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# The Canada School Journal.

Vol. VI.

TORONTO, NOVEMBER, 1881.

No. 54.

## The Canada School Journal

IS PUBLISHED THE FIRST OF EACH MONTH AT

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CANADA SCHOOL JOURNAL HAS RECEIVED

*An Honorable Mention at Paris Exhibition, 1878.  
Recommended by the Minister of Education for Ontario.  
Recommended by the Council of Public Instruction, Quebec.  
Recommended by Chief Superintendent of Education, New Brunswick.  
Recommended by Chief Superintendent of Education, Nova Scotia.  
Recommended by Chief Superintendent of Education, British Columbia.  
Recommended by Chief Superintendent of Education, Manitoba.*

The Publishers frequently receive letters from their friends complaining of the non-receipt of the JOURNAL. In explanation they would state, as subscriptions are necessarily payable in advance, the mailing clerks have instructions to discontinue the paper when a subscription expires. The clerks are, of course, unable to make any distinction in a list containing names from all parts of the United States and Canada.

### DISTINGUISHED VISITORS.

During the past two months two very prominent educators have visited the office of the CANADA SCHOOL JOURNAL; Dr. Ludwig Trieste, Deputy Minister of Education in Prussia, and Rev. Cyprian Pinkham, Chief Superintendent of Protestant Schools in Manitoba. Dr. Trieste has spent a couple of months in visiting the schools in the chief cities of America with a view of noting the differences in system and method to be seen here as compared with the schools of Prussia. He goes home with the conviction that so far as High Schools are concerned there is nothing for Prussia to learn in America, but that in some respects the Public Schools of this continent may be copied with advantage, even in Prussia. The High School course in Prussia is broad and exceedingly thorough. In classics it is more extensive than that of the University of Toronto.

Rev. Mr. Pinkham is visiting Ontario and other provinces with the view of studying the relation of the High Schools and Teacher-training Institutions to the Public Schools. Education is keeping pace fully, with the exceedingly rapid progress of other departments of work in Manitoba. Mr. Pinkham possesses in a marked degree the organizing and legislative faculties so essential in the Chief Superintendent of a young country. He holds clear and practical views concerning the scope and relationship of the different kinds of schools and colleges, and is establishing in Manitoba a system embodying the most excellent features of the systems of the older provinces of Canada. He is firm but liberal, cautious but progressive, scholarly but practical; he distinguishes accurately the educational from the utilitarian in school work, and makes due provision for both, so that Manitoba is certainly to be congratulated on her good fortune in having so vigorous and so judicious a man at the head of her educational work. Both these gentlemen visited the schools of Toronto, in company with Inspector Hughes, and both expressed surprise at the proficiency of the pupils, and the general condition of the schools. They were more especially impressed

with the superior character of the work done, particularly in the junior grades, in drawing, music, and calisthenics.

Rev. Mr. Pinkham will lecture in Toronto on his return, on "The Educational Outlook in Manitoba," and we will give our readers a complete statement of his views in the December JOURNAL.

### REPORTS OF TEACHERS' CONVENTIONS.

We direct special attention to the report of the South Essex Teachers' Convention, which appears in another column. It is unquestionably a vast improvement on the usual form of report, and we are much indebted to Mr. Maxwell, the energetic Inspector, for setting so good an example. Our readers cannot fail to join us in our commendation and gratitude.

The reports of the proceedings at Teachers' Conventions might be made the most practical portion of an educational journal. They should embody the opinions of practical men and women all over the country, and if such reports as that of Mr. Maxwell were sent from every county, they would form a vast fund of suggestive thought. Too often our friends merely send a newspaper clipping, or worse still, a newspaper in which the Convention proceedings are reported. Frequently the report may be overlooked in the rapid examination necessarily made of the thousands of papers received at this office, and even when the clipping is received, it is impossible for one not present at the meeting to give a fair report of the proceedings.

We wish every county to have fair play and due prominence given to its educational work in the CANADA SCHOOL JOURNAL, and we earnestly request the Inspectors to send us abstracts of the papers and discussions of their Conventions. Secretaries will be able to make these extracts without much trouble, and in making them they will confer a benefit on the whole teaching community.

### GOOD READING.

The necessity for literary culture is widely felt. There is scarcely a village or school section in Canada in which there are not a few people who have a longing for the establishment of a Mutual Improvement Society of some sort in their neighborhood during the winter months. This desire shows itself in the Literary Societies, Debating Clubs, and Young People's Associations started, at one time or another, in connection with every church, school-house, and temperance society throughout the land.

Unfortunately, however, these societies usually languish and die after a short existence. The moving spirit in connection with them is often the minister or the teacher, and when he removes from the district, the society is given up. Each association stands alone, receiving neither inspiration nor direction from any other; each works on its own line, without the advantage of the experience of others, and so the work done is not continuous or systematic.

To organize all such societies into one, to bind them together by the common ties of interest and emulation, to direct them in prosecuting their work from one central department, would surely be one of the grandest educational reforms of the age.

The Rev. Dr. Vincent conceived the idea of accomplishing this great work, and by founding the Chautauqua Literary and Scientific Circle he has established a simple and effective means for the accomplishment of his noble purpose. The special features which adapt it to the circumstances of all communities are :

1. Its course is broad, and the books to be read are standard works in their respective departments.
2. The course can be read with ease by those who determine to follow it, whatever may be their position.
3. While local circles for mutual aid, drill, and discussion are very desirable, they are not essential. Even one person can prosecute his reading independently.
4. Where local circles are formed, every possible variety of literary exercises may be conducted in direct connection with the prescribed course. Debates, discussions, reviews, essays, &c., may all be based upon the books recently read, and as every member will be familiar with the subject from his recent reading, all will be able to take an intelligent part in such proceedings.

The attention of teachers and all interested in the wider diffusion of intelligence through good reading, is specially directed to this great movement.

#### MUSIC—WHICH METHOD?

The spread of the "Tonic Sol Fa" system of teaching music in England has been undoubtedly very rapid, notwithstanding the fact that the Government of Mr. Gladstone came into power barely in time to prevent the issue of a departmental edict against its recognition by Her Majesty's Inspectors in the Public Schools. Mr. Mundella withheld the prohibitory regulation; and by far the largest number of the public schools report that the "Tonic Sol Fa" system is the one which they have adopted.

What is the reason that conservative, steady-going England has surrendered to the advocates of the new method, while in America they have not been able to obtain a single marked triumph? We believe the reason is not far to seek. The conquest in England is a glorious victory of the Teacher over the Professor of Music. The battle has not been between systems, or notations, so much as between teachers and musicians. It was natural that teachers should succeed best in teaching. There is nothing wonderful in that; it would have been simply disgraceful to the teachers had it been otherwise.

In America the case has been quite different. Music has been taught in its chief cities in the same way as other subjects. There has been no mystery thrown around it. The same principles that have been found to be correct in teaching arithmetic have been applied with equally good results in the teaching of music. A knowledge of music has been regarded as essential *on the part of the teacher*, but a more thorough knowledge has been required of the true principles of teaching.

Many simple, progressive, and developing manuals have been issued for the guidance of teachers in teaching this subject. Did ever any one see such a book issued in England? There are an endless number of learned treatises on the subject, and very many valuable collections of songs, but not a single simple and systematic work on the *method of teaching* the staff notation. In this respect Mr. Curwen and the other "Tonic Sol Fa" teachers are far in advance in England.

There is probably another reason for the comparatively easy victory of the Sol-fa-ists in the "old land." There they had to attack the Hullah or "Fixed Do" system, while in America the "Movable Do" held sway, except in Ontario. In the Toronto Normal School the Hullah system was long recognized, but has been wisely abandoned during the past few years, in reality if not in name.

We hold, therefore, that the "Tonic Sol Fa," which has many excellent points, achieved success in England not so much on account of its own strength, as the weakness of those who opposed. It overcame a weak system of staff notation, presented by men who understood music well, but knew little of teaching. We hold also, and the experience of many American cities, notably Boston, Cleveland, and Cincinnati, clearly proves, that the staff notation may be easily, naturally, and most successfully taught in the public schools, if the teachers have a fair knowledge of music combined with a practical acquaintance with correct methods of teaching.

We would much prefer the "Tonic Sol Fa" system if presented by a *teacher*, to any staff notation taught by a *professor* who is not a teacher. Much teacher with little music, rather than much music with little teacher. Mr. Curwen himself said that if he had been previously acquainted with the Boston system of teaching music, he would not have considered it so necessary to found the "Tonic Sol Fa" system.

#### OUR COLLEGE CLUSTER.

McMaster Hall, the new Baptist Theological College, named after its generous founder, which has just been opened in Toronto, promises to take a high position among the educational institutions of Ontario. The building is magnificent in size and style, and convenient in arrangement. No pains or expense has been spared to secure the best known systems of heating and ventilation. The staff of Professors guarantees practicability and thoroughness. Professor Castle is the President of the College, and he is to be assisted by Professors McVicar and Newman. We are very glad to welcome Professor Malcolm McVicar on his return to Canada. He will be missed in the United States, where he has resided for several years. The college is to be in connection with Toronto University, where its students will complete their course in Arts, before entering upon Theology.

It is very encouraging to see so many educational institutions clustering around our national University, and in affiliation with it. Standing in the centre (and what a centre it makes), it has to the east St. Michael's College; to the south are the School of Technology and the new Episcopal Divinity School in course of erection; on the west stands Knox College; and on

the north McMaster Hall. This is a cluster of brilliants o which any country might well be proud; but is there not one diamond lacking to make it complete? In none of these named have the ladies a home. We had the honor of making a suggestion a year ago which met with much favor: that Upper Canada College be devoted to the higher education of women. We hope, however, that the changes made or to be made in that institution may make it such a provincial necessity that it may be retained for other purposes. We do not cease on this account to urge the claim of our ladies to equal privileges with our young men in obtaining a higher education than can be obtained in High Schools and Collegiate Institutes. We object to co-education, and we believe that the feeling of the country is with us in this respect; and we therefore long to see another college erected under the shadowing wing of our University, which shall be reserved for young women, and in which they may secure their highest "rights."

Even if Upper Canada College should at some time in the future be discontinued, it occupies a property that has now become so valuable that it would be very poor economy to use it for a ladies' college, as we believe it to be to continue it long in its present location as a boys' school. If the present property was disposed of there should be nearly a sufficient sum realized to erect two buildings, one for the present school and one for the college training of young women. We direct the attention of the Minister of Education and the Legislature to the subject, and hope they may speedily find a satisfactory solution for the problem.

### ✓ STAND FIRM.

We strongly urge those of our subscribers who omitted the selected article "Stand Firm" in the October JOURNAL to turn back to it, and read it at least twice. Then having read it, we hope they will not fail to put in practice the principles it lays down. It furnishes in small compass a most complete refutation of all the petty charges continually made against teachers by ignorant newspaper men and more ignorant parents. It proves clearly that most of the weaknesses and abuses in our schools result directly from the indifference, the selfishness, the narrow-mindedness, and the stinginess of the great public itself. We acknowledge that there are bad teachers, but they never could continue to disgrace their profession if the public were willing to pay a fair price for good ones.

Teachers have sat still too long, and listened submissively to the abuse and contempt which has been heaped upon them. The time has come when they should "stand firm," and throw back the unjust accusations made by unreasonable persons. It is time the public was shown where the blame really rests, and no article could more clearly do so than the one we printed last month. By all means, fellow-teachers, read it, and then *commit it to memory* for future use.

One of our contemporaries, in speaking of this question, sums up the matter as follows:

"If there is one point in which school teachers are half a century behind their age, it is in the art of pushing their ideas and magnifying their vocation. They read less on their own

work than any class of intelligent people; starve their professional journals; permit newspaper reporters to write them down, and "practical men" to misunderstand them, with no attempt at reply; keep away from conventions and lectures;—in short, get off into corners and work under cover; and then wonder that advanced ideas in education move slowly, the children remain untaught, and they receive starvation salaries with social neglect thrown in. Any material interest so unskillfully pushed would go to inevitable wreck; and if the cause of good education goes forward, it is largely from the inevitable momentum of truth, with small thanks to the way in which it is presented to the people by its professional and official representatives.

### ENGLISH ADVERTISEMENTS.

One is often able to arrive at a correct estimate of the true condition of a country in regard to a profession or trade, by reading the advertisements of a leading paper, more readily than in any other way. The English school journals teem with advertisements from teachers wanting situations, or School Boards in need of teachers. We insert a few specimens to give their general character, and specially to show that singing, drill, and sewing are regarded as most important by both classes of advertisers. In very many cases the master advertises that his wife can take sewing. In the cases given it will be seen that the men advertise to do the teaching of this subject themselves. Why not? All boys in the junior classes in England are to take needlework in future, according to Mr. Mundella's new code, and the subject admits of progressive illustrative teaching with the aid of the blackboard, as do the other school subjects:

#### SCHOOLMASTER AND ORGANIST.

A Certificated, experienced, married, successful MASTER wishes for an appointment, as above. Firm disciplinarian. Singing; drill; junior Latin, Greek, French. Good organist. Good needlework and knitting, if required. Excellent references, testimonials, &c. Address (no cards), Master, Endowed School, East Tytherley, Stockbridge, Hants.

WANTED, by trained, certificated MASTER (12 years' experience), Boys' or Mixed School. Organ; drawing (D); needlework. Testimonials; references; reports. Address, A. Groom, Hayling Island, Hampshire.

A Boys' or Mixed SCHOOL desired by a 1st-class (certificated) MASTER. Excellent reports and testimonials. References; music; needle-work (if required). Thorough Churchman. Address, Schoolmaster, Brinkworth, Chippenham, Wilts.

WANTED (November 1), a certificated MASTER, for a Mixed Village School, at Scalby, 3 miles from Scarborough. Salary £50, and house, with one-third of grant, and school pence (on average amounting in all to £110). Management of organ, choir, and sewing must be undertaken. Apply to Captain M. Graham, Throxenby Hall, Scarborough.

WANTED (end September); certificated MASTER. Country, Mixed (average. 94). Churchman. Relative infants and sewing. Double manual organ. Train surpliced choir. Sunday school. Salary £80 + half grant (last grant £76 11s.); house; garden. One mile from country town and station on Midland; ten from Bristol. Address, stating age, with references and copy of testimonials, Rector of Yate, Chipping Sodbury.

