitate attack* of Miltiades with his little band. A little delay on the part of Miltiades, a little less willingness in his men to begin the battle, would have proved ruinous not only to the cause of Athens but to that of the whole of Greece. Four of the generals were averse to fight the battle, and the terror of a Persian army among the soldiers was such as to induce them also to leave off courage. Besides there were many partizans of Hippias in Athens, who were willing to surrender themselves to the Persian monarch whenever opportunity offered. Under these circumstances nothing but a speedy battle could bring an end to all those sorts of apprehensions, which were not at all ungrounded, and which would have proved but too true if the generals had delayed a little longer. The effects of this victory over the minds of the Greeks were of the most favourable kind. Up to this time the Persians were reckoned as the most powerful of all the nations of those times, and as quite invincible. But their late defeat perfectly convinced the Greeks that they also were men, and subject to as many vicissitudes of fortunes as other mortals. Thenceforth this idea settled into the Greek mind, and they were from that time emboldened to withstand the Persians.

4. Describe concisely the operations of the Persian army from the check at Thermopylæ to the final repulse of Xerxes?

4. After their defeat at Thermopylæ and the engagement with the Persians at Artemisium, the Greeks retired to the Island of Salamis. The Athenians were obliged to leave their houses & lands when the Persians were known to be approaching to that direction. The natural home-keeping spirit of the Spartans and their coldness and selfish behaviour, had prevented the Athenians from gaining advantage of their assistance, and thus they were obliged to withstand alone against the host of the Persians. The Persian monarch now advanced to Attica and was surprised to find it deserted; he then ordered all the houses and magnificent buildings to be demolished & burnt to the ground. After thus satisfying his revenge,

Xerxes now marched to meet the Greeks at Salamis. Though the Athenians were left alone to fall upon themselves the whole brunt of the battle, they had not lost that courage & resolution for which they were so celebrated. They closed with the enemy; a sharp contest ensued and the Persians were at length obliged to give way. Xerxes now wholly lost his courage and was obliged to retire to his capital city, disgraced and overcome with shame. He had left Mardonius behind him to conduct the war. That general thought it prudent to send away the king as the only means of saving himself from the reproaches which would have inevitably come upon him had any accident fallen to the king. He had now grown desperate; and he had resolved either conquer the whole of Greece or to perish in the attempt.

5. The Spartans Pausanius & Eurybiades were the two generals at Plataea & Mycale, respectively. The battle of Plataea was fought & won by the Greeks under Pausanius on the same day when the Persians were defeated at Mycale under Eurybiades; the former took place in the morning, the latter in the evening; in the year of Christ 479.

7. Themistokles was the first Athenian general that advised his countrymen to build ships and confide themselves in the strength of their navy. He was the greatest man of his time. His ready power of invention & his great presence of mind in the greatest exigencies were faculties well suited to the circumstances of those times. Nothing was difficult for him to conceive; the right expedient seemed to flash upon his mind extempore. But while these qualities made him great, they did not contribute in any way to make him good. For when he died, he died a rich man, an exile, a traitor to his country, and a mean servant & dependent of the Great King.

BY DAMODHUR, JUGGONATH.

ON "JEFFREY'S ESSAY,"—SEE PAGE 44.

[Three hours' time allowed.]

(1) Jeffrey says that the Deliverance of Europe by Allies from the tyranny of the French Emperor having just occurred within

our recollection, it is difficult for us to tell what would be the consequences of it; would it be favourable how far to future generations. Deliverance and Reform are here personified. The word Genius is also personified Genius is here considered as the high impelling power setting before us the images of Reform and Deliverance looking onward to futurity. Genius has two meaning the first means the intellectual power, the second means the spirit or the impelling higher power moving the spirit.

“Abstract for Concrete” means standing by itself for that which is an appendage of of some other thing. The original meaning of the word legitimate is lawful. A legitimate is one who has ascended the throne by the right of inheritance.

(3) The figure is taken from the process of burning. The meaning is that Ambition glows in the heart of a few individuals.

(4) An absolute monarch is one who governs the country according to his will, who sticks to no laws of the country. This will is the law. A constitutional government is that where there is a limited monarchy.

Bonaparte resembles a despot. He governed the country absolutely.

ON JULIUS CÆSAR.

(1.) Gentle Brutus be not suspicious about me. If you know that in contracting new friendships I take a thousand oaths and thus lower myself in the eyes of all wise men; or or flatter a man at first and then reproach and abuse them like a coward afterwards when they are not in our presence; or if you know that I am a reveller or a buffoon then be suspicious about me and consider me as a dangerous character.

“After” is an adverb of time qualifying “do scandal” “do scandal” is a regular transitive verb agreeing in number and person with its nominative I having for its object them.

(2) (a) The soothsayer here make Caesar aware of the ides of of march, as a season when a great calamity is to come upon him.

(3) Here Brutus tells Cassus that Cicero looks with such angry and red eyes “as we have seen him in the Capitol and thus

informing him by hints of some thing ominous that has just happened at coronation of Cæsar.

(γ) When Cassius asked Brutus why he acts so unkindly towards him, he told him that he is not unkind, but that he is vexed with passions which caused an agitation and disturbance in his mind.

(ε) Here Casca when he met Cicero while walking in the streets on a dark and stormy night, tells him the difficult and dangerous nature of the coming time and the likelihood of the coming of a great calamity for he said he saw an owl even at noon haunting the market place.

When Cassius was trying to gain Brutus over to his party that he make take the lead in the conspiracy, told of the dangerous power of Cæsar, and that he has occupied all the world like gigantic statues by his reared and extensive arms.

(3) The characters of these remarkable men appear to be these ; Brutus acts wholly upon principle, Cassius partly upon impulse ; Brutus is a philosopher, Cassius a partizan. Brutus acts only when he has reconciled the contemplation of action with his speculative opinions, Cassius allows the necessity of some action to run before and govern his opinions. Brutus therefore deliberates and spares Cassius precipitates and denounces. Brutus is the nobler instructor Cassius the better politician.

The following lines which Shakespere has put into the mouths of Cæsar and Antony will convey a very idea of the characters of Brutus and Cassius.

Cæs.—Would he were fatter ; but I fear him not,
 Yet if my name is liable to fear,
 I do not know the man I should avoid
 So soon as that spare Cassius. He reads much,
 He is a great observer, and he looks
 Quite through the deeds of men, he loves no plays
 As thou dost Antony, he hears no music,
 Seldom he smiles and smiles in such a sort,
 As if he mock'd himself, and scorn'd the spirit
 That could be mov'd to smile at anything.
 Such men as he be never at hearts ease,
 While they behold a greater than themselves.
 And therefore are they very dangerous.

Ant.—“This was the noblest Roman of them all,
 All the conspirators save only he
 Did that they did in envy of great Caesar
 He only in a general honest thought
 Of common good to all made one of them.
 His life was gentle; and the elements
 So mixed in him, that nature might stand up
 And say to all the world, *this was a man.*”

4: Marullus asks a citizen what is his trade.

(a) Shakespere here makes a pun upon the words all and soul when pronounce them they may stand for the signification.

(β) When Casca came from the procession he told Brutus and Cassius that fell down in the market place. Brutus answered that “he hath the falling sickness. Cassius immediately takes up the point says that he Caesar has not falling sickness but that we having the falling sickness hinting him of the might power of Caesar and their comparative degradation.

(γ) When a quarel took place between Brutus and Cassius on account of some money affairs, Brutus tells Cassius that he is to be blamed for “wringing from the hard hands of of the peasants their vile trash by any indirection.”

(5.) (a) A common expression of showing manly courage and defiance.

(β) Some spark of honour.

Exorcist is derived from the Latin word (Cido) I cut. Alchemy is an Arabic word signifying the extracting of a pure metal from an alloy. Cautelous circumspect, wary.

BY NOWROJEE PUDUMJEE,

Poona College.

ENGLISH COMPOSITION,—SEE PAGE 40.

[Four hours' time allowed.]

THE EFFECTS OF RAILROADS ON CIVILIZATION.