— Some idea of the extremely rapid growth of the world's metropolis may be formed from the fact that the School Board of that great city finds it necessary to build a hundred new schools immediately, each capable of accommodating one thousand pupils. It is estimated that new schools will have to be provided in future for more than ten thousand per year.

SCHOOL HOLIDAYS.

It is well that teachers should clearly understand that, if the length of the summer vacation in rural schools is not distinctly stated in their agreements, according to a decision of the Minister of Education the trustees can compel them to give only the shortest time which the law allows. This seems unjust. The law specifies that the holidays shall continue six weeks, but gives permission to trustees to reduce the time to four weeks. Six weeks is the rule, four the exception. Surely a fair interpretation would not subordinate the rule to the exception. If trustees fail to insert a short-holiday clause in their agreement, the law, not the exception, should prevail.

Mr. Crooks stated, when the objectionable amendment was introduced, that if it was found that only a small number took advantage of its provisions, he would propose its repeal. We are glad to know that the good sense of the people has in nearly all cases led them to follow the common sense suggestions made by the medical gentlemen in Parliament: to lengthen rather than shorten the holidays. Mr. Crooks will doubtless soon see his way to remove the provisional amendment from the statutes. He, no doubt, adopted the most practical means for silencing those radical grangers who arrogantly claimed to legislate for the country—in granting what they asked, that they might see how greedily selfish they were. Many of them were even angry because their request was granted, because they lost what might have made a first-class grievance.

—In a recent circular from the Education Department of England to the Inspectors of schools, the following instruction is given: "You will oppose the appointment of sickly precocious children as pupil teachers, and you will insist upon good health as an essential qualification for those who aspire to the teacher's office." This is a wise provision. "Make John a merchant, because he is shrewd; Tom is a clever talker and holds his own in an argument, we should make a lawyer of him; William is a thoughtful, clear-headed boy, he would make a good preacher; but poor Ned is weakly, I suppose there is nothing for it but to make him a teacher." Too long this was the reasoning of fond parents in planning for their sons. The "new profession" needs the best talent, the warmest hearts, and the healthiest bodies in the community.

—Mr. Ryerson, at present Mathematical Master in Barrie Collegiate Institute, has been appointed to the Headmastership of Orillia High School. From Mr. Ryerson's reputation as a successful and enthusiastic teacher, we can congratulate the Orillia Board upon its choice.

—Mr. Sprague, for many years Principal of Model School, Cobourg, is about to retire from the teaching profession to begin the study of medicine. Mr. Sprague will be succeeded by Mr. Kirk, of Campbellford, who has the reputation of being a most successful and efficient teacher.

Mathematical Department.

SOLUTIONS TO EXAMINATION PAPERS,  
JULY, 1881.

FIRST CLASS, GRADE C.

ARITHMETIC.

1. The rule holds for both cases.  
"The sum of the digits of any number divided by 9 leaves the same remainder as the number itself divided by 9."

See H. Smith's Arithmetic, page 34.  
The sums of the lines, taken either vertically or horizontally, must equal the sum total. But the sum of each line contains 9 a certain number of times with a remainder. And the sum of all these remainders must contain 9 a certain number of times with a remainder. Now it is evident that the sum of all the multiples of 9 in the lines must equal the multiple of 9 in the sum total, and the final remainder equal to the remainder from the sum total. The usual exceptions will of course apply—transposition of figures, etc.

2.  $\frac{1}{2}(\frac{1}{4} \text{ cost}) + \frac{1}{3}(\frac{1}{2} \text{ cost}) + \frac{1}{6}(\frac{1}{3} \text{ cost}) = \$1125$   
 $\therefore \text{cost} = \$1000$

3. Let  $x$  be the radius of the piston in the second case. We may then state the question thus:—

If 4 pumps.....	6
With 3ft. stroke.....	4
And $\pi(3)^2$ piston area.....	$\pi r^2$
Raise 6 <sup>3</sup> cubic ft. water.....	$3^3$
In 1 hour.....	$\frac{1}{2}$
Using 100% of the work.....	90%.

Hence, by proportion, we have the statement:—

$$\left. \begin{array}{l} 6:4 \\ 4:3 \\ 216:27 \\ 5:8 \\ 9:10 \end{array} \right\} \therefore 3^2:x^2$$

$$\therefore x^2 = \frac{9 \times 4 \times 3 \times 27 \times 8 \times 10}{6 \times 4 \times 216 \times 5 \times 9} = 1 \quad \therefore x = 1 \text{ inch.}$$

The analytical solution is obvious.

4. (P. W. of \$90 due in 40 days) + (P. W. of \$90 due in 101 days) =  $\frac{90}{100}$  of \$180,  
or (P. W. of \$1 due in 40 days) + (P. W. of \$1 due in 101 days) =  $\frac{1}{100}$ .

Let  $r$  = rate per annum  $\therefore \frac{r}{100}$  = rate per  $\%$ .

$$\therefore \frac{40r}{36500} \text{ and } \frac{101r}{36500} \text{ are the interests of } \$1 \text{ for 40 and 101 dys.}$$

Hence,  $\frac{40r}{36500+40r}$  and  $\frac{101r}{36500+101r}$  are the discts. of \$1 for 40 and 101 dys.

$\frac{36500}{36500+40r}$  and  $\frac{36500}{36500+101r}$  are the P. W's of \$1 for 40 and 101 dys.

See H. Smith's Arithmetic. Can. Ed. App. page 334.

Hence we have,

$$36500 \left\{ \frac{1}{36500+40r} + \frac{1}{36500+101r} \right\} = \frac{196}{100}$$

i.e.,  $2 \times 36500^2 + 36500 \times 141r = \frac{196}{100} \{ 36500^2 + 36500 \times 141r + 4040r^2 \}$   
 $(\frac{196}{100} \times 4040)r^2 + (\frac{196}{100} \times 36500 \times 141)r - \frac{196}{100}(36500)^2 = 0$   
or,  $(\frac{49 \times 101}{3650})r^2 + (6 \times 141)r - 9125 = 0$

$$\therefore r = 10.58 +$$

5. Apparent assets =  $\frac{1}{2}$  liabilities. He loses \$4000 of the apparent assets. Hence,

$$(\frac{1}{2} \text{ liabilities} - \$4000) \frac{90}{100} = \frac{40}{100} \text{ liabilities,}$$

i.e., liabilities = \$22857.

The apparent assets = \$18285 $\frac{1}{2}$ , which is less than \$20000, and the given data are, therefore, incompatible.

6. A loses interest on \$210 from May 11th to June 11th.  
B has the use of \$210 for 1 month, and \$205 for 4 months = use of \$1030 for 1 month = \$21 $\frac{1}{2}$  for 1 year.

He pays back in all  $\$5 + \$210 + 3(\frac{1}{2} \times 700 \times 210) = \$1792 = \$221\frac{1}{2}$ .  
Hence the money costs him  $\$11\frac{1}{2}$ .

$$\therefore \frac{515}{6} \times \frac{r}{100} = \frac{89}{8}, \text{ or rate paid by B} = 12.96\%$$

C pays  $\$205$  cash, and in 5 months gets back  $\$216\frac{1}{2}$ ,  
i.e.,  $\$11\frac{1}{2}$  for interest.

$$205 \times \frac{5r}{1200} = \frac{89}{8}$$

$$\therefore r = 13\frac{1}{4}\%$$

7. If we take 3% half-yearly to be the same as 6% yearly, amount of debt at end of 10th year =  $\$40000(1.03)^{20}$ .

Let  $S$  = sum annually added to sinking fund. Suppose the money borrowed in January and the first taxes collected in December, so that the first payment would only bear interest for 9 years.

Amount of sinking fund at end of 10th year  
 $= S(1.03^9 + 1.03^8 + 1.03^7 + \text{etc.} + 1.03^2 + 1)$   
 $= S \left( \frac{1.03^{10} - 1}{1.03^2 - 1} \right)$ . These two amounts must be equal.

$$\therefore S = \$40000(1.03)^{20} \times \left( \frac{1.03^2 - 1}{1.03^{10} - 1} \right)$$

$$\therefore \text{Rate on the dollar} = \frac{1.03^{20} - 1}{25} \times \frac{1.03^2 - 1}{1.03^{10} - 1}$$

8. Area =  $\sqrt{\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}} = 15\sqrt{7}$ .

9. Box = 64 cubic feet.

Iron =  $2^2\pi$  cubic feet.

Water =  $64 - 2^2\pi$  cubic feet =  $2^2(6 - \pi)$ .

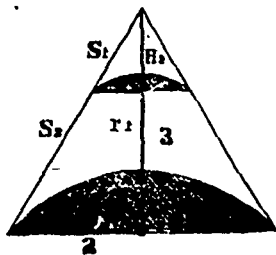
Wt. of iron =  $2^2\pi \times 7.79$ .

“ water =  $2^2(6 - \pi) \times 1$ ,

or  $\frac{\text{iron}}{\text{water}} = \frac{\pi \times 7.79}{6 - \pi} = \frac{8.569}{1}$ , when  $\pi = 2^2$ .

Surface =  $4\pi r^2$ .

10.



Take  $H, H_1$  and 3 as the perpendicular heights of the whole cone and its upper and lower segments.

Take  $S, S_1$  and  $S_2$  as the slant heights of the whole cone and its upper and lower segments.

Take  $r_1$  and 2 as the radii of the upper and lower circular sections.

Then since the vertical angle =  $60^\circ$  we get

$$H = 2\sqrt{3}, H_1 = 2\sqrt{3} - 3, r_1 = 2 - \sqrt{3}, S_1 = 4 - 2\sqrt{3}, S_2 = 2\sqrt{3}$$

$$\therefore \text{Curved surface} = \pi(8\sqrt{3} - 6)$$

$$\text{Area of ends} = \pi(11 - 4\sqrt{3})$$

$$\therefore \text{Surface of frustum} = \pi(4\sqrt{3} + 5)$$

$$(b) \text{ Length of curve} = 2\pi r = 4\pi$$

### Contributions.

#### A FEW WORDS TO TEACHERS AND LEARNERS.

BY ROBERT POTTS, M.A., CAMBRIDGE, ENGLAND.

A quaint old teacher has remarked “that when a learner is at first rightly and thoroughly grounded, the rest of the work goes on with readiness, with ease, with speed, and with assurance. When he is ill-grounded, all falls out contrarywise; much labor and much patience of the master, and much diligence and industry of the scholar, will hardly be able to rescue him from the mischievous consequences of previous ill-grounding. So powerful is ill habit when it hath once got hold, and so difficult to eradicate, that it is much harder to unteach the wrong than to teach the right.”

Another eminent teacher of modern times has stated the cause of his success in these words: “It has ever been with me a principle that even rudimental teaching must be thorough, and must be founded upon the essential character of the mind, as accretive; and that when once it is rightly proceeded upon, the teaching of any science will not remain quiescent, but will advance to completion and success.”

The present state of teaching the Elementary Principles of the Sciences of Number and Space is not satisfactory, as will appear in the following extracts from the Report of the Cambridge Board of the University Examinations, and from the twenty-second Report of the Syndicate appointed to conduct the Examination of Students not members of the University.

The Board of Examinations issued their Report of the Previous Examination of the Freshmen in March, 1880. With respect to the subjects of Elementary Arithmetic, Algebra, and Geometry (which are supposed to be acquired at School) the following remarks appear in the Report:

“In the June Examination seven per cent. of the candidates failed altogether and twenty-six per cent. only just passed in the subject of Arithmetic. Questions on Compound Interest, Discount, and Stocks, as well as those on Simplification of Decimals, were answered by very few.

“In the December Examination, four per cent. failed altogether and ten per cent. only just passed. Questions in Stocks and Discount were answered incorrectly by a large number of the candidates, their work showing ignorance of the meaning of the questions.

“In the December Examination in Euclid, one-quarter of the candidates did not write out more than half of the bookwork correctly. Many of the candidates had apparently prepared the subjects from text-books in which the order of Euclid is not preserved. By this means great confusion is introduced.

“In June, four-ninths of the candidates failed in Algebra; in December, one-quarter. Questions in Ratio, Proportion, and Variation were not well done, and in many cases the candidates did not appear to have read these portions of the subject.”

Of the Additional Subjects the Report states:—

“In Algebra undisguised pieces of bookwork were in general written out correctly, and an easy Problem of a common type was solved by most of the candidates. The Progressions were treated without much thought, the formulæ being often applied at random.”

The Regulations for the Previous Examination, revised in 1849, required the candidates to be arranged in two classes:—

“The first class, consisting of those candidates who have passed their examination with credit; the second, of those to whom the Examiners have only not refused their certificate of approval.”

The facts stated, and the words employed in the Report, suggest a very unsatisfactory state of the acquirements and of the intellectual habits of a large class of Freshmen in their first year of residence at Cambridge.

In the year 1879 the names of 6,738 students were entered for the Cambridge Local Examinations, and forty-one per cent. of those who attended failed to pass the examination. There were 3,600 students examined in Pure Mathematics, including Elementary Arithmetic, Algebra, and Geometry. On the results of the Examination of the Junior Students the Report of the Examiners remarks:—

In Arithmetic,

“There were fewer cases of confused and bad methods, fewer gross errors in principle; and the papers were worked in better form and more neatly. But, as compared with last year, improvement is not manifest.”

In Algebra,

“Although the failures were more numerous this year than last, a fair percentage of the whole number of candidates acquitted themselves creditably.”

In Euclid,

“Several lost credit by quoting axioms other than Euclid’s, and by inattention to Euclid’s order, for instance, proving I. 27 by I. 32.

More riders than last year were sent up, but still too few of the candidates attempted them."

Of the Examination of the Senior Students the Examiners state :

In Arithmetic,

"The work both of boys and girls showed an improvement on that of last year, as regards both style and accuracy. There were but few candidates, however, of any great merit. Nearly half the whole number of boys and more than half the girls were but little above the minimum standard required for passing. The girls in many cases used heavy and cumbrous modes of working."

In Algebra,

"The Algebra was far from satisfactory. More than half the whole number of candidates failed to pass, and very many could have had no reasonable expectation of passing. The bookwork questions were written out at a very great length, but in most cases the important points were slurred over or altogether omitted."