The influence which Railroads have exerted on the History and civilization is marvellous. Wherever the Railroad has gone, it has carried blessings with it. As a field in which the labour, which

otherwise would have been wasted is employed, it is invaluable. The thousands who are at present employed in constructing the iron roads, in fashioning the engines, in working them, would, without the Railway, be thrown out of work, and the greater part without even a hope of remaining out of beggary. For the Railroad did not, like all other great innovations take the food out of the mouths of a large community. It introduced itself, it did not supplant anything. The consequence was that almost all who find work in the Railways, were taken from the poorest of the lower classes. Those who were starving found food, and their place was left vacant. This is not so evident in England and other countries, where commerce flourishes, and the state is prosperous, but in India, where the mass of the people are wretchedly poor, its effect is as striking, as it is beneficial. Look at any city or village in India, through which or near which a line passes, and mark the difference between its past and its present condition. As a proof of this look at Poona. The prices of all articles of consumption are nearly doubled, and in some cases trebled. Now what is the reason of this? The population has not increased, more than at the rate it usually did. The supply of those commodities has not diminished. But though population has not increased the demand has. Those who, before the introduction of the Railway, could barely get the necessaries of life, now enjoy luxury. Nor are these benefits derived by those immediately connected with the railway. But as a means of traffic, at once easy and cheap, which considers distance as next to nothing, and immense loads as feather-light, it has given the means of livelihood to numberless persons. It can scarcely be doubted that that under such a state of things, civilization, both moral and intellectual must progress at a railway-pace. For as a nation becomes richer, it becomes happier. The greater part of the criminals who are yearly punished, are men who are distressed by poverty, and ill-educated to resist strong temptation. But if the temptations are lessened, the crimes necessarily lessen. And as men begin to value the fruits of civilization, they will begin to covet them, and begin to educate their children. Such a state will be arrived at slowly and gradually, but not the less surely, as a country prospers. And it cannot be denied that Railroads tend directly to the prosperity of a country.

Again as easy and efficacious inland communication is established, the civilization of one town is carried to another, and the state of the country bettered; as commerce with foreign countries does. What has made Bombay and Kurrachee the most flourishing cities in the Bombay Presidency, will make the Inland Cities of India flourish, when direct and easy communication between the different cities. When India has become a net-work of Rail-roads intersecting each other when the vast expanse of land, which is lying waste is brought under a high degree of cultivation, then will it rise from its state of semi-barbarity and be considered as one of the civilized countries of the world.

The introduction itself of Railways in a country shows that it has spirit, and is advanced in civilization. Though the Railroad itself is thus far beneficial directly to society, yet indirectly it confers as great benefits. Besides being itself a good investment for capital, it instigates men to projects, in which capital which would else have lain idle, is employed. Thus in India at present the cultivation of cotton is steadily progressing, and when Railroads begin to be established, in the interior, cotton may some day become the staple commodity exported from India. We see therefore, what an important part the introduction of Railroads has played, and will play in the civilisation of the world. It has made as great a revolution in the world, as the discovery of printing made, but in a different province of civilisation.

BY DORABJEE PUDUMJEE,

Poona College.

ENGLISH COMPOSITION,—SEE PAGE 28.

[Four hours' time allowed for this, together with a vernacular essay which this student did not attempt.]

ON HYPOCRISY.

Hypocrisy is of two kinds; One is deceiving people by putting on an appearance of virtue that does not belong to us, or what is called *simulation*; and the other is concealing that vice which properly belongs to us, but which is not thought advisable should be known to the world; and which is called *dissimulation*. The crime of

Hypocrisy is justly thought more condemnable than that of open enmity ; for in the case of an open enemy, you are prepared to receive the blow, and know from what direction, and whence it comes, but against a hypocrite, you can have no defence, his is the dagger that stabs in the dark and unawares. That it serves ones purpose for the time being it is true; for therein lies the temptation : but whoever has known of a man who was successful, without being detected to any length of time, unless he be a very consummate hypocrite, a Richard III. an Iago of fiction merely ? It is not the best policy for this and for another reason ; for if he be a man who respects his feelings, great will be his *mortification* and greater his *shame*, at unsuccess and detection, than of him who has behaved wrongly, but straightforward and openly : and if he be one who cares not for shame nor for the opinion of the world, who is only sorry he has failed in the attempt, his will be the greater *punishment* : for he who is injured shall have two causes to be revenged for, and the one to him not the less aggravating than the other—the injury itself, and the being overreached by another. He will not be an object of persecution of one man only, but to a certain, extent of the whole society ; for what community would endure a *wolf* to roam amongst them in a *sheeps* clothing ?

It is with reason, Sterne has exclaimed, that of all the cants in this world, the cant of Hypocrisy was that which he most despised ; then *playing* the *part* of a hypocrite must assuredly be more disgusting still ; it is a resource to which only low and base minds, apply themselves : a noble mind is beyond it. Coriolanus, to gain a political purpose, stood up to play a hypocrite, and flatter and praise the plebeians whom he in heart despised ; but the noble spirit could ill manage it ; the true feeling *would* burst out whatever care he took to suppress it.

Vice itself is afraid of acknowledging Hypocrisy ; and it is wisely called the homage that Vice pays to Virtue. And with an author we wonder “ What disgusting, intriguing and shifting a man is content to undergo, merely to be considered a man of plain dealing, when one grain of honesty would save him all that trouble.”

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MATHEMATICS,—SEE PAGE 40.

[Four hours' time allowed.]

1. Problem—Let $B D$ [see *fig. A.*] be a plane and A a point without it; it is required to draw from A a straight line perp. to the plane.

Take $B E F$ any str. line in that plane; from A draw $A E$ perpen. $P D$ (I. 12.); now if this be the required perp., the thing is done. But let $A E$ be not perp. to the plane $B D$; draw from E , $E R$ perper. $P D$ in the plane $B D$ (I. 11.); and from A , $A R$ perper. to $R E$; then $A R$ is the required perpendicular.

Draw $B R$ parallel to $P D$ from R (I. 31.). For as $P D$ is perp. to $A E$ as well as to $R E$ (cons.), $P D$ is perp. to the plane which passes through them (XI. 4). Again as $P D$ is perp. to the plane $A R E$, & as $B R$ is parallel to it, $B R$ is also perpendicular to the same plane and therefore to $A R$, a straight line meeting it in that plane. But as $A R$ is perper. to $R E$ (cons) and also to $B R$ (just proved); therefore $A R$ is per. to the plane which passes through them, i. e. to the plane $B D$

Q. E. F.

3. The sum, s , of an infinite series is such that $s = \frac{a}{1-r}$

But here $a = 1$, & $r = -\frac{1}{2}$;

$$\therefore s = \frac{1}{1 - (-\frac{1}{2})} = \frac{1}{1 + \frac{1}{2}} = \frac{1}{\frac{3}{2}} = \frac{2}{3} \quad \text{Q. E. F.}$$

Let $1^2 + 2^2 + 3^2 + \dots + n^2 = A + B n + C n^2 + D n^3 + \&c$; where A, B, C, D , &c are independent of n .

Now take $(n+1)$ for n , and the series becomes $1^2 + 2^2 + 3^2 + \dots + n^2 + (n+1)^2 = A + B(n+1) + C(n+1)^2 + D(n+1)^3 + \&c$

By subtracting from this series the above one we get

$$(n+1)^2 = (A-A) + B(n+1) - Bn + C(n+1)^2 - Cn^2 + D(n+1)^3 - Dn^3 + \&c = (B+C+D) + n(2C+3D) + n^2(3D) + \&c.$$

fig. A.

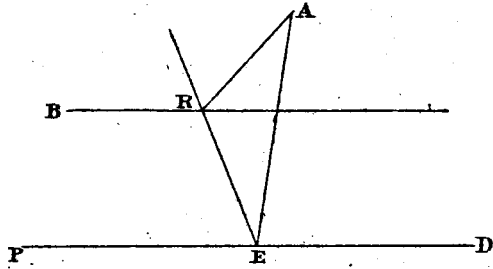


fig. B.

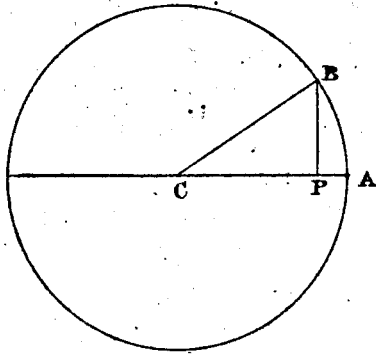
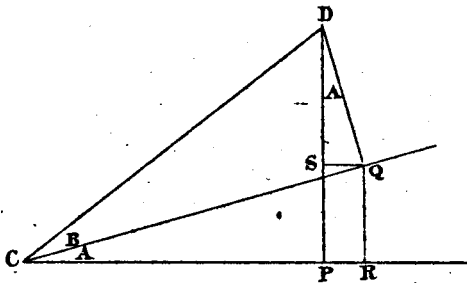


fig. C.



Now this holds for any values of (n) ; \therefore by the Theory of Equations, the co-efficients of the like powers of (n) are equal, and therefore

$$1 = 3D, \therefore D = \frac{1}{3}; 2 = 2C + 3D, \therefore C = \frac{1}{3}; \& 1 = B + C + D, \therefore B = \frac{1}{6}$$

$$\therefore 1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{n}{6} + \frac{n^2}{2} + \frac{n^3}{3}$$

$$= \frac{n(n+1)(2n+1)}{6}$$

Here Λ is not taken since $\Lambda = 0$, for when $\pi = 0$, the identities are $0 = \Lambda$. Likewise the higher powers of n are not taken, since the value of each of their co-efficients is cipher.

4. The sine of an angle Λ C B [see *fig. B.*] is the ratio which the per. B P bears to the radius B C.

As the angle increases from cipher up to 90° , the sine likewise increases and is positive, until at 90° , when it is equal to $+1$.

As the angle increases from 90° to 180° , the sine decreases and in a positive direction until at 180° it is equal to cipher.

As the angle increases from 180° to 270° , its sine likewise increases but in a negative direction, until at 270° it is equal to -1 .

Lastly as the angle increases from 270° to 360° its sine decreases but in a negative direction, until at 360° it is equal to cipher.

From this it evident that if Λ be an angle whose sine is x , x will also be the sine of the angles $2\pi + \Lambda$, $4\pi + \Lambda$, $6\pi + \Lambda$, &c; or by putting in a general expression, x will also be the sine of the angle $(2\pi n + \Lambda)$, where n is a whole positive number.

Q. E. F.

Let Λ C R = \angle A, & Λ C D = \angle B. [see *fig. C.*]

* Then by the definition just given,

$$\sin(\Lambda + B) = \frac{DP}{DC} = \frac{DS + SP}{DC} = \frac{DS + QR}{DC} = \frac{DS}{DC} +$$

$$\frac{QR}{DC} = \frac{DS}{QD} + \frac{DQ}{DC} + \frac{QR}{CQ} + \frac{QC}{DC}$$

But $\frac{DS}{QD} = \cos A$ (since a little reflection will show that

$\angle QDS = A$)

$$\frac{QD}{DC} = \sin B, \quad \frac{DQ}{CQ} = \sin A, \quad \& \quad \frac{QC}{DC} = \cos B$$

$$\therefore \sin(A+B) = \sin A \cos B + \cos A \sin B$$

Q. E. D.

* I forgot to say that DP is perp. to CR , QD to CQ , QR to CR , & QS to DP .

6.

$$\sin \frac{A}{2} = \sqrt{\frac{(s-c)(s-b)}{bc}} \quad (1)$$

$$\& \cos \frac{A}{2} = \sqrt{\frac{s(s-a)}{bc}} \quad (2)$$

Where $s = \frac{1}{2}(a+b+c)$.

\times (1) & (2) and we have

$$\sin \frac{A}{2} \cdot \cos \frac{A}{2} = \frac{1}{bc} \sqrt{s(s-a)(s-b)(s-c)}$$

But by Trig., $2 \cos \frac{A}{2} \sin \frac{A}{2} = \sin A$

$$\therefore \sin A = \frac{2}{bc} \sqrt{s(s-a)(s-b)(s-c)} \quad (3)$$

fig. D.

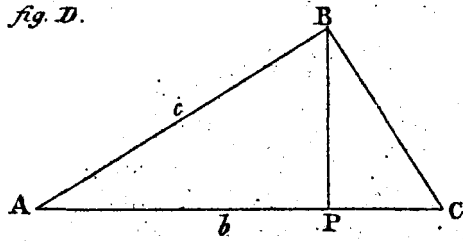


fig. B.

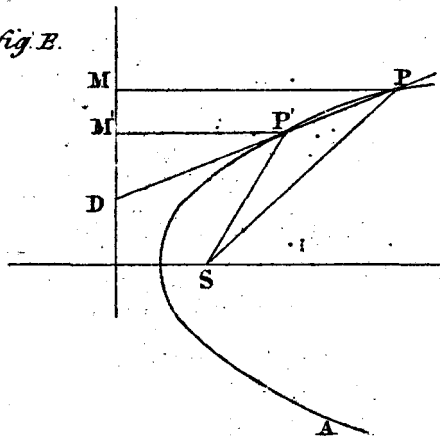
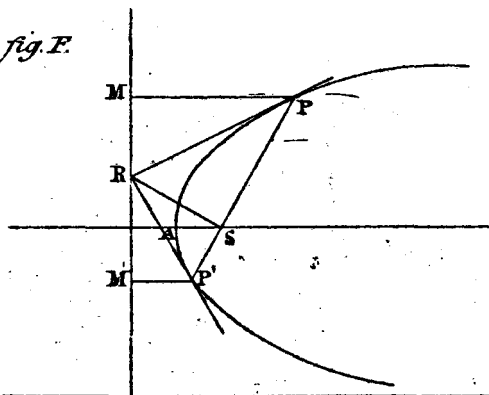


fig. E.



Now the area of the triangle [see *fig. D.*] $\triangle ABC$.

$$= \frac{AC \cdot BP}{2} \quad (\text{where } BP \text{ is the per. from } B \text{ to } AC)$$

$$= \frac{bc \sin A}{2}, \text{ by substitution the value of } \sin A \text{ as found in (3)}$$

we have

$$= \frac{bc}{2} \cdot \frac{2}{bc} \sqrt{s(s-a)(s-b)(s-c)}$$

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

Q. E. F.

7. Let the st. line $PP'D$ [see *fig. E.*] bisect the $\angle MPS$ (where s is the focus, & PM per. to the directrix MM); then $PP'D$ meets the parabola $PP'A$ in one point only.

For if not let it cut in another point P' ; then join $P's$, $P'M$, and draw $P'M'$ per. to the directrix. Now by the property of the parabola $PM = PS$, PP is common and $\angle MPP' = \angle P'PS$ in the two $\triangle s MP P' & P'PS$; $\therefore P'S = P'M$ (I. 4). But $P'S = P'M'$ (parabolic property), $\therefore P'M = P'M'$, an hypotenuse to one of its sides, which is absurd. There $PP'D$ cuts the parabola in one point only, viz. at P .

Q. E. D.

Let PAP' [see *fig. F.*] be an arc of a parabola, & PPS' a focal chord; then the tangents PR & PR' at its extremities intersect at right angles in the directrix MRM' .

First let PR be a tangent and let it meet the directrix in R , join RS ; then $\angle RSP^*$ is a right angle. But $\angle SERP + RSP' = 2$ Right angles; $\therefore RSP'$ is also a right angle and therefore PR' is also a tangent. Now as M & S are right angles, $\angle MPR = \angle RPS$, $\therefore \angle MRP = \angle PPS$. In like manner $\angle SERP' = \angle P'RM'$; $\therefore \angle PRP' = \angle SMRP + M'RP'$. But angles $PRP' + (MRP + M'RP') = 2$ R. angles; $\therefore \angle PRP' =$ one right angle.

Q. E. D.

* It can be thus easily proved. $PM = PS$, PR common, & $\angle MPR = \angle RPS$ in the two $\triangle s MRP & RPS$, $\therefore \angle M =$

$\angle R S P$; but $\angle M$ equals a right angle, therefore $\angle R S P =$ a right angle.

Q. E. D.

[8.] Let $A P' A'$ [see *fig. G.*] be an ellipse, & $R P R'$ tangent to the ellipse from the point P ; $P R$ & $S R'$ perps. to the tangent from the foci P & S ; then the points R & R' lie on the circumference of the circle described upon the major axis $A A'$; and $P R \times S R' = b^2$, where (b) is the semi-minor axis.

Join $P P$ & $P S$, and produce $P P$ & $R S'$ to meet in T . Now as $P R'$ is a tangent, $\angle S P R = \angle R' P T$, $P R$ common & $\angle s$ at R equal (since each by const. is a right angle), $\therefore P T = P S$ & $S R' = R' T$ (I. 4). But $P S + P P = A A'$, $\therefore P T = A A'$. But as $A C = A' C$, & $S R' = R' T$, $\therefore C R' = \frac{1}{2} P T = \frac{1}{2} A A'$, and is parallel to it; \therefore the point R' lies on the circumference of the circle described on the major axis. In like manner we can prove by exactly similar process, by producing $P S'$ instead of $P P$, that R lies on the same circumference.