In Euclid,

"The propositions of Euclid were on the whole creditably written out, but only the easier riders were solved. The percentage of failures in Euclid was higher in the case of the girls than in that of the boys.

It is more than probable that one of the causes of the unsatisfactory state of elementary knowledge of these subjects is the simple fact that too many subjects of study are prematurely forced on minds of ordinary capacity. In the case of inert and dull minds, no sound and exact knowledge is acquired; and in the case of active and precocious minds, a loose smattering of many subjects is crammed into the memory which have not passed through the understanding. Whatever may be forced into the memory in this way is only held in solution until it has served its purpose, and then it is precipitated.

The injudicious solicitude of some teachers to develop prematurely the mental faculties of youth will only result in furnishing illustrations of the consequences which flow from a disobedience to the laws of nature. The teacher ought not to forget that the organs of the brain equally with those of the body have their predetermined periods of growth and development. Any attempts to interfere with these cannot be made with impunity. How seldom do those who in youth have been nurtured in the forcing hot-bed exhibit in after life superior intellectual powers. They more commonly fall beneath than exceed the average in talent. But even if the mental capacity be enlarged, it is at the expense of the corporeal energies. These are not displayed in the strongly knit and active limbs, in the well-formed and robust frame. The brain may have grown, but it is almost invariably accompanied by a feeble and imperfectly developed body, which, in general, prematurely breaks up. If nature has given a superiority of mind, the less interference there is with the laws which regulate its development the more ample and gratifying will be the results. If she has withheld these conditions which are necessary for the manifestation of talent, it is not only in vain to endeavour to create what she has denied, but injudicious and fraught with danger. The vegetable kingdom illustrates the justice of these views.

In the use of ordinary language it is implied that there exists some sort of analogy between the bodily and mental faculties. As the mysterious processes of digestion and assimilation are necessary for the healthy development of the body, so also, unless the food of the mind be inwardly digested, it cannot contribute to the like development of the intellectual powers. The reception of knowledge into the mind has been described under the comparison of good seed sown in good soil or bad soil; and it is written that "men do not gather grapes of thorns nor figs from thistles."

As, therefore, the physical development of the organs and functions of the body take place gradually according to the order of fixed laws; it would appear that the development of the mind must, in a similar way, be subject to the same order. The mental acquirements suitable for youth cannot be put off with advantage till the ap-

proach of manhood. The consequences of neglect in early mental training will in time become as manifest as the lack of proper food and care in the healthy growth of the body. As the body for food, so the mind for knowledge has its hungerings and thirstings. The craving appetite in both cases implies a process of assimilation. As the mental food assimilated will affect the character of the mind itself, only wholesome mental food should be supplied, in the right order and quantity suitable for healthy and vigorous intellectual growth.

The study of the exact sciences is one of the most effective means of cultivating and developing the reason. Geometry is the Science of Space, and Arithmetic with Algebra in its character of Universal Arithmetic is the Science of Number. As all our knowledge of the external world must be subject to the conditions of Space and Number, the elementary portions of these sciences are from their nature better adapted than any other to form the habit of fixity of attention, of distinctness in the conception of ideas, and of precision in expression. The language, like the subjects, is fixed and definite, and does not admit of the same ambiguity and uncertainty as the language employed on other subjects. The reasonings are always conclusive and exact, expressed in terms whose meaning cannot change from the sense in which they have been defined. In one of his recent charges, the present Lord Chief Justice made a passing remark to the effect that Euclid's Elements were a mental training second to none.

It may be remarked that persons of the highest acquirements in any science do not always become the best teachers. Experience has shown that such persons may be utterly incompetent to adapt their knowledge to the capacity of minds of a lower character than their own. If a teacher has not skill to make the subject of his instruction interesting, and tact to adapt his knowledge to minds of different capacities, he does not possess one of the essential requisites of a teacher. It is a delusion to imagine that correct habits of thinking can be created, or exact knowledge acquired, by the mere passive attendance on lectures, however excellent. Class-teaching may be useful or useless, or even worse than useless. There are many youthful minds so constituted that they must be taught individually, if ever they are to be able to draw inductions from facts, or comprehend principles and apply them with success. In dealing with the misapprehensions and mistakes of learners, the teacher should observe how the learner was led into error, and by suitable questions lead him to perceive his mistake and to make the correction for himself. By this method the mind of the learner is brought into active exercise, and he will be less likely to repeat the mistake than if the correction were received passively from the teacher. If the learner exhibit a listless inattention or a positive dislike to the subject of study, the efforts of the most judicious teacher are in vain.

It may also be remarked that implicit obedience in the learner and the love of knowledge are also necessary conditions of improvement. A sense of duty rather than a desire of surpassing others constitutes the right motive of the learner. If a morbid appetite for praise or an eager strife for pre-eminence be encouraged, it may grow, and at length become the ruling passion, and create envy and hatred of every successful rival, and generate a feeling of discontent which may become a fatal obstruction to all mental and moral improvement.

These few words to teachers and learners may be concluded with the expressive words of the late Dr. Whewell:—

"The object of a liberal education is to develop the whole mental system of man—to make his speculative inferences coincide with his practical convictions—to enable him to render a reason for the belief that is in him; and not to leave him in the condition of Solomon's Sluggard, who is wiser in his own conceit than seven men that can render a reason."

## THE TONIC SOL-FA VS. STAFF NOTATION.

To the Editor of the Journal:

Mr. Soward seems to have much more regard for the old staff notation than he had when we saw him at Albany. He gave the impression there that Tonic Sol-fa could do pretty much everything; he went so far in that direction that some of his friends said that they "hoped Mr. Soward would not claim that Beethoven symphonies, and music of a similar character, could be played from it." He now says:

"The Tonic Sol-fa may be supposed to approach that venerable member of the musical community, the Staff, with language something like the following: 'I have for you the most profound respect. You have come down to us from antiquity, and you hold in your embrace the musical treasures of the world. But you need an interpreter. A large proportion of the human race cannot understand you, and to them these precious treasures are hidden away and lost. I will take the masses of the people and instruct them. I will lead them up these difficult heights by a gentler grade, and will gradually raise them to the level of your noblest thoughts.'"

This is all very beautiful, but the picture is not complete until we imagine this "venerable member of the musical community" looking down and weeping over this poor little fellow's ignorance and injustice in heaping upon this "venerable member" the responsibility of the failure on the part of the musical profession in trying to make of human beings mechanical musical instruments, with which to find these "precious treasures." Mr. Soward says, "Mr. Holt will try it sometime,—then his testimony will be as strong as the strongest." I am aware that Tonic Sol-fa is as contagious as the measles, and may become epidemic for a time in some localities in this country. If I had been as much "exposed" ten years ago, I might have "caught" it. I am older now, and hope to "escape," for I have observed that it goes much "harder" with those who do not have it when "young." But, joking aside, I shall teach the Tonic Sol-fa notation just as soon as Mr. Soward, or any other teacher, convinces me that I can be of greater service to my pupils by so doing. Will Mr. Soward take the same position with regard to the Staff notation, and drop the Tonic Sol-fa notation when he is convinced that equally good results can be obtained by going directly to the Staff?

Now, if Mr. Soward will take a copy of his exercise, published in my article, I will direct him how to mark it, and he will have a *fac-simile* of the one from which the girls sang.

Whether or not there is positive pitch in nature, we will not spend time in discussing; but that there is a property in musical sounds ascertained by scientific and mathematical demonstration, known and accepted as standard, absolute or positive pitch (yet varying in different countries), upon the principle of which all musical instruments are constructed, and upon the representation of which all musical instruments are played, I hardly think Mr. Soward will deny.

Neither can he claim that this principle has any representation whatever to the eye, in the Tonic Sol-fa notation. The household in which there is not some kind of a musical instrument is the very rare exception. Now, shall the instruction in music in our public schools be given so as to save much time and expense to the large majority who will wish to play some kind of a musical instrument, or shall all this be lost? I can do no better than to quote from my article in the *Transcript* (Boston) of June 18, upon this point:

"I asked a class of girls the other day how many had pianos at home, and thirty-seven hands were raised. Suppose these thirty-seven girls wished to learn to play the piano. It will cost at least two hundred dollars more for the instruction of each of these thirty-seven girls upon the piano if they practise singing all their school-life from the Tonic Sol-fa notation than it would if they had learned

from the Staff notation, and had become perfectly familiar with all the different keys and characters used. When these things are considered, it becomes a matter of great importance whether or not music teachers find the true, natural method of teaching singing with our Staff notation, and unite upon it."

Mr. Soward reprints the first line in the exercise in music to show that I am either very ignorant with regard to chromatic tones, or I have been guilty of telling an untruth. Now, if Mr. Soward is not accustomed to think more carefully in methods of teaching than he reads, it is no wonder that he is going around through the Tonic Sol-fa notation to get to that of the Staff. I said that this exercise can be represented in the Tonic Sol-fa notation as simple scale intervals having only one chromatic tone. Now, if it is impossible to use these notes before and after the chromatic tones as "bridge notes," then I am wrong, and can only plead ignorance of that wonderful invention, the Tonic Sol-fa notation. I think the wonder and "astonishment" will be that Mr. Soward should have made such a blunder as he "certainly did."

There is no chance for any discussion between Mr. Soward and myself upon what the musical profession have failed to do with the Staff notation, or what has been accomplished with the Tonic Sol-fa notation. I should admit all that he claims, and probably more. I have never taught singing on any other principle than the Tonic Sol-fa. I agree with Mr. Curwen in *methods of teaching* in every particular except one. Mr. Soward says, "One teacher cannot lift up the whole world." That is doubtless very true; still I shall do what I can, and I confidently expect to have Mr. Soward to help me one of these days. Of one thing I am confident, and that is, that no "portion of the human race," whether in or "outside of Boston," will need the Tonic Sol-fa notation when teachers learn, first, how to teach; second, how to name what has been taught; and third, how to represent with the Staff notation what is already known.

Now, Mr. Soward is cordially invited to visit me in my school next June, to be convinced of this fact. He shall have the privilege of writing upon the blackboard any exercise he pleases, commencing in C, and going anywhere he likes in any of the nine keys through E and A flat,—the exercise to be no more difficult than the one given his pupils; and we will try and sing them without figures above or below the notes; and while I will not promise that they shall be sung without any mistakes, he shall have the privilege and satisfaction of laughing at all of our failures.

Mr. Soward says the "average mind of the masses cannot understand the Staff notation." The difficulty is not there, Mr. Soward. The trouble is in the "average mind" of the teachers who are attempting to teach music, who have not studied or qualified themselves for the profession of teaching.

Boston, Mass., 1881.

H. E. HOLT.

## General Information.

PIGMY ELEPHANTS.—It is commonly supposed that all elephants are huge creatures, and though, as a rule, they are an enormous size, there is one species which is very small. This kind is found in the Malay peninsula, and some specimens have been procured which are only from twenty-eight to thirty-six inches in height, with a thick coat of bristly hair or wool. Two of these pigmy elephants were recently exhibited in New York. They are described as playful and inoffensive, holding out their tiny trunks for strangers to touch—a practice of which they were particularly fond. They used to keep up a swaying movement, sometimes from side to side, sometimes backward and forward. One of them would occasionally take hold of a visitor's hand, gently curl his trunk around it, carry it carefully to his mouth, and then "trumpet" with great glee.—*Little Folks' Magazine*.



**HUMAN TREES.**—A most ingenious device to escape capture is that shown by the Bheel robbers of India. It often happens that a band of these robbers are pursued by mounted Englishmen, and unable to reach the jungle, find themselves about to be overtaken upon one of those open plains which have been cleared by fire, the only shelter in sight being the blackened trunks or leafless branches of small trees that perished in the flames. For men so skilled in posturing this is shelter enough. Quickly donning themselves of their scanty clothing, they scatter it with their plunder in small pieces over the plain, covering them with their round shields, so that they have the appearance of lumps of earth, and attract no attention. This accomplished they snatch up a few sticks, thrust their body into a contorted position, and stand or crouch immovable until their unsuspecting enemies have galloped by. When all is safe they quickly pick up their spoil and proceed on their way. The Rev. J. D. Woods gives an interesting account of these marvellous mimics. We quote the following:—"Before the English had become used to these manoeuvres, a very ludicrous incident occurred. An officer with a party of horse was chasing a small body of Bheel robbers, and was fast overtaking them. Suddenly the robbers ran behind a rock or some such obstacle, which hid them for a moment, and when the soldiers came up the men had mysteriously disappeared. After an unavailing search, the officer ordered his men to dismount beside a clump of scorched and withered trees; and the day being very hot, he took off his helmet and hung it on a branch by which he was standing. The branch in question turned out to be the leg of a Bheel, who burst into a scream of laughter, and flung the astonished officer to the ground. The clump of scorched trees suddenly became metamorphosed into men, and the whole party dispersed in different directions before the Englishmen could recover from their surprise, carrying with them the officer's helmet by way of trophy."

**VOLCANOES.**—"What is a volcano?" This is a familiar question, often addressed to us in our youth, which "Catechisms of Universal Knowledge" and similar school manuals have taught us to reply to in some such terms as the following: "A volcano is a burning mountain, from the summit of which issue smoke and flame." This description, says Professor Judd, is not merely incomplete and inadequate as a whole, but each individual proposition of which it is made up is grossly inadequate and, what is worse, perversely misleading. In the first place, the action which takes place at volcanoes is not "burning," or combustion, and bears, indeed, no relation whatever to that well-known process. Nor are volcanoes necessarily "mountains" at all; essentially, they are just the reverse—namely, holes in the earth's crust, or outer portion, by means of which a communication is kept up between the surface and the interior of our globe. When mountains do exist at centers of volcanic activity, they are simply the heaps of materials thrown out of these holes, and must, therefore, be regarded not as the causes but as the consequences of volcanic action. Neither does this action always take place at the "summits" of volcanic mountains when such exist, for eruptions occur quite as frequently on their sides or at their base. That, too, which popular fancy regards as "smoke" is really condensing steam or watery vapor, and the supposed raging "flames" are nothing more than the glowing light of a mass of molten material reflected from these vapor-clouds. The name of volcano has been borrowed from the mountain Vulcano, in the Lipari Islands, where the ancients believed that Hesperestus, or Vulcan, had his forge. Volcanic phenomena have been at all times regarded with a superstitious awe, which has resulted in the generation of such myths as the one just mentioned, or of that in which Etna was said to have been formed by the mountains under which an angry god had buried the rebellious Typhon. These stories changed their form, but not their essence, under a Christian dispensation, and Vulcano became regarded as the place of punishment of the Arian Emperor Theodosius, and Etna as that of Anne Boleyn, who had sinned by perverting the faith of King Henry VIII.—From "Volcanoes, their Action and Distribution," in *Popular Science Monthly* for November.