Q. E. D.

Now describe this circle on the major axis, and let it be $R R' A' A$. Produce $R P$ & $C R'$ to meet the circumference in N (since angle R is a right angle they will meet in the same point) Again as $F C = C S$, $N C = C R'$ (radii), & $\angle F C N = \angle R' C S$ (I. 15.), $\therefore F N = S R'$. But $R P \cdot F N = A P \cdot F A'$ (III. 35); and as $A P \cdot F A' = b^2$ and as $F N = R S$, $\therefore P R \cdot S R' = b^2$

Q. E. D.

9.

Let $Y O'$ & $X O'$ [see *fig. H.*] be the fixed axes of co-ordinates and $O' P P'$ be a straight line passing through the origin O' , and let α & β be the angles made by this line with the axes. Then if $P N$, $P' N'$ be drawn parallel to $O' Y$,

$$\frac{P N}{O' N} = \frac{P' N'}{O' N'} = \frac{P' N'}{O' N'} = \&c = \frac{\sin \alpha}{\sin \beta}$$

Taking the fixed ratio $\frac{\sin \alpha}{\sin \beta} = \frac{A}{B}$

we have $\frac{P N}{O' N} = \frac{A}{B}$

fig. G.

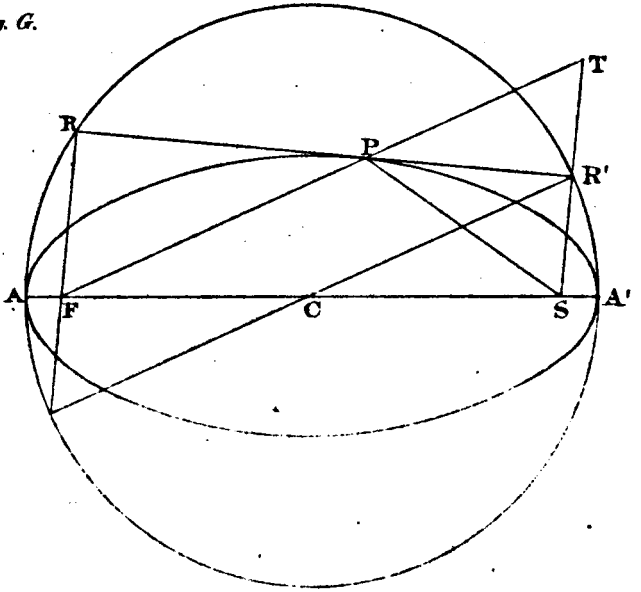
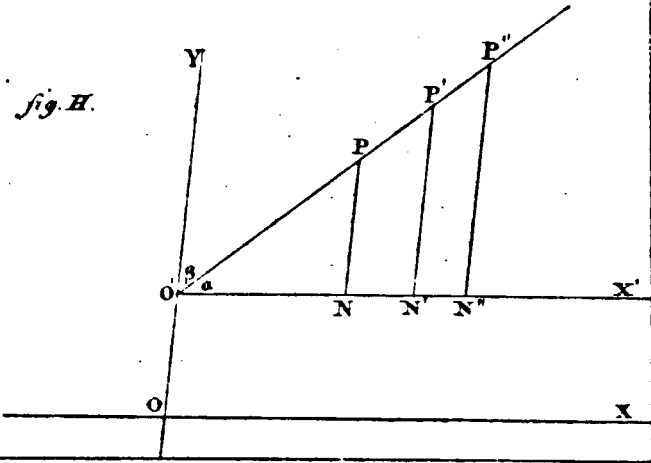


fig. H.



But P might be any point along the line $O'P$, as we have just seen; \therefore every point along the line $O'P$ has this relation that its

$\frac{PN}{ON'}$ = a fixed ratio. Calling PN , y , & ON' x , we have for the

equa. of the line the relation

$$\frac{y}{x} = \frac{A}{B}, \quad By + Ax = 0.$$

But if $O'O'$ be taken equal to c and if from O drew Ox parallel $O'x'$; and taking Oy and Ox as our fixed axes of co-ordinates, we would have the new $y' = y + c$, and therefore the equation of the line $O'P$ when referred to Oy , & Ox is $Ax + By + c = 0$.

And therefore conversely $Ax + By + c = 0$ is the equation of a right line. Q. E. D.

The intercepts on the axes, as obtained by making x & y

successively equal to cipher, are $-\frac{c}{A}$ & $-\frac{c}{B}$. Q. E. D.

When $c = 0$, the intercept $O'O' = 0$, and therefore the line $O'P$ passes through the origin.

Q. E. D.

10. (3) $Ax^2 + Bxy + Cy^2 + Dx + Ey + F = 0$.

In this equation if $A = C$, & $B = -2A \sin \alpha$ (where α = the inclination of the axes), and $D^2 + E^2 - 4F = 0$; then $Ax^2 + Bxy + Cy^2 + Dx + Ey + F = 0$ represents a point or more properly a circle whose radius is cipher.

$x^2 - y^2 = 0$ represent the bisectors of the angles made by the axes; since it can be resolved in to $x - y = 0$, & $x + y = 0$.

$(x - a)^2 = 0$ represents two coincident st. lines, parallel to the axis of (y) at a distance from the origin = a .

$x^2 + y^2 = 0$ represents two imaginary st. lines passing through the origin, since it can be resolved into $(x + y\sqrt{-1} = 0$ & $(x - y\sqrt{-1} = 0)$.

$xy = 0$ represents the two axes of coordinates, since it is satisfied by $x = 0$, & $y = 0$.

$$11. \quad x = a \sec \theta, \text{ \& \ } y = b \tan \theta.$$

$$\therefore \frac{x^2}{a^2} = \sec^2 \theta, \text{ \& \ } \frac{y^2}{b^2} = \tan^2 \theta; \text{ by subtracting we have}$$

$$\frac{x^2}{a^2} - \frac{y^2}{b^2} = \sec^2 \theta - \tan^2 \theta = 1;$$

$$\text{But } \frac{x^2}{a^2} - \frac{y^2}{b^2} = 1 \text{ is the equation of an hyperbola; } \therefore x = a \sec \theta, \text{ \& \ } y = b \tan \theta \text{ must represent an hyperbola.}$$

12. The limit of $f(x)$ when $x = 0$ is that value toward which the function approaches when x is taken equal to cipher. Thus if $f(x) = 12x^2 - 13x + 15$, the limit towards which this function approaches when $x = 0$ is evidently 15.*

The Differential coefficient of $a^x = a^x \log(a)$; it is thus found.

$$\text{Let } n = a^x, \therefore \log n = x \log a, \therefore \frac{dn}{n} = \log a \cdot dx$$

$$\therefore \frac{dn}{dx} = n \log a$$

$$= a^x \log a.$$

Q. E. F.

$$d. (6x^5 + 30x^3 + 5)(x - 2) = (6x^5 + 30x^3 + 5).$$

$$d. (x - 2) + (x - 2) d. (6x^5 + 30x^3 + 5)$$

$$= (6x^5 + 30x^3 + 5) dx + (x - 2)(30x^4 dx + 90x^2 dx)$$

$$= dx \left\{ (6x^5 + 30x^3 + 5) + (x - 2)(30x^4 + 90x^2) \right\}$$

$$= dx (36x^5 + 60x^4 - 150x^3 + 5). \quad \text{Q. E. F.}$$

$$\text{Let } n = f(x), \quad n' = f(x + h)$$

$$\therefore n' - n = f(x + h) - f(x)$$

Now the limit towards which $\left(\frac{n - n}{h}\right)$ approaches when h is taken equal to cipher is what is called the Differential co-efficient of $f(x)$.

(2.) Let there be $a, b, c, d,$ &c. n quantities; then it is required to find the number of permutations when taken all together.

Now $b, c, d,$ &c can be combined with (a) , $(n - 1)$ times.

In like manner $a, c, d,$ &c (b) $(n - 1)$ times

Therefore by continuing this process to (n) we shall have $n(n - 1)$ permutations by two;

Again suppressing a , we shall have by the same law $(n - 1)$ $(n - 2)$ permutation of $b, c, d,$ &c when taken by two; and joining to each of these (a) , we shall have $(n - 1)(n - 2)$ permutation of threes in which (a) stands first; in like manner we shall have $(n - 1)(n - 2)$ per..... (b)
(no time)

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MATHEMATICS,—SEE PAGE 40.