The average weight of an adult man is 140  $\frac{1}{2}$  lbs.; the average weight of a skeleton is about one-tenth of the weight of the person. The average weight of a man's brain is 3  $\frac{1}{2}$  lbs.; of a woman's 2  $\frac{1}{2}$  lbs. A man breathes about 18 pints of air in a minute, and 4.08 per cent. of the gases he respire is carbonic acid.

The number of letters which passed through the mails of the whole world during the year of 1877 exceeded 4,000,000,000. The same year over 110,000,000 telegraph messages were sent.

**COMETS.**—The people of old beheld with great terror those blazing wonders we call comets. As late as the year 1456, when the Turks achieved the conquest of Constantinople while a comet was amazing the inhabitants of the earth, we read that the Christians round about the fallen city prayed to be delivered from "the Turks, the evil one, and the comet." All is different now. We may fool, it is true, awe-struck, as we behold what is so luminous and of such enormous magnitude; but the torment of fear has gone, and this deliverance we owe to the steady work of astronomers and other scientific men, who have counted and named these fiery travellers of the sky; and, moreover, have written their histories as far as their histories can be known to the dwellers on our planet. They have, besides, studied the nature of their light and the ways in which they move; in other words, their orbits, as they flash within our sight, and then disappear for centuries, rushing far beyond the reach of mortal eye, till again they are with us as our own to gaze upon, for weeks or months together. Comets were occasionally hailed as harbingers of good; probably, however, our forefathers trembled as they rejoiced. A comet that appeared in 1811 was believed, by those who were not better instructed, to have killed wasps, blinded the flies, and to have brought with it a most abundant harvest; moreover, to have ripened the grapes, rendering them so sweet and plentiful that the wines of that autumn, being proudly called "the comet wines," were long treasured as almost priceless. Astronomers tell us now that comets do nothing for the harvests or the vintage; indeed, what their work is in the grand plan of nature is as yet a mystery. The word "comet" comes from the Greek *kome*, hair, and means "a hairy star," which name might have arisen from the appearance of these heavenly bodies. We generally see a central light, a dark ring, and a plume or fringe of fainter light which is called the tail, the nucleus or central light with the ring being called the head; thus we have something like fiery hair encircling a shining head—"a hairy star." Since the first year of the Christian era more than six hundred comets have been recorded. Comets travel swiftly, dashing and glittering through space at an incalculable rate. A comet of 1680 swept around the sun at a million of miles an hour; it went so near to that enormous fiery globe that Sir Isaac Newton reckoned when it was nearest it must have been blazed upon with a heat two thousand times greater than that of red-hot iron. This comet, which appeared in 1680, is still rushing onwards, making its grand journey, which it has travelled over again and again for we know not how long; it will come to us again, it is reckoned, in the year 2255. It is very sad that astronomers rarely live to see their prophecies fulfilled. Certain as they feel that they have reckoned correctly, they are too often compelled to leave to others the satisfaction of proving the truth of their astronomical calculations.—*Churchman's Companion*.

**INDIA RUBBER.**—The process of gathering India Rubber along the Amazon, in South America, is described by a traveller to be in many respects similar to that of gathering sugar from the maple groves in Vermont. More method is observed by the men, women, and children, who are engaged in collecting the rubber, than could be expected of such rude and uncultivated people. On arriving at the encampment each one has a certain number of trees allotted to him, which he bores with an auger. At the mouth of the auger hole he inserts a hollow reed or tube, through which the gum can flow, and at the end of this tube he places a turtle shell, or a large clam shell, to hold the gum as it flows from the tree. This gum is a liquid substance, white as milk but somewhat thicker. A large trough, dug out of a log, is placed near the centre of the encampment, and when the trees have all been tapped, a man is appointed to go the rounds and watch these shells, and as soon as they are full he takes them to the trough and empties them. Toward sunset a fire is built near the trough, and upon it is thrown the fruit of a certain kind of palm, which gives forth a dense smoke. A paddle like that used in a canoe, only smaller, is dipped into the milk, turned over once or twice, then withdrawn and held in the smoke, which hardens and blackens it at the same time. This process is repeated till the gum forms an inch to an inch and a half in thickness on the paddle, when a knife is passed along one edge of the paddle and the mass is removed. It is then ready to be shipped. These different coatings or layers which have been formed on the paddle by repeated dippings may be easily separated. In the vicinity of the Amazon there are vast groves of rubber trees, reaching out in all directions.

Examination Questions.

JULY EXAMINATIONS, 1881.

FIRST CLASS TEACHERS.—GRADES A AND B.

(Continued from last month.)

ELEMENTARY GEOMETRICAL OPTICS.

TIME—TWO HOURS.

Examiner—J. C. GLASHAN.

NOTE—Questions marked with Roman Numerals are to be answered on separate sheets, folded separately from the rest, though enclosed in the same envelope.

1. Find the geometrical focus of a pencil after direct refraction at a plane surface.

A point within a solid cube of glass is viewed directly through each of the faces. Show that the six apparent positions of the point

from an octahedron whose volume is  $\frac{1}{6}(1 - \frac{1}{\mu})^3$  of the cube, where  $\mu$  is the refractive index from air into the glass.

2. Show how to determine the apparent position of a luminous point under water to an eye above the water.

To a person standing in water of uniform depth the bottom appears to approach the surface in all directions from him. Give a drawing showing clearly how to determine the shape of the bottom.

3. Determine the deviation of a ray of light reflected through a prism.

Show that if the ray be composed of different kinds of light, with various refractive indices, they will be separated in passing through the prism, selecting for convenience the case in which the angles of incidence and emergence are small, and show that in this case the deviation is independent of the angle of incidence.

4. Find the distance from the centre of a sphere of the geometrical forms of a pencil of rays after direct refraction at the surface.

If a pencil of parallel rays be incident directly on a solid sphere, be turned back by reflection at the opposite face, and after a second refraction pass from the sphere, it can never finally deviate from the centre, the foci being supposed all within the sphere.

5. Find the geometrical focus of a pencil after direct refraction through a thin lens.

Determine the kind of lenses suitable for long and short sighted persons.

Will the difficulties of seeing be increased or diminished to a short-sighted person under water? Explain clearly.

6. Explain how vision takes place through an opera glass, tracing the course of a pencil of rays through it; and explain fully how the eye is assisted by such an instrument.

Determine the magnifying power, having given the focal length of each lens.

VII. Describe the construction of a spectroscope, and show by diagram the relative position of its optical parts.

Describe the different kinds of spectra.

VIII. Explain the method of determining the illuminating power of a source of light by means of Bunsen's photometer.

ANALYTICAL GEOMETRY.

TIME—TWO HOURS AND A HALF.

Examiner—J. C. GLASHAN.

1. Find the angle between two lines whose equations are given.

If  $a, b$  be the differences of the intercepts of the two lines on the axes of  $x$  and  $y$  respectively, and  $\theta$ , the angle between the lines, be constant, then  $\frac{x}{a} - \frac{y}{b} = \cot \theta$  is the locus of their point of intersection.

2. The equation  $f(x, y) = 0$  represents a curve, and cannot represent any part of a plane.

Interpret the equations

$$f(\theta) = 0, \frac{\sin \theta}{\rho} = 0, \rho \sin \theta = 0,$$

$$x^2 - y^2 = 0, x^2 - 4xy + 5y^2 = 0.$$

3. Find the conditions to which the constants in the equation  $ax^2 + by^2 + 2cxy + 2dx + 2ey + f = 0$  are subject in order that the axes may be

- (1.) A tangent and normal to the curve.
- (2.) Two tangents.
- (3.) A tangent and line from point of contact through the centre.
- (4.) Two lines through the centre.

4. The equation to a conic is  $4y^2 + 3xy + 4x^2 - 8x - 8y = 0$ ; find its centre and the magnitudes and positions of its principal axes.

5. Determine the curve represented by the equations  $x = a \sec \gamma$ ,  $y = b \tan \alpha$ , where  $x, y, \alpha$  are variables, and interpret geometrically the angle  $\alpha$ .

If a tangent be drawn from any point on the curve to the circle on its transverse axis, its length is  $ae \tan \alpha$ .

6. The equation to the tangent to the ellipse  $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$  at the point  $(x', y')$  is  $\frac{xx'}{a^2} + \frac{yy'}{b^2} = 1$ .

By transferring the origin to the point  $(2, 3)$ , find the tangent to the curve  $3x^2 - xy + 2y^2 - 6x - 4y = 0$  at this point.

7.  $A$  is a point without a conic, and a chord is drawn cutting the conic in  $B$  and  $C$ ; find the locus of the intersection of tangents at  $B$  and  $C$ , as  $ABC$  revolves about  $A$ .

The angle subtended at the focus by any chord is bisected by the line joining the focus to its pole.

8. Show that the polar equation to a conic section is  $\frac{l}{\rho} = 1 + e \cos \theta$ ; also that the polar equation to its tangent at the point  $(\alpha, \frac{l}{1 + e \cos \alpha})$  is  $\frac{l}{\rho} = \cos(\theta - \alpha) + e \cos \theta$ .

9. In an ellipse if  $P, Q$  be the ends of conjugate diameters  $CP^2 + CQ^2 = a^2 + b^2$ ; and if they be the ends of lines drawn from the centre at right angles to each other  $\frac{1}{CP^2} + \frac{1}{CQ^2} = \frac{1}{a^2} + \frac{1}{b^2}$ .

DYNAMICS.

TIME—TWO HOURS AND A HALF.

Examiner—ALFRED BAKER, M.A.

1. Given an acceleration and velocity with certain units of space and time, show how to express them when the units of space and time are changed.

If the unit of acceleration be the acceleration due to gravity, and the unit of velocity be that of a point which describes 1 foot in 32 seconds, find the units of space and time.

2. Obtain the formula  $s = ut + \frac{1}{2}ft^2$ . If a particle move from rest under the influence of two given uniform accelerations, making an angle  $\theta$  with one another, obtain expressions for the position of the particle and for the resultant velocity at the end of any time.

How would you require to proceed to determine the space described?

3. When a particle is moving in a plane curve obtain an expression for the normal acceleration.

A 3lb. weight is attached to one end of a string 4 ft. long, and is swung round in a horizontal circle, the string being held at the other end. If one revolution be made each second, find in pounds the tension of the string.

4. Explain the illustrations of the laws of motion furnished by Atwood's machine.

If  $A$  and  $B$  be the weights ( $B > A$ ), and if as  $A$  rises it receives at a platform an additional weight  $\frac{B^2 - A^2}{A}$ , and as it descends deposits it again on the platform, and so continues to oscillate above and below the platform, receiving and depositing the weight, the whole time above the platform before the system is reduced to rest is equal to the whole time below it.

5. The time of descent down any chord of a vertical circle from the highest point is constant.

If  $A$  be the highest point of the circle, and  $B$  the lowest, and  $C$  any other point on the circle, and friction be supposed to act, the time of descent from  $A$  to  $C$  is always greater than that from  $C$  to  $B$ , provided  $AC$  be less than  $CB$ .

6. Determine the amount of kinetic energy lost in the following

cases, explaining the nature of the conversion of energy that takes place:

(1.) A body projected vertically upwards after motion has continued a given time.

(2.) Two partially elastic balls of given elasticity and masses moving in the same straight line with given velocities and colliding.

(3.) An inelastic ball impinging on a fixed wall.

7. When a particle is projected in any direction not vertical its path is a parabola.

A certain standard of cartridge causes a ball shot from a rifle held in a horizontal position at height  $a$  above the surface of a lake to strike the water at a distance  $b$  from a point vertically below the muzzle of the rifle. With the same rifle and cartridge, what is the farthest a ball can be sent, atmospheric resistance being neglected.

8. A particle is constrained to move on a vertical cycloid vertex downwards. Find the time of descent from any point to the vertex.

Find the time of oscillation of the simple pendulum, and explain the utility of your result in determining an important physical constant.

### ENGLISH LITERATURE.

MILTON, POPE, AND JOHNSON.

TIME—TWO HOURS AND A HALF.

Examiner—J. M. BUCHAN.

1. "We have not yet found them all, Lords and Commons, nor ever shall doe, till her Master's second coming; he shall bring together every joynt and member, and shall mould them into an immortal feature of loveliness and perfection. Suffer not these licencing prohibitions to stand at every place of opportunity forbidding and disturbing them that continue seeking, that continue to do our obsequies to the torn body of our martyr'd Saint. We boast our light; but if we look not wisely on the Sun itself, it smites us into darkness. Who can discern those planets that are oft *Combus*t, and those stars of brightest magnitude that rise and set with the Sun, untill the opposite motion of their orbs bring them to such a place in the firmament, where they may be seen evening or morning?"

(i.) We have not yet found them all. All what?

(ii.) Explain the meaning of 'feature' and 'Combus'.

(iii.) Who is meant by 'our martyr'd Saint'?

2. Write a synopsis of the argument of the *Areopagitica*.

3. "Nevertheless, the eighteenth century accomplished for us an immense literary progress, and even its shortcomings in poetry were an instrument to that progress and served it."—*Matthew Arnold*.

Fully explain this statement.

4. Illustrate, by quotations, the reasons which Pope gives in his preface for writing this essay in prose instead of verse.

5. "See the sole bliss heav'n could on all bestow!

Which who but feels can taste, but thinks can know:

Yet poor with fortune, and with learning blind,

The bad must miss, the good, untaught, will find:

Slave to no sect, who takes no private road,

But looks through nature up to nature's God;

Pursues that chain which links th' immense design,

Joins heav'n and earth, and mortal and divine;

Sees that no being any bliss can know,

But touches some above, and some below;

Learns from this union of the rising whole,

The first, last purpose of the human soul;

And knows where faith, law, morals, all began,

All end, in love of God, and love of man.