[Four hours' time allowed.]

1 Let A [see *fig. 1*] be the given point above the plane EF it is required to draw a \perp from the point A to the plane EF In the plane EF take any line EK and from A draw $AB \perp$ to it. If this line be \perp to the plane the thing required is done but if it be not then from the point B draw BD in the plane $EF \perp$ to BK and from A draw $AC \perp$ to it and through C draw $CF \parallel$ to BK .

Now since BE is \perp to each of the line BA, BD it is \perp to the plane DBA . But CF is \parallel to EK and if one of two \parallel straight lines be \perp to a plane the other is also \perp to it $\therefore CF$ is \perp to DBA and \therefore to every straight line meeting it in that plane $\therefore CF$ is \perp to AC but AC is \perp to $BD \therefore AC$ is \perp to the plane EF passing BD, CF

2 The number of permutations of n things taken all together are

$$n(n-1)(n-2)\dots 3.2.1$$

4 The sign of an angle is the perpendicular drawn from one of the extremities of the arc intercepted between the sides of the angle upon a diameter, passing through its other extremities, of a circle of which the centre is the angular point. The trigonometrical sign is the ratio between this perpendicular and the radius of the circle. When the angle is 0° the sign is 0 and as the angle increases from 0° to 90° the sign increases from 0 to $+1$ and at 90° the sign is $+1$ then as the angle increases the sign diminishes and at 180° it becomes 0.

It still goes on decreasing till the angle becomes of 270° at which the sign is -1 when it begins to increase till the angles become of 360° at which the sign is 0 the sign in the 1st & 2nd quadrants is plus and in the third and fourth it is minus

The general expression for all the angles whose sign is x

$(2\pi n + \sin^{-1}x)$ where n shows the number of revolutions round the \odot & $\sin^{-1}x$ shows the first angle.

Let $\triangle ABC$ [see fig. 2] be a \triangle and let $\angle C$ be an acute angle then $(A + B)$ is $>90^\circ$ & $<180^\circ$ and let none of the angle A & B be a right angle

From C draw $CD \perp$ to AB then

$$AB = AD + BD \text{ substituting the values of } AD, BD, AB$$

$$\therefore c = b \cos A + a \cos B$$

dividing by b we get

$$1 = \frac{b}{c} \cos A + \frac{a}{c} \cos B \dots \dots \dots (1)$$

but by the properties of plane triangles

$$\frac{b}{c} = \frac{\sin B}{\sin C} \quad \& \quad \frac{a}{c} = \frac{\sin A}{\sin C}$$

substituting these values in (1) we get

$$1 = \frac{\sin B}{\sin C} \cos A + \frac{\sin A}{\sin C} \cos B \text{ multiplying by } \sin C \text{ we get}$$

$$\sin C = \sin B \cos A + \sin A \cos B$$

$$\text{but } A + B + C = 180^\circ$$

fig. 1.

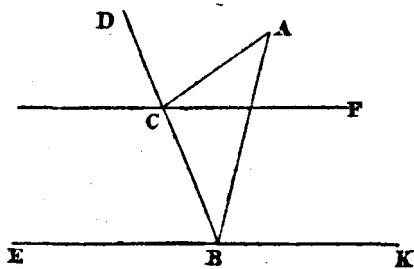


fig. 2.

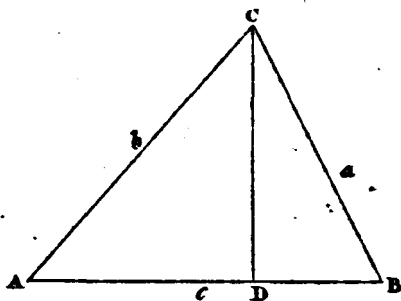


fig. 3.

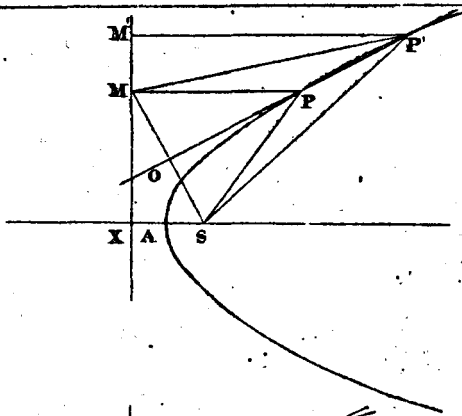


fig. 4.

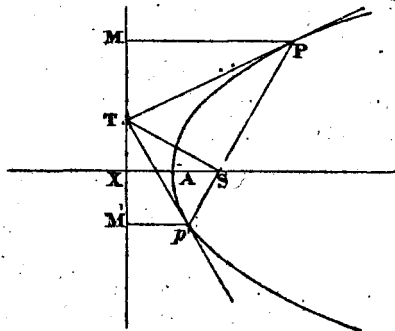
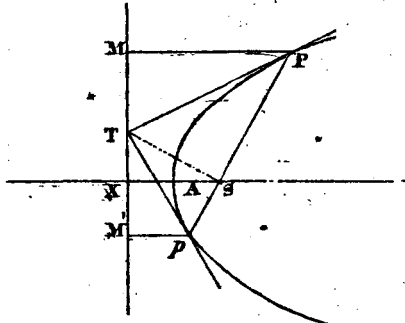


fig. 5.



$$\therefore C = 180^\circ - (A + B)$$

$$\therefore \sin C = \sin (180 - (A + B)) = \sin (A + B)$$

$$\therefore \sin (A + B) = \sin A \cos B + \sin B \cos A$$

6 The area of the ΔABC [see *fig. 2*] is equal $\frac{1}{2} AB \cdot C$ D
but $C D = AC \cdot \sin A$

$$\therefore \Delta \text{ area} = \frac{1}{2} AB \cdot AC \cdot \sin A$$

$$\therefore \sin A = \frac{2}{bc} \sqrt{s(s-a)(s-b)(s-c)}$$

$$\therefore \Delta \text{ area} = \sqrt{s(s-a)(s-b)(s-c)}$$

7. The straight line PO [see *fig. 3*] which bisects $\angle SP M$ is a tangent to the curve. If it be not let it cut the curve in the point P' join SP' draw $P'M' \perp$ to MX join $P'M, SM$

Now

$$\therefore SP = PM; \angle SPO = \angle OPM \text{ and } PO \text{ is common}$$

$$\therefore SO = MO; \angle SOP = \angle POM$$

Again

$$SO = OM; \angle SOP = \angle POM \text{ \& } PO \text{ is common}$$

$$\therefore SP = PM \text{ but by the nature } SP = PM'$$

$$\therefore PM = PM'$$

$$\therefore \angle P'MM' = \angle P'MM \text{ which is impossible.}$$

\therefore the line PO does not cut the curve in the point P' . In the way that it does not meet the curve in any other point but P and \therefore it is a tangent at P .

Let PT and $P'T$ [see *fig. 4*] be the tangents at extremities of a chord PP' which passes through S the focus of the curve and let them meet in the point T then T is in the directrix.

Through T draw a line \perp to the XA of the curve and from P, P' draw $PM, P'M' \perp$ to it & join ST

$$\text{And because } ST \text{ is } \perp \text{ to } PP' \angle PST \text{ is } \perp \text{ \& } \therefore \angle P'MT$$

$$\angle SPT = \angle TPM \text{ \& } PT \text{ is common } \therefore PS = PM$$

In the way it may be proved $P'S = P'M' \therefore MM'$ is the directrix

The preceding pro. can be proved in another way thus [see *fig. 5*] If from a point T in the directrix MM' tangents be drawn to curve and if the points of contact P, P' be joined with the focus S, P, P' is a straight line.

Draw $PM, P'M' \perp$ to the directrix
join ST .

Now $PM = SP$, $\angle SPT = \angle TFM$ & PT is common
 $\therefore \angle PMT = \angle PST = \text{a right angle}$ In the same manner
 $\angle PST$ may be proved to be a right angle
 \therefore since $\angle PST + \angle PST = 2 \text{ right angles}$
 PT is a straight line.