For him alone, hope leads from goal to goal,

And opens still, and opens on his soul;

Till lengthen'd on to faith, and unconfin'd,

It pours the bliss that fills up all the mind.

He sees, why nature plants in man alone

Hope of known bliss, and faith in bliss unknown:

(Nature, whose dictates to no other kind

Are giv'n in vain, but what they seek they find.)

Wise is her present, she connects in this

His greatest virtue with his greatest bliss;

At once his own bright prospect to be blest,

And strongest motive to assist the rest."

—*Pope—Essay on Man, Fourth Epistle—ll. 327-352.*

(i.) What is 'the sole bliss heav'n could on all bestow'?

(ii.) Explain the construction of 'slave' and 'who' in l. 331.

(iii.) Write a note on 'that chain,' etc., l. 333.

(iv.) What is 'the first, last purpose of the human soul'?

(v.) State the argument suggested in the three hundred and forty-fifth and following lines.

6. Discuss the question whether Pope is a poet.

### ENGLISH LANGUAGE AND HISTORY OF ENGLISH LITERATURE.

TIME—TWO HOURS AND A HALF.

Examiner—J. M. BUCHAN, M.A.

1. Illustrate the statement that the English is tending to become an uninflected language.

2. Reproduce Earle's view of syntax as flat, flexional, or phrasal.

3. Distinguish metre, rhyme, rhythm. Quote an example of ballad metre. Explain what is meant by rhyme royal?

4. Indicate the sound of  $a$  in secondary, and of  $o$  in territory.

5. Sketch the history of English literature in the fourteenth century.

6. Tell what you know about the translations of the Bible made before the reign of James I.

### CHAUCCER.

TIME—TWO HOURS AND A HALF.

Exa. —S. ARTHUR MARLING, M.A.

1. Give us full an account as you can of the condition of the English language at the time of Chaucer's birth, and show in what respects his writings affected the language.

2. Describe the education which Chaucer had for his work as a poet; and say what characteristics of his have most impressed you, introducing illustrative quotations where you can.

3. What traces of the decline of feudalism do we discern in Chaucer?

4. Write the following passage in modern prose; compare the English of it with Chaucer's, and notice any "tendencies" in language you discern therein:—

"Engelond ys a wel god lond, ich wene of echo lond best,

Yset in the ende of the world, as al in the West.

The seo goth hym al a bouthe, he stont as an yle.

Here fon heo durre\* the lasse doute, but it be thorw gyle

Of fol of the selue lond, as me hath y soye wyle."

\* need.

—*Robert of Gloucester's Chronicle.*

5. Explain the force of the prefix or suffix in 'forpyned,' 'ytoyed,' 'tappestere,' 'wantown,' 'biloved,' 'inne'; analyze the forms 'raughte,' 'ferthing,' 'thilke,' 'whilom,' 'nas,' 'couthe,' 'altherbest'; derive and explain 'soverayn,' 'felawe,' 'yer.an,' 'orlogge,' 'damoysele,' 'vernicle,' 'cope.'

6. Render in clear prose the following passages, with brief marginal notes where required:

a. 'peyned hire to countrefete cheere

Of court, and ben estatlich of manere.

b. Lat Austyn have his swynk to him reserved.

c. In alle the ordres foure is noon that can

So moche of daliaunce and fair langage.

d. That ye ne rette it nat my vileinye.

e. For curs wol dee right as assoiling saveth.

f. 'my lief is faren on londe.'

g. 'No him that is agast of every tool.'

7. Explain the expressions 'fer eny thinge,' 'atte parvyys,' 'soth to sayn,' 'for no cost,' 'his wit bisette,' 'for the nones,' 'yaf the syke man his boote,' 'the blisful martir quyto you your meede!' 'bulte it to the bren,' 'his vinge for to lette.'

8. Reproduce, as fully as you can, Chaucer's portrait of 'the Persoun.'

9. What species of metre became common in English verse in the 12th century? Cite any specimen of it that you may remember, and give its laws.

PUPIL-TEACHER EXAMINATION PAPERS,  
AUGUST, 1881.

CANDIDATES.

ARITHMETIC.

MALES.

1. Find the value of 7 lbs. 6 oz. 7 drms. 2 scrus. 7 grs. at £1 per oz.
2. What is the total cost of 15,378 articles at £7 19s. 8½d. each.
3. If £22 10s. will purchase 3 cwt. 24 lbs. of coffee, what quantity should be procurable for £75?
4. The rent of a farm of 42 ac. 1 rd. is £158 8s. 9d.; what could 39 ac. 2 rds. 20 poles be rented for at the same rate?
5. Two rabbits are worth 1s. 5d., three hares 10s. 7½d.; how many score of rabbits would be equal in value to 13½ dozen hares?

FEMALES.

1. Make out the following bill:—  
21 lbs. of candles at 7½d. per lb.  
45 lbs. of sugar at 4½d. per lb.  
25½ lbs. of plums at 6½d. per lb.  
2½ lbs. of tea at 2d. per oz.  
10 lbs. 14 oz. of rice at 4d. per lb.
2. Find the cost of 7,845 articles at £26 14s. 8¾d. each.
3. 7,985½ at £8 19s. 4½d. each.
4. What is the value of 90 qrs. 0 bush. 1 pk. at £7 11s. 4d. per qr.?

GRAMMAR.

“Down sank the disappearing band;  
Each warrior vanished where he stood,  
In broom or bracken, heath or wood:  
It seemed as if their mother earth  
Had swallowed up her warlike birth.”—SCOTT.

Parse all the verbs, adjectives, and words used as adjectives, in the above.

2. Show how the possessive case of nouns is formed, both in the singular and plural numbers, and give examples.
3. Give the past-tense of the indicative mood of the verbs *do*, *dare*, *can*, *shall*.

GEOGRAPHY.

Answer two questions.

1. Trace as minutely as you can the course of the River Severn; showing as you proceed how it supplies you with examples of the meanings of each of these terms—viz.:  
*Affluent, City, Confluence, Estuary, Mountain, Plain, Source, Tide, Valley, Watershed.*

N.B.—These terms are here arranged alphabetically. You are to mention each example, and explain each term, in its proper order.

2. Describe the course of a sailing vessel from Belfast to Queens-town. Or, if you can, draw a map of the coast-line.
3. Say what you know about Inverness, Skye, Stafford, the Solway Firth, Scarborough, Yarmouth, St. Albans, and Maidstone.

PUPIL-TEACHERS AT END OF FIRST YEAR.

ARITHMETIC.

MALES.

1. Compare the values of £775, and 775 shillings, and reduce their difference to the decimal of their sum.
2. What vulgar fraction of a guinea is £2, and what vulgar fraction of a mile is 82 yards 1 foot 6 inches?
3. What sum must be added to  $\frac{1}{8}$  of 1½ guineas to make that fraction equal to  $\frac{1}{8}$  of £3?
4. If a bar of gold weighing 5.05 lbs. be worth £243, what is the value of 3 oz. of the metal? Give answer in decimals and in £ s. d.
5. What is the total amount of a rate of £3822916 in the pound on a property valued at £9,518 a year?

FEMALES.

1. If a bankrupt owed £7,241 5s., and paid 13s. 6d. in the pound, what was the total loss to the creditors?

2. How many horses can be bought for £744 8s. 8d., if seventeen horses cost £790 19s. 2½d.?
3. If 21 men earn £52 10s. in eight days of 10 hours each, how much will 49 men earn in 10 days of 5 hours each?
4. If 12 men eat bread to the value of £11 12s. 3d. in 28 days, when wheat is 52s. per quarter, how many men will eat bread to the value of £17 8s. 4½d. in 21 days, when wheat is 39s. per quarter.

GRAMMAR.

1. “The old Sussex tortoise that I have mentioned to you so often is become my property; I dug it out of its winter dormitory in March last, when it was enough awakened to express its resentments by hissing; and packing it in a box with earth, carried it eighty miles in post chaises.”—*White's Natural History of Selborne.*

Point out and parse all the pronouns, prepositions, and participles in the above.

2. Is it ever allowable to place the preposition after, instead of before, the word it governs? Illustrate your answer by examples.
3. The possessive cases of some pronouns are used as adjectives; give examples of this.

GEOGRAPHY.

Answer either Q. 1 or Q. 3, not both.

1. Describe, as fully as you can, the basin of the Po, showing how it supplies you with examples of the use of the following terms, viz.:—*Affluent, City, Confluence, Delta, Gulf, Lake, Mountain, Plain, Source, Watershed.*

N.B.—These terms are here arranged alphabetically. You are to mention each in its proper order.

2. Draw a full map of Sicily, and another of Corsica and Sardinia. Insert the lines of latitude and longitude.
3. Say what you know about Astrakhan, Archangel, the Arctic Circle, North Cape, Nova Zembla, the Gulf of Finland, Gothland, Memel, and Kiel.

HISTORY.

1. Write out a list of names and dates of our sovereigns from 1066 to 1154.
2. What sovereigns reigned between Edward IV. and Elizabeth? Give their dates.
3. Give the name and hereditary title of the first king of the House of Hanover, with the date of his accession to the English throne. What relation is our Queen to him?

PUPIL-TEACHERS AT END OF SECOND YEAR.

ARITHMETIC.

MALES.

1. What percentage of a ton is (a) 1 cwt., (b) 1 qr., (c) 1 lb., (d) 1 oz.? (Not more than 4 places of decimals.)
2. If £43,542½ produce at simple interest in 3½ years £6,667 10s., what is the rate per cent. per annum?
3. In a school of 250 children all examined, 70 fail in arithmetic, 50 in writing, and 20 in reading; what is the percentage of passes in each subject?
4. A sum of 30s. is divided among four boys in the proportion of 35 per cent. to A, 30 per cent. to B, 23.3 per cent. to C, and 50 per cent. of what C receives to D. How much money does each boy receive?
5. In what time will 29 half-sovereigns amount to 29 half-guineas at 2½ per cent. per annum simple interest?

FEMALES.

1. A regiment, returning from foreign service, has only  $\frac{1}{2}$  of its original number of men; it has lost  $\frac{1}{3}$  of its original number in battle,  $\frac{1}{4}$  by sickness, and 36 have deserted. What was its original number?
2. What is the amount of a bill for ¾ cwt. of sugar at 4½d. a lb., 1½ cwt. of rice at 4¾d. a lb. 70 lbs. of currants at £2 6s. 8d. a cwt., and 25 of lbs. tea, 1½ cwt. of it costing £28 10s. 6d.?

3. Simplify  $3\frac{1}{2}$  of  $\frac{2}{3}$  of  $3\frac{1}{2}$  of 49 of  $1\frac{1}{2}$ .
4. If it take  $1\frac{1}{2}$  oz. of shot for the charge of a gun, how many shots can a boy have for 1 shilling's worth of shot at  $2\frac{1}{2}$ d. a lb. How much shot will be left in his pouch after the last shot?

GRAMMAR.

1. "It is the first mild day of March,  
*Each minute sweeter than before;*  
The red breast sings from the tall larch  
That stands beside our door.  
*My sister! 'tis a wish of mine)*  
Now that our morning meal is done,  
Make haste, your morning tasks resign,  
*Come forth, and feel the sun.*"—WORDSWORTH.  
(a) How many sentences are there in the above? Assign each to the class to which it belongs.  
(b) Parse the words in italics.
2. What are the corresponding conjunctions? Give a list of them.

GEOGRAPHY.

1. Say what you know about Astrakhan, Archangel, North Cape, the Arctic Circle, Nova Zembla, the Bay of Bengal, Point de Galle, Auckland, Dunedin, Stewart Island.
2. Draw a map of the Gulf of St. Lawrence, with Nova Scotia, New Brunswick, and Newfoundland.

*One Hour allowed for Females.  
Two and a Half Hours allowed for Males.*

HISTORY.

1. When and how did William I. die? Who inherited his dominions?
2. What celebrated archbishop was assassinated in 1170? Describe the causes of that event.
3. Who ascended the throne in 1216? How came a French army to be in England at that time? How was it disposed of?

EUCLID.

*(All generally understood abbreviations for words may be used; but symbols of operations, such as —, +, x, are not admissible.)*

1. Upon the same base, and on the same side of it, there cannot be two triangles that have their sides which are terminated in one extremity of the base, equal to one another, and likewise those which are terminated in the other extremity.
2. The angles which one straight line makes with another upon one side of it are either two right angles, or are together equal to two right angles.  
The lines bisecting an internal and the adjacent external angle of a triangle are at right angles to each other.

PUPIL-TEACHERS AT END OF THIRD YEAR.

ARITHMETIC.

MALES.

1. What principal put out for  $6\frac{1}{2}$  years at  $4\frac{1}{2}$  per cent. simple interest will amount to £1,602 19s. 7 $\frac{1}{2}$ d.?
2. At what price are the Funds, when I can buy £500 worth of Stock for £401 13s. 4d.?
3. If a tradesman gains 2s. 9d. on an article which he sells for 11s., what is his gain per cent. on his outlay in procuring the article?
4. What percentage is (a)  $\frac{3}{4}$ d. of 3 half-crowns? (b) 3 poles of 3 acres? (c)  $3\frac{1}{2}$  days of a year (of 365 days)?
5. A market woman in the morning sells her butter at 15 per cent. profit; in the afternoon the price of butter rises 1d. per lb., and she then makes 20 per cent. profit. What did the butter cost her to buy?

FEMALES.

1. Divide £870 between A, B, and C, so that  $\frac{7}{5}$  of O's share shall = 5 of A's, or =  $\frac{6}{5}$  of B's.
2. Multiply  $3\cdot456$  by  $\cdot425$ , and divide  $2\cdot472$  by  $3\cdot4$ .
3. A schoolmaster divided his scholars, consisting of 221 boys and 143 girls, into the largest possible equal classes, so that each class of boys should number the same as each class of girls. Find the number of classes.
4. Express 9 $\frac{1}{2}$ d. as the decimal (1) of £1, (2) of £1,000.

GRAMMAR.