8. The perpendiculars [see *fig. 6*] ST , HT drawn from the foci S , H upon the tangent TT' at P cut the tangent in the circumference of a circle described upon Aa

Join SP , HP , CT produce HP , ST till they meet

Now

$\angle STP = \angle KTP$, $\angle SPT = \angle TPK$ & PT is common

$\therefore PK = SP$ & $ST = KT$

$\therefore ST = KT$, $SC = CH$

$\therefore CT$ is \parallel & $\frac{1}{2}$ of HK

$\therefore 2CT = HK = PH + PK = PH + SP = 2a$

$\therefore CT = a$

In the same manner it may be proved that $CT' = a$

\therefore the circle described with C as a centre and radius equal to a will pass through the extremities of CT & CT' Q, E, D

$$ST \cdot HT = BC^2$$

Describe a circle upon Aa [see *fig. 7*] it will pass through T , T' produce TS to K and join CK , CT'

Then because C is the centre of the circle & CK , CT' are radii & $\angle KTT'$ is a right angle

$\therefore KT$ is a diameter

Now

$SC = CH$, $CK = CT'$; $\angle SCK = \angle HCT'$

$\therefore HT' = SK$

but $SK \cdot ST = a^2$. $AS = BC^2$

& $SK = HT$

$\therefore ST \cdot HT' = BC^2$

9th. $Ax + By + C = 0$

The intercepts made by the line represented by the above equation are

when $y = 0$ the intercept on the axis of x is $-\frac{C}{A}$ & when $x = 0$ the

fig. 6.

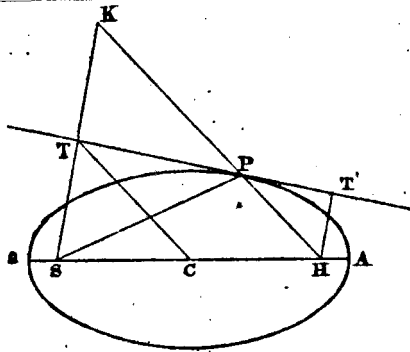


fig. 7.

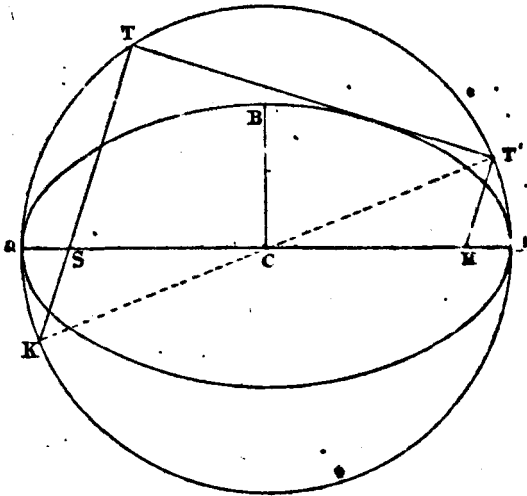
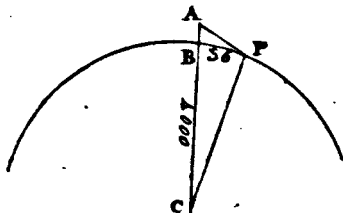


fig. 8.



intercept on axis of y is $-\frac{c}{B}$

The above equation may be put under the form

$$y = -\frac{A}{B}x - \frac{C}{B}$$

in this $-\frac{C}{B}$ is the intercept made by the line on the axis of y

& $-\frac{A}{B}$ is the tangent of the angle made by the line with the axis of x

This equation represents a right line because in the first place it is linear that is of the first degree and each value of y gives a corresponding value of x

$c = 0$ shows that the line passes through origin

5. Since BP [see *fig.* 8] compared with the circumference of the whole earth may be regarded as a straight line & since the angles APC , ABP , PBC are each right angles

$WB P^2 = AB \cdot BC$

$$\therefore AB = \frac{BP^2}{BC} = \frac{1296}{4000} = \frac{81}{250}$$

5280

81

528

4224

feet

$$25'0)42768'0 \left(1710 \frac{18}{25} \right)$$

25

177

175

26

25

18

BY BALA MUNGESH,

Elphinstone College.

LOGIC,—SEE PAGE 32.

[Three hours' time allowed.]

1. The three operations of the mind, chiefly concerned in logic are I Simple Apprehension: II Judgment; and III Reasoning. The products of these three faculties are respectively simple terms or Concepts; judgments: and reasonings or arguments. Now terms may sometimes be indistinctly apprehended by the mind: the judgments it (mind) produces may be false: and the arguments it furnishes may be inclusive; therefore the operations of the mind mentioned above are each respectively liable to the following defects viz: Simple apprehension to indistinctness: judgment to falsity: and Reasoning to inconclusiveness.

The mind as soon as it forms conceptions, within itself represents these concepts by words, in order to be able to use them at some further time without undergoing the same operation, and also to be able to convey them (concepts) to other persons.

Words that are used in their common signification are called words of the first intention but they become words of second Intention, when they are used in a technical and scientific sense. Thus the word line as a word of the first Intention, simply means a string, but used in Mathematics it means "length without breadth."

2. (a) Categorical Propositions are of four kinds viz. I Universal Affirmative; II Universal negative: III Particular Affirmative. & IV Particular Negative. "All men are mortal" is an instance of the first "no liar is virtuous" of the second "some men are virtuous" of the third; and "some men are not avaricious" of the fourth.

(b) Matter is defined by Aldrich, "the extent of the connection between the subject & predicate of a proposition. "Impossible matter" he says "is that in which the subject and predicate of a proposition disagree essentially." As thus "No liar is a virtuous" means that the class "virtuous" essentially differs from the class "liar" and therefore it (virtuous) always excludes the class liar, & can never be affirmatively predicated of it ("liar.")

(γ) Contradictory propositions are those which, having the same subject and predicate, differ in quality as well as quantity. "Every man is virtuous" and "some men are not virtuous:" are instances of Contradictory Propositions: so also "No liar is virtuous" and "some liars are virtuous."

(δ) Subaltern propositions are those which have the same subject and predicate but differ in quantity. Universal affirmatives, & particular affirmatives: as well as Universal negatives & particular negatives; are called Subaltern Propositions Thus "All men are philosophers" and "some men are philosophers": and "No prudent man deserves censure" & "Some prudent men deserve censure." The difference between Contradictory and subaltern Proposition is this: that contradictories cannot be both true or both false in any matter, while subalterns may be both true, or both false or one true & the other false.

3. "Bombay is a city" if this proposition be taken as "singular" it cannot be converted simply, for according to Aldrich, the subject of a "singular Proposition" is always distributed; and therefore if simply converted the term "Bombay" which is distributed in the exposita will not be distributed in the converted proposition. If we take it, as a particular proposition then it is thus converted simply—"Some city is Bombay." But if we take it as a singular proposition, then it is thus converted by Limitation [altering the quantity] "Some city is Bombay." It

4. The *Dictum de omni et nullo* is this—"Whatever is said of a class [affirmatively or negatively] may be said of all things [affirmatively or negatively] that are included under that class.

5. "All virtue is good"

Prudence is good

Therefore Prudence is virtue

In this argument though the conclusion happens to be true, there is a fallacy called "the fallacy of the Undistributed Middle." Here the same thing is predicated of two classes, and therefore nothing follows from such an argument. It violates the syllogistic rule which says that the Middle term must at least be distributed in one of the premises.

6. The sentence as it stand is called an Enthymeme. The

major premise is suppressed here. The argument is thus syllogistically stated—

Every person who despises the threats of his enemies is
courageous

Queen Elizabeth did despise the threats of her enemies

Therefore Queen Elizabeth was a courageous woman.

7. The Dilemma is a species of conditional syllogism, whose major premiss is composed either of different antecedents followed by the same consequent; or different antecedents followed by different consequents: and whose minor is always a disjunctive proposition. It is called a simple Dilemma when different antecedents, followed by the same consequent, constitute the major premiss. Thus If A is B , C is D : if E is F C is D [Major Premiss], but either A is B or C is D [Minor Premiss] therefore C is D . It is called a complex Dilemma, when different antecedents followed by different consequents constitute the Major premiss. Thus If A is B , C is D ; if E is F , M is N [Major Premiss] but either A is B or C is D [Minor Premiss] therefore either C is D or M is N . A dilemma is said to be constructive, when the truth of all the antecedents is admitted in the minor premiss, and thence is inferred in the conclusion, the truth of the consequent or consequents. A dilemma is said to be destructive when the truth of the contradictory of the consequent or consequents is affirmed in the minor premiss and thence the contradictory of the antecedents is inferred in the conclusion. A Dilemma is said to be partly destructive and partly constructive when the minor premiss is made up of the contradictory of some of the consequents, and the affirmation of all the antecedents, whose consequents are not denied.