1. "Picture galleries should be the workingman's paradise, to which he goes to refresh his eyes and heart with beautiful shapes and sweet coloring, when they are wearied with dull bricks and mortar and the ugly, colorless things which fill the town, the workshop, and the factory."—Kingsley.  
(a) Point out the extensions of the predicate that occur in the above.  
(b) Analyze the adverbial sentence.  
(c) What kind of subordinate sentences are connected with principal sentences by relative pronouns? Give examples from the above and from other passages.
2. Parse each word in the following:  
"Make me, that nothing have, with nothing grieved."
3. With what Latin prepositions are the following words compounded: accept, irrigate, comfort? (N.B.—There is no Latin preposition ac, ir, or com.)

GEOGRAPHY.

1. Draw a full map of Africa, to the east of the 30th meridian of east longitude—that is, to the east of Alexandria on the north, and Port Natal on the south.
2. Describe fully the great mountain chains of Asia, and name the principal rivers rising in each, with the direction of their courses.

*One Hour allowed for Females.  
Two and a Half Hours allowed for Males.*

HISTORY.

1. Who were the parents of Edward VI.? Two of his uncles were beheaded; give some account of them.
2. Describe the government of this country between 1649 and 1660.
3. What was the last battle at which an English king appeared on the field?

EUCLID.

*(All generally understood abbreviations for words may be used; but symbols of operations, such as —, +, x, are not admissible.)*

1. 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 together equal to two right angles.  
In a right angled triangle, the angle contained by the line bisecting the right angle, and the line drawn perpendicular to the hypotenuse, is equal to half the difference of the two acute angles of the triangle.
2. In any right angled triangle, the square which is described upon the side subtending the right angle is equal to the squares described upon the sides which contain the right angle.

ALGEBRA.

1. Divide  $x^3 + x^0$  by  $x^2 + y^2$ , and  $x^4 - \frac{1}{2}x^2y^2 + \frac{1}{3}xy^3 + \frac{1}{4}y^4$  by  $x^2 + 2xy + \frac{1}{2}y^2$ .
2. Take  $\frac{4x-3}{25(x^2+1)}$  from  $\frac{4x+13}{25(x+2)^2}$ .
3. Solve the equations—  
(1)  $\frac{x}{a} + \frac{x}{b} = c$   
(2)  $\frac{1}{2}(x - \frac{3}{4}) - \frac{1}{2}(1-3x) = x - \frac{1}{3}(5x - \frac{1-3x}{4})$ .

## PUPIL-TEACHERS AT END OF FOURTH YEAR.

## ARITHMETIC.

## MALES.

1. On selling 4 dozen cucumbers for 13s. 0d., a profit was made equal to three-tenths of the money laid out in buying them. What ought the price charged per cucumber to the customer to have been in order that 60 per cent. should be gained?
2. What is meant by "discount"? What is the discount on £1,250., due 9 months hence, at  $5\frac{1}{2}$  per cent.?
3. In 3 years, at 4 per cent., what sum would £1,080. amount to at compound interest?
4. If by selling an article for 8s. 3d. I lose  $17\frac{1}{2}$  per cent., what should I have sold it for to gain 40 per cent.?
5. Explain the following quotation from the *Times* of November 29:—"Consols opened this morning at a fresh decline of an eighth, and ultimately experienced a further fall. The first bargains were at  $89\frac{3}{4}$  to  $\frac{1}{2}$ , and the last at  $89\frac{1}{4}$  to  $\frac{3}{4}$ . For the 7th of December the final quotation was  $87\frac{3}{4}$  to 88 ex. div."

## FEMALES.

1. A house which cost £1,500 lets for £65 a year; the outgoings for insurance, &c., amount to  $\frac{1}{4}$  per cent. on its cost; what rate of interest does it pay?
2. An innkeeper uses a quart measure which is too small by  $\frac{3}{375}$  of a pint; of how much will he defraud his customers in selling a butt of beer if he charges  $2\frac{1}{4}$ d. for a pint?
3. The sales of a bookseller amount to £25,000; one-fourth of the sales are made at a profit of 25 per cent., seven-tenths at a profit of  $16\frac{2}{3}$  per cent., and the remainder at a loss of 25 per cent. Find the cost of the stock sold.
4. Three cowkeepers hire a pasture for £35 7s. 6d. for 26 weeks; during the time A puts 7 cows in it for 13 weeks. B 14 cows for 9 weeks, and C 3 cows for 22 weeks. How should they divide the rent?

## GRAMMAR.

1. "Be useful where thou livest, that they may  
Both want and wish thy pleasing presence still.  
Kindness, good parts, great places, are the way  
To compass this. Find out men's wants and will,  
And meet them there. All worldly joys go less  
To the one joy of doing kindnesses."  
—GEORGE HERBERT, 1633.
- (a) Write out the meaning of the above in your own words.
- (b) Parse the words in italics.
- (c) Analyze the first two lines.
- (d) How is the word *that* used in the first line? Give examples of the different ways in which the word *that* is employed.
2. Mention some of the classes of words in our language which are generally of Latin origin. Give examples.

## GEOGRAPHY.

1. Draw a full map of Africa, to the east of the 30th meridian of east longitude—that is, to the east of Alexandria on the north, and of Port Natal on the south.
2. Describe fully the great mountain chains of America, and trace the courses of the principal rivers that rise in them.

One Hour allowed for Females.

Two and a Half Hours allowed for Males.

## HISTORY.

1. How were the Jews treated under Richard I.? Explain the feeling towards them.
2. By what authority were the Stuarts restored in 1660, and William and Mary placed on the throne in 1689?
3. Mention the chief military achievements of this country from 1704 to 1709, and explain the cause of the war of the Spanish succession.

## EUCLID.

(The only abbreviations admitted for "the square on AB" is "sq. on AB," and for "the rectangle contained by AB and CD," "rect. AB, CD.")

1. If the sides of any hexagon be produced to meet, the angles formed by these lines are altogether equal to four right angles.
2. If a straight line be divided into two equal parts, and also into two unequal parts; the rectangle contained by the unequal parts, together with the square on the line between the points of section, is equal to the square on half the line.
3. If a straight line be bisected, and produced to any point, the square on the whole line thus produced, and the square on the part of it produced, are together double of the square on half the line bisected, and of the square on the line made up of the half and the part produced.

## ALGEBRA.

1. Reduce  $\left(\frac{x^2-9x+20}{x^2-6x}\right)\left(\frac{x^2-13x+42}{x^2-5x}\right)$  to the simplest form.
2. Solve the equations:—  
(1)  $\begin{cases} ax=by \\ x+y=c \end{cases}$   
(2)  $12x^2=x+1740$ .
3. Find two numbers in the proportion of 8 : 5 the product of which is 360.

## MENSURATION.

1. The paving of a semi-circular alcove with marble at 2s. 6d. a foot came to £10; what was the length of the semi-circular arc?
2. Find the area of a regular hexagon whose side is 15 feet.

## Practical Department.

## DON'T FRET.

Do you get angry? Do you fret and fume when things don't go to suit you? Henry J. Raymond, with his wide and varied experience, said he had never seen anything in the world worth fretting or getting angry about. He is a weak man who frets, or allows his better common-sense to be overcome by anger. He is the strong man who always holds the helm of his passions, and steers his vessel whither-soever he will. "Patience is strength; impatience is weakness." How many of us are strong? How many teachers stand in their school-rooms fretting at the faults of their pupils, instead of being a stalwart of dignity and power—to lead into better paths. Life is too short to fret it away, joy and peace are too valuable to be sacrificed on such an inferior Moloch. Don't fret. Don't get angry. Rise above it. Stand!

"Stand like an anvil!" when the strokes  
Of stalwart men fall fierce and fast.  
Storms but more deeply root the oak,  
Whose brawny arms embrace the blast."

Don't say you can't, and wear the garb of manhood. If you are unequal to the contest, place yourself where you belong: with the brute force of the world. God gave these elements of wrong to us that we might overcome and be strong. There could be no strength without effort; and no effort if there were nothing to contend for. Therefore if you have these elements in your nature in a pre-eminent degree, thank God, and control them, and then you grow strong perforce. One of the real joys of life is to overcome its weak places. We all have them, and if we bridge them over by judicious management and an inflexible will, we may make a safe passage for ourselves and all whom we attempt to lead. Years ago, when we came near sapping the best powers of our mind by fretting, a lady friend asked us why we fretted so much, and what good it accomplished? We excused ourselves on the plea of poor health and a multiplicity of cares. We finally agreed to make the effort, and every time we began to fret our friend was to sing. We found ourselves not so peevish as we supposed, and that a little effort would overcome a bad fault. If you are a fretter, get some one to sing for you. If you get angry and lack control of yourself, sing "Old Hundred" every time you have a paroxysm, and we will guarantee a cure.—*Mich. Moderator.*

## THE JOY OF WORK.

BY ALFRED HOLBROOK, NATIONAL NORMAL SCHOOL, LEBANON, O.,  
MAY, 1880.

1. *Work* is the blighting curse pronounced on Adam's posterity, and this is to hold through all time.

2. From eight to sixteen hours' time of most men are passed in work, while many women toil some hours longer, their husbands and sons resting or roving the meantime.

3. The primeval curse is thus crushing and wearing away the greater part of human existence.

4. Work is ever attended with care and anxiety, often with disappointment and sometimes with despair.

5. Any alleviation during the accomplishment of such a destiny is seized with eagerness.

6. To live without work is the acme of human desire; power and wealth have for their chief end exemption from the general doom, work.

7. To save children from the weight which has crushed or oppressed the parents is the chief end of human affection, an admitted apology for the father's avarice and a mother's exhausting toil.

8. The young man who is obliged to support himself is excluded from the best circles, so called, of society.

9. The young lady whose father is unable to support her in idleness is too often spiteful at father and fate, and feels still more degraded if dire necessity drives her to teaching or other self-sustaining effort or remunerative employment.

10. The grand aggregation of midnight artists, including gamblers, burglars, and blacklegs generally, are only exercising their right to live without work. "The world owes me a living, and I'm bound to have it," is the common reasoning of this class of artists, not so different in practice from that of many who work by daylight.

11. The most powerful argument of the betrayer is not unfrequently, "You will not have to work any more, I will take care of that."

12. The main object of an education is, too often, to get above the working classes and live in comparative ease.

13. The noisy partisan of either creed is only establishing his claim to the fattest office with the least work and the safest stealings.

14. The boast of not a few preachers would gladly be, "I only preach one sermon a week, with no pastoral work, and get my \$2,000 a year."

15. The boast of too many teachers is, "I only work three or four hours a day, and get my salary of \$1,200." If there is a disposition to exaggerate in the direction of indolence, it is generally accepted as praiseworthy aspiration in the line of good fortune.

16. And who in any condition of life is not hoping for that good time when he can enjoy his leisure with dignity, in other words a free and easy idleness, with sense gratification or intellectual enjoyment uninterrupted by toil or care?

In the face of all these foregone conclusions drawn from so many sources, I wish to state my text. It is:—That work is the most blessed boon conferred on man—his only salvation.

"In the sweat of thy brow shalt thou eat bread," was pronounced by the same voice that declared to the "old serpent," the grand seducer to all laziness, "it shall bruise thy head, but thou shalt bruise his heel."

The harmonious activity of every faculty is the highest state of happiness.

God made the world, and made it right. It is almost universally assumed that the devil has defeated the plan from the first, by bringing on man the curse of work, and all we have to do is to out-

wit the devil and escape the curse, if possible. Nothing pleases his infernal majesty better than this assumption, unless it is its accomplishment. Nothing else has given him the political and priestly control of the world thus far, and nothing else will continue it.

I now propose to show that work can be made, and of right ought to be considered, not only necessary and desirable, but enjoyable; nay, the chief joy; and that the individual who succeeds in making it so need not wait a thousand years and more for the joys of heaven. Heaven is already begun within him and around him.

1. That mechanic or artist who is so absorbed in his daily work that all sensuous gratification falls back into its true place, that of necessary help to the prosecution of his vocation, is a success, wherever and whenever he may be found.

2. That merchant who, amid the sharp competition that meets him on every side, and who by adroit planning and generous enterprise, outstrips all rivalry, is infinitely happier in contriving and developing his schemes than in his retirement.

3. That young farmer who is diligent in business, earnest in self-improvement, and hopeful in his aspirations, has a world of safety and blessing within his possession compared with that young lordling who has a fortune at his control, and is even in the qualms of satiety grasping after new pleasures with still unsatisfied desire.

4. And that teacher who is so thoroughly interested in his work and enthusiastic in his plans that his constant enquiry is, "What more can I do for my school? how can I arouse every pupil to eager and persistent effort?" is happy above any of his fellows, especially that drone who plumes himself on enjoying a good easy time at the public expense.

Ought it not to be true that obedience to God's laws is fuller of all joy and profit than disobedience? That law is work; else, this isn't God's world. But permit me to show how one lazy teacher defeats himself, loses self-respect, makes his calling a burden to himself and a curse to his pupils. The thing is so common I hardly need give the recital.

Some control is necessary in a school; this teacher assumes that fear is the cheapest and surest means of securing it. Hence threats and the rod are his ever recurring resort. The corrective increases the evil. The teacher is hated and despised. He hates in return, and, with his pupils, welcomes any relief or release from the pandemonium which he has created about him. How slowly the hours move! How heavily the days drag along! Will the term ever come to a close? How joyfully all parties greet a holiday! His assertions, "I put them through; I just make them study; I bring them square up; I keep them in their place;" given with such self-assurance, only reveals the true character of the school and of the teacher. Simple laziness and brute force on one side; evasion, deceit, meanness, and smothered hate on the other, where there should be interest, ingenuity, enterprise, ambition, inspiration, and increasing delight in the common good—the regular duties of the school. Why, several years back, in Warren county, even the idea that children could be inspired with any true love of school, or genuine love of school work, was scouted and scoffed at by an examiner and his abettors. He lost his position by his insolence and treachery in his own district, as well as by his singular management of the County Institute funds, just as might have been expected.

Again, that Superintendent whose common method of discharging his duties is in visiting the rooms of subordinate teachers, taking classes out of their hands and showing them how to teach, or in taking classes to his own room for examination, and thus finding occasion to censure the management and disparage the work of the teacher; who watches for instances of dereliction; whose regular

business it is to report tardiness and curtail the wages of his subordinates, is for the most part a man whose love of work has its limits and peculiarities, and whose devotion to his teachers' interests is not always directed towards the plainest looking nor the most worthy.

Such a man, by political wire-working, by flattering certain directors, or by pandering to the low tastes of the rabble, holds his place, to the disgust and weariness of his subordinate teachers, with the contempt of his more intelligent constituents, to the great and life-long detriment of the children; but worst of all, perhaps, to the lowering of the public school system in the estimation of its firmest supporters.

But how can the country school teacher learn to love his work and enjoy it? Rather, I would ask, how can he infuse into his pupils a love of their school, and so inspire them with the spirit of industry and cheerfulness that no place will be as attractive as the school-room, and no recreation will be as heartily engaged in as the regular school work? Why, in the first place, just as an artist becomes absorbed in his work. The successful painter works for higher aims than money. Every hour is grudged that is not given to the easel. Social and convivial occasions are shunned as a delusion and a snare; indeed, all interest and affection is for the time withdrawn from every other object. Can such an individual fail of success, or of enjoyment in the hope of that success which sooner or later is sure to be attained? His only happy or even comfortable hours are when he is at work.

But what is that artist, working on mute canvas or dead marble, compared with that artist who works on living personality, responsive intellect and grateful affections? Where can devotion—all absorbing devotion—be the most easily aroused and most persistently bestowed? Where can the delights of successful contrivance be most fully enjoyed? Where can the enterprise and ambition of a true and living heart find a nobler and sweeter field for their exercise than among his pupils, his best friends?

Can beauty of expression be developed on the canvas, or beauty of form drawn from the marble? How much more charming that energy of character and beauty of soul developed by the devoted teacher through his artistic skill on his plastic, responsive material!

Froebel's idea of turning work into play is not to be limited to children of any age, nor to children at all. It is the true ideal of a life work. To make work more inviting and absorbing than any form of recreation or of unproductive sense enjoyment is the secret of a true life, a happy life. Give me no other. But how shall the country district school teacher find increasing satisfaction in his work?

1. By realizing that earnest, interested work is a blessing and not a curse, in other words, that there is more fun in work than in play.

2. By adequately fitting himself for his work before he begins it.

3. By believing that human nature will ever respond to real devotion to its interests, and that especially is this true of children and youth.

4. By believing in himself as honestly and hopefully devoted to the improvement and pleasure of his pupils.

5. By making his school a field for ingenuity and enterprise, for scheming and planning to increase its usefulness.

6. By availing himself of every opportunity which the profession affords to improve his school and his own plans.

7. By procuring a library and apparatus as rapidly as his means permit.

8. Nor is it unworthy of a good teacher to desire to stand first in the respect and affection of his pupils, and to use all appropriate means to secure this end.

9. Neither is it unbecoming a noble professional zeal to aim towards being, and being considered and spoken of, as "the best teacher we ever had in our school," and thus found to be necessary when called for by some neighboring district with the offer of increased wages.

10. None of these considerations interfere in the least with that beautiful ideal for which the worthy teacher will ever work, and in the pursuit of which he, more than any other artist, can truly say, "I work for eternity."

Now, with such aims, beliefs and motives, let us consider for a moment the immediate ways and means of making school work interesting and exciting.

1. By such special preparation and contrivance on the part of the teacher as will enable him to make every recitation and exercise so interesting that the children will be eager for the next.

2. By feeling that a recitation is nothing, and worse than nothing, unless it is prepared for by diligent and interested study on the part of the pupils.

3. By giving such preliminary drill in every recitation for the study of the next lesson as can not fail to excite a lively curiosity and an eager effort in the preparation for the next recitation.

It is asked how can recitations be made so interesting? and how can preliminary drills be conducted so as to be continuously exciting and effective? I answer, this will depend on the interest of the teacher in his work, on his native aptitude to teach, on his ingenuity in ever devising special methods adapted to each exercise, but much can be gained by all teachers in reading educational books and periodicals, by mutual discussion between teachers as they meet, and by sustaining teachers' associations; neighborhood, town, and county associations. The training in Normal Schools should be directed more to these ends than any other, how to make the recitation interesting; for if the recitation really awakens enthusiastic work, no other government will be required, and all school discipline and culture may thus be reached.

4. But the school work can not be made interesting and kept so, without giving due credit for faithful effort on the part of pupils, however much or little they may accomplish. Nor can the teacher succeed on this plan by imposing study as a punishment, and keeping pupils after school for discipline.

5. Again, school work can be made interesting by arranging for the study of all subjects, except, perhaps, geography, in writing; and by the pupils following outlines in their study, rather than getting their lessons by simply memorizing the text, or learning answers to printed questions.

6. But every other plan may be enhanced by having every pupil in every class, every day engaged in preparing something for the close of the term, for the School Exposition. How is this to be done so as not to interfere with the regular school work? Why, it must be done so as to increase the interest in the regular work, and to arouse the more zeal in the mastery of every lesson. It is a part of good normal training to enable the pupil teachers to use this means of excitement properly, but any ingenious and energetic teacher who accepts the idea will find it working splendidly, with comparatively little extra thought and study on his part.

7. In addition to the work done in the regular classes, for the school exposition, a considerable amount and variety of subjects can be prepared in connection with the general exercises, such as botanical specimens, collections of minerals and fossils, and possibly something in taxidermy, also in the construction of simpler forms of apparatus, the use and application of which the student may be permitted to give at the exposition; also drawings of apparatus may be prepared to illustrate principles in natural philosophy, or in physiology, or in physical geography. Also simple experiments in chemistry can be prepared and performed, illustrating the principles of heat and chemical affinity.

8. In carrying out such plans, and others which the ingenuity of every teacher will suggest as appropriate to his own school, surely every hour will be occupied, and every day will be found too short for the work he is so anxious to accomplish.

To such a teacher will work be a burden and a curse? Rather will he not be delighted to find how fast time flies, and can he fail to be delighted with the results of his school work, even in that work itself? I have thus far directed your attention to the work which the faithful teacher may so richly enjoy in his regular professional duties.

I now wish to say that such a teacher can not fail to inspire his pupils with the same enthusiasm in their daily work.

The plans and methods I have here proposed for the teacher, are no mere theory, no experiment. They are an accomplished fact with thousands within my knowledge. The results of such school management, carried out in a sensible, earnest, and loving spirit, have changed multitudes of schools from prisons to homes, from hells to heavens, from a regular training in deceit and treachery



and meanness unspeakable, to the establishing of good, honest working habits of faith, industry and thrift, and such habits as are carried into successful business, into a worthy and noble life.

And are not such habits infinitely more desirable than any acquirements in arithmetic or grammar, in geography or history, in physics or metaphysics, or in all together, without them? But instead of interfering with such acquisitions, with faithful study, and vigorous accuracy in any school or college drill, such measures, pursued in the right spirit, only make study more earnest and critical, and the attainment of a thorough mastery of all subjects immeasurably easier and more certain.

I have taken occasion to refer to superintendents as not always securing the love and respect of their subordinates. A word more on school superintendency.

Will not the same principles, if accepted and applied by a superintendent, accomplish similar results? Can he not win his associate teachers, not so much to a personal respect and confidence in himself, as to an earnest and cheerful devotion, each to her own work, and to the interest and happiness of her pupils? This can never be accomplished by policing subordinates, by catching the teacher off her guard, by censuring her in the presence of her pupils, by examining her pupils captiously: by disparaging her efforts, by implying or avowing her inefficiency, by treating her as an underling, by reporting or by threatening to report her to the board. It will not be claimed that any or all of these methods of superintending ever made efficient teachers, inspired them with a love of their work, or impressed them with any very profound respect for their profession or their superintendent.

Nor would the simple omission of these and all like points of contact with subordinate teachers necessarily secure their good will or increase their efficiency.

But first, last, and always, faithful, earnest, continuous work on the part of the superintendent, whether he teach any or not, would lay a good foundation for a mutual understanding between him and his teachers, so that at least there would be no occasion for their saying, "We do all the work, but he gets all the pay."

There is unquestionably a very plain course to be pursued by which the superintendent can increase the working power of his teachers many-fold, and at the same time win their gratitude and esteem.

I shall not detain you now, however, with a lecture on school superintendency, but I am fully satisfied that there is a much larger proportion of failures among those who hold positions as superintendent than among teachers at large.

Normal schools are quite as much needed for training superintendents as for teachers who are to take places under them.

And what, now, of the foregone conclusion, that almost universally admitted assumption, that work is a burden and a curse, a degradation and a crime?

Teachers, let those of us who have realized the joys and blessings of enthusiastic work in our chosen profession, strive to inspire our pupils with the same enthusiasm which has given us the victory over ourselves, the world, the flesh, and the devil.

The hallowed fervour will thus extend itself and win from sloth, sensuality, and vice multitudes of the coming generation, who, from the influence of their home circles, their social gatherings, their street contaminations, and even their church relations, seemed doomed to stamp earnest industry, their only means of liberty and happiness, with the Cain-like mark of slavery and woe.

## READING.

BY GEO. L. FARNHAM, A.M., SUPERINTENDENT OF SCHOOLS, COUNCIL BLUFFS, IOWA.

### FIRST PRINCIPLES.

*Definition.*—Reading consists:—First, in gaining the thoughts of an author from written or printed language; second, in giving oral expression to these thoughts in the language of the author, so that the same thoughts are conveyed to the hearer.

It is important that this two-fold function of reading should be fully recognized. The first, or silent reading, is the fundamental process. It is often called "Reading to one's self," a phrase significant as indicating a wrong conception of the true end to be accomplished. The second, oral reading, or "reading aloud," is entirely subordinate to silent reading. While oral expression is subject to

laws of its own, its excellence depends upon the success of the reader in comprehending the thought of the author. The importance of these distinctions is so great that I will consider them in detail.

*Silent, or Eye Reading.*—It is scarcely possible to exaggerate the importance of correct "eye reading;"—of the ability to look over the written or printed page, and, with the least possible consciousness of the words used, to fully comprehend the thoughts expressed.

A common process is indicated by the expression "reading to one's self." This means the translation of written into oral language. The reader either pronounces each word so that he can actually hear it, or he thinks of the pronunciation. In either case the thought is not formed in his mind directly through the written language, but indirectly, after the written words have been changed into oral expression. This process is slow and laborious, it becomes painful when long continued; and its practice will account for the antipathy which so many persons have to reading books and articles of considerable length.

The object in teaching should be to make every pupil an eye reader—to give him the ability to look directly through the written expression to the meaning, or to at once detect the unknown elements that prevent the accomplishment of this object.

*A New Use of the Eye.*—The ordinary function of the eye is to take in the visible characteristics of objects. This is the use to which all children have become accustomed, and they form judgments in accordance with perfect confidence. No child doubts his ability to distinguish his friends, his toys, or any object to which he may direct his attention. Through this sense, aided by touch, he comes into possession of most of his knowledge of the external world. The knowledge so obtained is direct and tangible.

With hearing it is different. While the ear recognizes sound as sound, it has been accustomed from the earliest period to recognize thought through the sound of oral language, until the thought becomes primary in his consciousness, and the sound of the language secondary. Indeed, language becomes so purely representative of thought, that, as sound, it scarcely appeals to consciousness. The child associates speech with thoughts divined from his experience, and never regards it as having a separate existence. The words he hears quicken thought into conscious activity, and he in turn is impelled to express his thought by the use of words.

The child has come into possession of his powers, both of thought and of expression, by a gradual and unconscious process. He has simply been shaped by his surroundings. By association with those who talk, he has acquired the power of understanding speech, and of speaking. The kind of speech, whether perfect or imperfect, which he hears he produces.

This fact should be distinctly understood and realized. The powers of speech and of understanding what is said, both come to the child by a process so simple and natural that he is conscious of no effort to acquire them. Speech, objectively considered, is only a combination of sounds uttered in quick succession, having not the slightest resemblance to the thoughts represented; but by the child it is understood with exactness and uttered with precision. The whole complicated process is matured without effort, and without the intervention of teachers.

To make the eye perform the office of the ear, and the hand that of the organs of voice, is the problem that presents itself in attempting to teach a child to read and to write. The vital point is to so change the function of the eye that it will look upon written or printed characters, not as objects to be recognized for their own sake, but as directly calling into conscious being past experiences, and so becoming representative of thought. All the efforts of the teacher should be directed to this end.

At this point our education has often failed. The process of translating the written language into speech is so slow and difficult that a large share of the pupils of our schools are condemned to comparative ignorance. The words as they appear have no meaning to them. One who acquired the power of directly receiving thought from the printed page is endowed with a new intellectual faculty. His eye flashes along the pages of a book, and he comprehends whole sentences at a glance. It would not do to say that these rapid readers do not understand what they read. The fact is they understand much better than the slow reader. The mental power, being relieved from the necessity of translating, concentrates itself upon the thought, and the thought is understood and remembered. Our endeavour should be to give pupils this power of eye reading from the first, so that they may continually profit by it, and have no evil habits to overcome.

## PROFESSIONAL EXAMINATIONS.

LINDSAY MODEL SCHOOL, Oct. 1881.

## SCHOOL LAW AND REGULATIONS.

1. What are the essential points of an agreement between trustees and teacher?
2. Name the vacations and holidays in Public Schools.
3. Under what conditions may the summer vacation be shortened?
4. For what offences may a pupil be suspended?
5. What business should be transacted at an Annual School Meeting?
6. What should the half yearly report contain?
7. Describe the General Register.
8. What are the regulations respecting (1) presents to teachers, (2) contagious diseases, (3) punctuality of pupils.

## HYGIENE.

1. State the chief evils arising from breathing impure air.
2. Describe the structure of the human ear, and tell the rules to be observed in the care of it.
3. State fully the precautions that should be taken to prevent the spread of contagious diseases.
4. What method would you take to restore a person apparently drowned?
5. Name (1) the principal, (2) the accessory organs of digestion.
6. Give at least six rules the observance of which would conduce to proper digestion.