(8) The difference between Inductive and Deductive Reasoning is this—The first proceeds from particulars to generals: from certain observed facts to a general law, while the second assumes an universal proposition, & thence descends to particulars. All laws of nature are ascertained by the former process. The maxim to be observed in Inductive Reasoning is that whatever is affirmed or denied of several individual things may be affirmed or denied of the class, which is constituted by those things.

All arguments drawn from history are deductive.

(9) Whatever is injurious to your health I recommend
 you to avoid .

The house you occupy [being too near the Mahim
Drain]* is injurious to your health.

Therefore The house you occupy I recommend you to avoid.

* The minor premiss of this syllogism is according to Aldrich an
Ethymematic sentence.

Succaram & Pestonji [being weak] were obliged to
leave that house

You are weak like Succaram & Pestonji

Therefore You shall be obliged to leave that house

This is an instance of what is called by Aldrich—"Example."

Dadabhoy [being strong] lived there without being
hurt

You are not strong like Dadabhoy

Therefore You shall not live there without being hurt.

This is also an instance of "Example."

All persons that cannot live in a place without falling
sick ought to avoid it

You cannot live in that place with falling sick

Therefore You ought to avoid that place

10 The uses of Logic as an art are two; 1st it enables the mind to detect false arguments brought forward by others; 2ndly it enables the mind to argue correctly: The uses of logic as a science; are 1st it strengthens such faculties of the mind as Reflection Comparison, abstraction, generalization & Denomination; 2ndly it places the mind in the right path for the discovery of truth; it furnishes the mind with a power which it can make use of in every subject mathematical, or literary talents, would be of no avail to their possessor if he be untrained in logic.

BY NARAYEN MAHADEO,

Elphinstone College.

GRAMMAR AND PHILOLOGY,—SEE PAGE 28.

[Three hours and a half allowed.]

A.—MARATHI.

I. 1. मला. is a pers: pronoun, 'common' gender 1st pers: sing, and in the second case. गांवास is a com: noun, mas or neut: gender, 3rd pers: sing. in the second case. Properly speaking these two words are in the locative case. जावें is here used for जाणें a participial noun, neut: gen: 3rd pers. sing: nom: to लागलें which is a verb of the उभयविध* kind, but here intrans: past, indic: 3rd pers. sing agreeing with its nom: जावें. Here जावें is the कर्ता, अकर्म कर्तरी प्रयोग.

2. भावो प्रायोग is that which has for its nom: a noun or pro: in the 3rd case and an intrans. verb, as त्याणें जावें. भावकर्तरी प्रयोग is a species of प्रयोग in which the verb is of a प्रयोग्य घातु—त्याच्यानें खाववतें त्याच्यानें जाववतें.

Declension of जाणें.

PRESENT.		PAST.		FUTURE.	
pers. sing	pl.	pers. sing	pl.	pers. sing	pl.
1st जातो	जातो	1st गेलों	गेलों	1st जाईल	जाळ
2nd जातोस	जातां	2nd गेलास	गेलों, गेलेत	2nd जाशील	जाळ
3rd जातो	जाताव	3rd गेला	गेलें	3rd जाईल	जातील

II. 1. The word सद्गुणी can not I think be brought under more than two समास; the षष्ठीत and कर्म.

2. पुढास is a com: noun; mas: gend. 3rd pers: sing in the 2nd case. सर्वदा is an adverb of time, qualifying देणें which is a participial noun, partaking of the property of a verb in which capacity it governs उक्तेजन in the objective case; and of a noun, in the nom. case to आहे. दिनेचूचें is a com: noun, mas. gend, 3rd pers. sing in the case of possession (the 6th): it relates to कर्तव्य. which is a com: noun. neut, 3rd p. sing. nom. appo: देणें.

III. 1. चंचल. is derived from चल to move: the words अचल, निचल are derived from it.

* The word उभयविध means double sorted, viz, here as applied to a verb, trans & intrans.

2. Prefixes अ, अन्, सन्, दुस् दुर्, निस्, निर, च.

Affixes आर्, रत्न, दार, खाना. The last two are, I suppose, Persian.

C.—ENGLISH.

(a.) The words *monument, preserve, sacred, consign*, and (I think) *celestial* are derived from Latin. Epitaph is probably of Greek origin.

(β.) The third line contains a metaphor—Tomb is put for a man connected with a temple, & the remains, for treasure given in his Charge.

In the next line also, mind is compared to an object & the body to its receptacle or covering.

In the metaphor one thing is put for another, as in the case of the tomb above now if this metaphor be continued in some such manner as this—Preserve, O! sacred Tomb &c. . . . and never allow that sacrilegious ravisher Time to despoil your sanctuary of it &c.—and thus new relations pointed out between the first terms, the figure becomes an allegory: which is a continued metaphor.

(γ) 'Want' means absence of necessaries; absence of any desired object; simply desiré: here I think it means 'A desire to take away.'

(δ.) Latter here means, I think, last.

(ε.) Holy is applied to things which are in themselves pure & worthy of reverence; while sacred, to those which are regarded as such, generally.

(η.) The lines are scanned in the question by means of accents. This metre is called iambic; From its being employed in epics it is called the *heroic couplet*.

2. 'Reliance' takes after it the preposition *on*, while confidence is followed by *in*. As, "I have the greatest confidence in the judgment and ability of so & so," "I place no reliance on him."

(β.) Dispense means to give away, as an apothecary dispenses medicines. Dispensation means distribution or giving, but I think the latter word is not applied except to the doings of God.—as the moral dispensations of Providence.

(γ.) Reflection is derived from *re—back*, & *flecto—I bend* & hence means bending back literally. Its other meanings are: the throwing back of a ray of light from a bright surface; thinking

(bending as it were of the mind on its own actions & deed) also an observation, as a reflection on one's character: reflection of credit.

3. 'Impertinent' etymologically means 'not to the point,' irrelevant. I think it is derived from *im*—not and *pertinō*—to belong to—as appertain. Usually impertinent means, saucy as an impertinent answer.

Impudent is derived from *im*—not and *pudeo*—I am ashamed; Insolent, from *in*—not, and *soleo*—I am accustomed.

(β.) Venial is derived from *venum*—poison; connive, from *con*—together & *nicto* I wink; unprecedented, from *un*—not, *pre*—before, & *cedo*—I go.

4. { They gave him little encouragement—means, they gave him no encouragement,
 { They gave him a little encouragement—They gave him some encouragement.

{ He could but weep means He could only weep.
 { He could not but weep—He could not help weeping.

5. The wind being favorable, we set sail. Here the case of wind is *nom*: absolute to 'being.'

6 (a.) Whom neither death nor danger could ever dismay.

(β.) Woe was worth his cook except his sauce &c.

7 (γ.) Treaties must be spelt—Treatise; and there must be a 'which' after it. But even then it appears awkward. There must be some person here instead of treatise. And again 'quoting from a shlok' is improper—It must be some book or part of a book and 'quoted' must be put out & 'did' put in. Quoted from some 'shlok' is improper because it is here put in opposition to the *koran* which is a book while a shlok is merely a stanza. There is still another impropriety left; *like* may be put out and as introduced: Sanskrit... & *koran* do not form a good opposition.

No. 1756 of 1859.

POONA :

Office of the Director of Public Instruction,

20th August 1859.

To the PRINCIPALS OF THE ELPHINSTONE AND POONA COLLEGES.

MEMORANDUM.

IN forwarding, for the information of the Principals and Professors of the Elphinstone and Poona Colleges, extract from the Report of the Examiners for Senior Scholarships, I beg to express my opinion that, on the whole, the report is encouraging.

2. The chief failures may be resolved into the two deficiencies of rudimentary knowledge and independent thought.

(a.) *Want of Rudimentary Knowledge.*—The only adequate remedy for the former fault is the infusion of greater learning, ability, and professional skill into the direction of the schools which prepare boys for college. It would serve no purpose for me to dilate on this topic here. There is, as you are aware, a certain improvement visible in each fresh batch of junior scholars elected at your college, and I am constantly engaged, with the means at my disposal, in attempts to make this improvement more marked and rapid.

Still, unless an increase of expenditure is made on our preparatory schools, that the present state of the finances is held to prohibit and private liberality will hardly provide, you will have, as heretofore, to give the best training that you can to youths confessedly unfurnished with the amount of scholarship that young men are expected to bring with them to Oxford and Cambridge. Under these circumstances, the ground-studies of English philology and composition, translation into and from the vernacular, the science of arithmetic and geometry, will demand the chief energies of the professors. Frequent college examinations, both *visá voce* and on paper, directed to prove the respondent's knowledge of fundamentals, provide, as you will doubtless think, the best way of ensuring thorough scholarship,

and of neutralising the dangers that are always apt to arise from the "cramming" system, unavoidably fostered by public examinations. In these college examinations, it would, I suggest, be very useful for each professor to obtain assistance from his colleagues in at least the preparation of questions.

(b.) *Want of Reflection.*—As regards the standing complaint of examiners, that native students rely too much on a strong memory to the exclusion of independent thought, I fear that for the present we must to some extent allow this fault to pass as a national characteristic. The principals and professors, however, are well aware of the necessity of striving incessantly to reduce the evil by judicious exercises.

Usefulness of Translation.—I am persuaded that there is one remedy to this evil of great and exceptional potency, namely, the constant practice of *close* translation into and from English. The mental discipline involved in this exercise cannot be eluded; and I beg that you will insist on its daily practice. My wish is strengthened by the unfavourable report of the vernacular performances of the students.

(I would propose also for your consideration, whether the more skilful translators among the students might not be beneficially employed in some systematic continuous work of a kind that would be useful to the public. There is not, I believe, a single treatise of any magnitude on any branch of history, literature, or science, in Gujarati or Marathi. I do not see why our colleges should not do something to supply this deficiency, to the great advantage of their students as well as of the public. I do not now refer to the preparation of school-books, manuals, compilations, and the like, for the Educational Department has already sufficient agencies at work under this head, but of complete standard treatises or literary compositions suitable for the use of persons who have had a fair education, whether vernacular or Anglo-vernacular, but are unable to master without assistance the higher class of English literature. I mention a few books that might thus be taken up:—Elphinstone's India, Mill and Wilson's India, Hallam's England, Hallam's Middle Ages, Gibbon's Roman Empire, Arnold's Rome, Merivale's Rome, Grote's Greece, Mill's Logic, Mill's Political Economy, Dr. Stewart's Moral Philosophy, Sir W. Hamilton's Reid, Thomson's Laws of Thought, Aristotle's Ethics, The Republic and Phædo

of Plato, Whewell's Elements of Morality, Aristotle's Politics, Vattel's Law of Nations, Phillimore's or Leapingwell's Jurisprudence, Story's Conflict of Laws, Smith's Mercantile Law, Addison on Contracts, Shakspeare's Plays, the works of other English Dramatists, Bacon's Novum Organon, Advancement of Learning, and Essays, standard works on Mathematics, Chemistry, Physics, Machinery, Natural History, &c. On the other hand, translations from genuine indigenous literature, of which specimens are given in the Nao Nit, would be most interesting and useful. The Duxina Fellows will be available for the direction of this work, which, I will say in conclusion, ought not to be obstructed by any suggestions as to the possible or probable inferiority of the translations that will be at first produced by it.)

Mathematics.—I am happy to observe that both colleges have done well, and that the students of the Elphinstone college have distinguished themselves in mathematics this year. The examiners' recommendation of the system of private tuition has been carried out to some extent at the Elphinstone College, by means of the Duxina Fellows, with very good effect.

As regards the examiners' suggestion in paragraph 7 (unless the professors are of opinion, after inquiry, that the present system of printing the questions on the margin of the paper on which the answers are to be written operates practically as an embarrassment to candidates), I do not propose to alter the system, which is recommended by great convenience and by precedent in the University of Oxford.

Composition. (a) English.—Comparing the report with the appended specimens of answering, I am satisfied that the Elphinstone College has rather advanced in point of English since last year, and that the Poona College has made very material progress. The absence, during the year, of Professor Owen has had its natural effect on the former.

(b) Vernacular.—As regards the failure of so many at both colleges in the vernacular essay, I am constrained to say that, in my opinion, the subject proposed was not very suitable to any of the students, and was particularly unsuited to the Parsees.* I

* "The Changes in Indian Society which have taken place since the days of Menu."

do not wonder that very few tolerable compositions were sent in for so large and difficult a theme.

Philology.—With the answers in grammar and philology, the examiners were not very well satisfied. The mistake specially complained of (of attributing “person” to nouns) is found in common English grammars, and the students doubtless learned it at school. For the future, college students will be expected to provide themselves with Arnold’s Classical English Grammar, and the two parts of his “Spelling turned Etymology.” Those who can afford it should also possess Richardson’s English Dictionary (8vo.). Latham’s “English Language” and Richardson’s larger English Dictionary (4to.) should be in the library of each college and in the hands of each literature professor. The professors of literature are requested to see that this order is carried out.

Spelling.—The examiners attribute to haste and carelessness the faults of spelling, which seem not to have been numerous. But even with this explanation, the fact that there should be several faults of spelling, however caused, in any student’s paper, is disgraceful. To mark the sense which I have of the demerits of false spelling, I shall next year request the examiners to reject altogether any paper which contains more than three palpable mistakes in spelling or gross breaches of grammar. I say palpable mistakes, because I would freely give a student the benefit of the doubt wherever there is an opportunity.

Logic, &c.—There seems to have been an improvement in logic since last year. The historical answering is well spoken of. Many students seem to have failed in their English “books.” As, however, it is a new feature in the examination for students to bring up for examination books which they have not been lectured on, as this novelty is intimately connected with the important object of encouraging private independent study, I do not think it necessary to express any disappointment on this occasion. I have laid down, in the Senior Scholarship Standard, a list of books from which candidates in 1860 are to select. This will exclude the unsuitable works which some have brought up this year.

Hand-writing.—I am glad that the examiners have thought fit to advert to the subject of hand-writing, the importance of which is depreciated only by the thoughtless. The hand-writing of the

Poona students generally, and of many Bombay students, used to be wretchedly bad, so bad as seriously to interfere with their prospects in life. There has been a great improvement in Poona in this respect, and I also observe an advance in the Elphinstone students, but there is still much to be done in raising the standard of calligraphy. Writing should be large and bold, and the letters completely formed.

Chemistry.—The practical examination in chemistry was introduced at my request on the model of the Oxford Middle Class Examinations of 1858. I am gratified that there should have been found one student to pass it satisfactorily. With deference to the Professor of Chemistry, I think that lectures on that branch of science are little more than an amusement to the students, unless practical work in the laboratory is superadded to them. It should be distinctly understood that any student taking up chemistry at the general scholarship examination offers himself for practical as well as oral and written examination.

The examiners have found difficulties with respect to the interpretation of the programme of examination, which have suggested several changes of form in the Scholarship Standard for 1860, of which copies were forwarded to the college under date the 15th instant.

(Signed) E. I. HOWARD,
Director of Public Instruction.

NOTE.—The printed answers have been compared word for word with the MSS., to ensure their accuracy.

W. H. NEWNAM, C.S.,
Attached to office of D. P. I.

No. 2263 OF 1859.

GENERAL DEPARTMENT,
Bombay Castle, 24th September 1859.

TO THE DIRECTOR OF PUBLIC INSTRUCTION.

*Letter from the Director of Public Instruction, No. 1757, dated
the 20th August 1859:*

Submits the original Report of the Examiners for Senior Scholarships of the Elphinstone and Poona Colleges, together with copy of a Memorandum which he has addressed to the Principals of the Colleges respectively.

RESOLUTION OF GOVERNMENT ON THE ABOVE,

Dated 15th September 1859.

Government cannot but consider that the report of the examiners attests a satisfactory progress on the part of the students in the Elphinstone and Poona Colleges.

2. In forwarding the report to the Principals and Professors of the colleges, the Director of Public Instruction has recorded some comments and suggestions for future guidance, which appear to His Lordship in Council well considered and judicious.

3. Government especially approve of the plan recommended by Mr. Howard, by which the more skilful translators among the students might, by employing themselves in the translation continuously of entire treatises on various subjects of literature and science, render a valuable service to the public, while they improve themselves.

4. The Report of Examiners, with the accompanying Exercises and Mr. Howard's Memorandum, should be printed with the Education Report.

5. The great want of additional English schoolmasters, which is alluded to in Mr. Howard's Memorandum as the chief cause of the deficiency of rudimentary knowledge in the students admitted to the Elphinstone and Poona Colleges, should be represented to the Government of India and to the Secretary of State. Until this want is supplied, the improvement, which is so much needed in the early training of the youths, whose education is to be completed in our colleges, cannot be looked for.

(True copy)

(Signed) H. YOUNG,
* Chief Secretary to Government.