## MENTAL ARITHMETIC.

1. Quotient 1250, divisor 12, remainder 8; find dividend.
2. MDL+LXI+XIX.
3. A can do a work in 2 days, B in 3 days. In what time can A and B do it?
4. Exchanged 11 tons of hay for 15 sheep at \$6 each, and 4 sheep at \$5 each. What was the hay per ton?
5. What number multiplied by 9=7236×5?
6. Bought cloth at .27, and sold it at .24; what aid I lose %?
7.  $\frac{2}{3}$  of 100 is  $\frac{2}{3}$  of  $\frac{1}{4}$  of what number?
8. Reduce £3 3s. 3d. to dimes, and divide equally among 23 boys.
9. If  $\frac{3}{4}$  of a herring cost  $\frac{2}{3}$  of a dime, how many herrings will 90 cents buy?
10. Reduce 15 days to minutes.

## EDUCATION AND SCHOOL ORGANIZATION.

1. Construct a time-table for a school of 50 pupils in 1st, 2nd, 3rd, and 4th classes?
2. What Arithmetic should be taught in the 3rd class, and what Geography in the 4th class?
3. How would you begin to teach (1) Dictation, (2) Composition, and (3) History?
4. Discuss the daily marking of recitations.
5. How would you encourage cleanliness, punctuality and honesty in pupils?
6. What rules would you adopt with respect to pupils when not reciting in order to secure quietness?
7. What purposes, besides teaching spelling, may dictation serve? And how may these purposes be accomplished?

## INFORMATION LESSONS.

BY JAMES L. HUGHES.

Most teachers make the egregious blunder of supposing that Object Lessons are merely information lessons—or lessons on common things. It is a pity that the name "Object Teaching" should have been given to a system designed to develop pupils instead of cramming them; as it has had the effect of making teachers confine their attempts at reasonable teaching to lessons on common objects. The great majority of the books written on Object Teaching are misleading to teachers. They are simply cyclopaedias of information concerning common things. True object teaching will never make

much progress until this crippling idea is driven from the minds of teachers. Freed from this restrictive application of true principles, teachers would speedily learn that most, if not all, the school subjects can be taught on the developing plan. Pestalozzi discovered no new principles, he applied understood methods to a new and limited department of school work. This does not prevent the use of the same methods in teaching other subjects. While strongly insisting that Object Lessons are not necessarily information lessons, we as strongly urge teachers to widen the range of their pupils' vision by giving them incidentally, and by set lessons, as much general information as possible. We propose to give special attention to this portion of school work in the department of the SCHOOL JOURNAL set apart for the purpose of supplying teachers with useful and interesting information on general topics, to communicate to their pupils. It is a good plan to write on the blackboard on Friday evening a list of questions on the current topics of the day, or concerning some important facts not generally known, and require the pupils to find answers to them, by questioning their friends, or by reading. There is no better exercise for directing the pupils to read good books in a proper way. They have a fixed purpose, and without such a purpose reading is often valueless. It will also be found a stimulating exercise to request pupils to state at a certain time some facts, or principles, with which they have recently become acquainted, for the benefit of their classmates. If this be allowed once a week it will lead to a vast amount of useful investigation by the pupils, and will also give the teacher the opportunity of conducting one of the best possible language lessons. Such a lesson might properly be assigned as a composition lesson. Oral composition is not less important than written composition.

## DIVING.

All children will be interested in learning how men can exist under water for hours. The accompanying cut and description will aid teachers in giving a lesson on this interesting subject. It will form a good object lesson for the whole school, as many important principles in Pneumatics and Hydrostatics may be explained in connection with it. The cut will form a good drawing lesson if put on the blackboard.

The diver simply puts on a peculiar kind of a suit made of India-rubber, which completely covers him and keeps out the water.



A Man in a Diver's Suit or Armor building a Foundation under Water.

Glass is fixed in the helmet for him to see through. Of course, he must have air to breathe; that is supplied by a hose or tube leading from the inside of his suit or covering up to a boat, where other men are carefully pumping air to him through the hose. His boots have leaden soles, and heavy weights are attached to his suit to enable him to sink. Of course, he does not feel the great weight of the apparatus while he is in the water. In such suits men go under the water to examine and repair ships, recover wrecks, sunken treasures, &c.

The following conversation with a diver is taken from the *Scholar's Champion*:

"How does it seem," said a reporter to a diver of twenty-three years' experience, "to go down into the water, fathom after fathom?"

"Well," was the reply, "the first time a man goes down, he is apt to be considerably scared on account of the pressure. If a man is lowered too fast it will kill him. Divers are seldom or never killed by drowning, but by an unequal pressure. A diver could cut a hole in the lower portion

of his suit without fear of being drowned, as long as he stood erect; for as long as air was supplied by the air pump, the water could not reach his mouth. In deep water the pressure is very great, and usually a diver can descend as deep as he can stand the pressure. Divers seldom descend over one hundred and seventy feet, and rarely as deep as that. Under the water the ears feel stopped up, but sometimes we can make ourselves understood by putting two helmets together and shouting, but then it sounds no louder than an ordinary whisper. A man who went down for the first time would be likely to signal to come up after feeling the pressure in the ears, which is very unpleasant until you are used to it."

"How about the fish; do they ever molest you?"

"Very seldom. You see, we make it a rule not to disturb them. We know that they are in their element and we are not in ours. As for sharks, we don't care for them. They are cowardly and easily frightened off. We are much more afraid of the baricoots, a surface fish with teeth three inches long. Talk about fish—why one can't have any conception of them until he has been under the water and seen them of all sizes and colors of the rainbow. The noise by a school of fish sounds under water like the rumbling of thunder.

"One of the greatest curiosities in this line was the Jew-fish I encountered when diving on the coast of Venezuela. These fish are from six to fifteen feet in length, and have a large mouth with small teeth. The Jew-fish have a great deal of curiosity, and used to eye us while we were at work. We were a little afraid of them at first, but found that they would not harm us. I suppose you have heard of the electric eel, which has the power to give a shock equal to any battery. When we were diving at the West Indies, one of our divers received a severe shock from an electric eel, and for a time he seemed paralyzed. Mules and other animals, when fording streams in that country, often receive a shock."

"Is it dark under water?"

"That depends upon how clear the water is. I have been down twenty fathoms, where I could see to read the finest print, and I have been down ten feet where you could not see your hand before you. Before we see a body or an object under the water, we always see the shadow first."

"How about the bottom of the ocean?"

"In many places it is beautiful especially where the coral reefs are. Coral looks like a forest of trees that had been cut down. I have seen coral as large as the stump of any tree you ever saw, with enormous limbs running downward, the trunk and branches being of the purest white coral. I have encountered a coral reef after descending three fathoms, and a bottom of pure white sand after descending two fathoms more."

#### SELECTIONS FOR MEMORIZING.

The systematic practice of memorizing brief selections from the best authors was first introduced by Hon. J. B. Peaslee, Superintendent of Schools in Cincinnati. It is one of the most important, and may be made one of the most interesting, of school exercises. The selections are taught in school as a part of the opening exercises, and form no part of the home work of the pupils. One selection is taught each week; two or four lines being taught at a time, so that only a very short time is spent each day.

The benefits resulting from the exercise are:

1. The memory is cultivated.
2. The moral nature is developed.
3. A large store of choice selections are fixed in the minds of the pupils.
4. Composition is improved; the vocabularies of the pupils are enriched, they become acquainted with the language used by the best writers, and learn to use these words in their most appropriate connection.
5. Expressive reading is taught in the most practical way possible.

#### METHOD OF TEACHING THE SELECTIONS.

1. One line is written on the board by the teacher, and read by him distinctly, with emphasis rather overstrained, and pauses marked too distinctly.
2. The pupils repeat the line, imitating the teacher.

3. The teacher calls special attention to those parts of the line where the pupils have failed to imitate him accurately, and repeats the whole line, which is again repeated by the class. This is continued until the class recites the line correctly simultaneously.

4. A few individual pupils may then be called upon to recite the line.

5. The other lines are taught in a similar way. After each additional line is taught, the whole is recited from the beginning.

#### FIFTH BOOK CLASSES.

1.

Rouse to some work of high and holy love,  
And thou an angel's happiness shalt know—  
Shalt bless the earth while in the world above:  
The good begun by thee shall onward flow  
In many a branching stream, and wider grow;  
The seed, that in those low and fleeting hours,  
Thy hands unseparating and unweary sow,  
Shall deck thy grave with amaranthine flowers,  
And yield thee fruits divine in heaven's immortal bowers.—*C. Wilcox.*

2.

When'er a noble deed is wrought,  
When'er is spoken a noble thought,  
Our hearts in glad surprise  
To higher levels rise.  
The tidal ways of deeper souls  
Into our inmost being rolls,  
And lifts us unawares  
Out of all meaner cares.—*Longfellow.*

3.

Be wise to-day; 'tis madness to defer;  
Next day the fatal precedent will plead;  
Thus on, till wisdom is pushed out of life.  
Procrastination is the thief of time;  
Year after year it steals, till all are fled,  
And to the mercies of a moment leaves  
The vast concerns of an eternal scene.—*Young.*

4.

The rose which in the sun's bright rays  
Might soon have drooped and perished,  
With grateful scent the shower repays  
By which its life is cherished:  
And thus have o'en the young in years  
Found flowers within that flourish  
And yield a fragrance fed by tears,  
That sunshine could not nourish.—*Bernard Barton.*

#### FOURTH BOOK CLASSES.

1.

There's a wideness in God's mercy  
Like the wideness of the sea;  
There's a kindness in his justice,  
Which is more than liberty.  
For the love of God is broader  
Than the measure of man's mind;  
And the heart of the Eternal  
Is most wonderfully kind.—*F. W. Faber.*

2.

We rise by things that are 'neath our feet;  
By what we have mastered of good and gain;  
By the pride deposed and the passion slain,  
And the vanquished ills that we hourly meet.

I count this thing to be grandly true,  
That a noble deed is a step toward God,  
Lifting the soul from the common sod  
To a purer air and a broader view.—*J. G. Holland.*

3.

One by one the sands are flowing,  
One by one the moments fall;  
Some are coming, some are going;  
Do not strive to grasp them all.

One by one thy duties wait thee,  
 / Let thy whole strength go to each;  
 Let no future dreams elate thee—  
 Learn thou first what these can teach.  
 —*Adelaide A. Proctor.*

4

There's nothing bright, above, below,  
 From flowers that bloom, to stars that glow,  
 But in its light my soul can see  
 Some feature of thy deity!

There's nothing dark, below, above,  
 But in its gloom I trace thy love;  
 And meekly wait that moment when  
 Thy touch shall turn all bright again.—*Thomas Moore.*

## THIRD BOOK CLASSES.

1

True worth is in being, not seeming—  
 In doing each day that goes by  
 Some little good, not in dreaming  
 Of great things to do by and by;  
 For, whatever men say in their blindness,  
 And spite of the fancies of youth,  
 There is nothing so kingly as kindness,  
 And nothing so royal as truth.—*Alice Carey.*

2

Rest not! Life is sweeping by;  
 Go and dare before you die.  
 Something mighty and sublime  
 Leave behind to conquer time;  
 Glorious 'tis to live for aye,  
 When these forms have passed away.—*Goethe.*

3

The lesson which the many-colored skies,  
 The flowers; and leaves, and painted butterflies,  
 The deer's branched antlers, the gay bird that flings  
 The tropic sunshine from its golden wings,  
 The brightness of the human countenance,  
 Its play of smile, the magic of a glance,  
 For evermore repeat,  
 In varied tones and sweet,  
 That beauty, in and of itself, is good.—*Whittier.*

4

Work for the good that is highest;  
 Dream not of greatness afar;  
 That glory is ever the highest  
 Which shines upon men as they are.  
 Work, though the world would defeat you;  
 Heed not its slander and scorn;  
 Nor weary till angels shall greet you  
 With smiles through the gates of the morn.—*W. M. Punshon.*

## SECOND BOOK CLASSES.

1.

Hearts, like doors, can open with ease  
 To very, very little keys;  
 And don't forget that they are these;  
 "I thank you, sir," and "If you please."

Then let us watch these little things,  
 And so respect each other;  
 That not a word, or look, or tone  
 May wound a friend or brother.

2.

True worth is in being, not seeming—  
 In doing each day that goes by  
 Some little good, not in dreaming  
 Of great things to do by and by;  
 For, whatever men say in their blindness,  
 And spite of the fancies of youth,  
 There is nothing so kingly as kindness,  
 And nothing so royal as truth.—*Alice Carey.*

8.

## THE SCULPTOR BOY.

Chisel in hand stood a sculptor boy  
 With his marble block before him,  
 And his face lit up with a smile of joy  
 As an angel dream passed o'er him.  
 He carved that dream on the yielding stone  
 With many a sharp incision,  
 In heaven's own light the sculptor shone—  
 He had caught that angel vision.

4.

Sculptors of life are we; as we stand  
 With our lives uncarved before us,  
 Waiting the hour when at God's right hand  
 Our life-dream passes o'er us.  
 Let us carve it then on the yielding stone  
 With many a deep incision,  
 Its heavenly beauties shall be our own—  
 Our lives that angel vision.—*Oliver Wendell Holmes.*

## FIRST BOOK CLASSES.

1.

A little child may have a loving heart,  
 Most dear, and sweet;  
 And willing feet.

A little child may have a helping hand,  
 Full of kind deeds  
 For many needs.

A little child may have a gentle voice  
 And pleasant tongue  
 For every one.

2.

'Tis being, and doing,  
 And having that make  
 All the pleasures and pains  
 Of which beings partake.

To be what God pleases,  
 To do a man's best,  
 And to have a good heart,  
 Is the way to be blest.—*Peter Parley.*

3.

## DO IT NOW.

If you're told to do a thing,  
 And mean to do it really,  
 Never let it be by halves;  
 Do it fully, freely.

When father calls, though pleasant be  
 The play you are pursuing,  
 Do not say, "I'll come when I  
 Have finished what I'm doing."

4.

If you are told to learn a task,  
 And you should now begin it,  
 Do not tell your teacher, "Yes,  
 I'm coming in a minute."

Waste not moments nor your words  
 In telling what you could do  
 Some other time; the present is  
 For doing what you should do.—*Phæbe Carey.*

TEMPERANCE IN THE SCHOOLS.—No man's public rights will be invaded if it is decided, as we think it ought to be, that *total abstinence* is that form of temperance which should be enjoined in the schools. The subject belongs fairly and wholly within that range of practical matters affecting the State, upon which the State has a right to give judgment; and it lies, too, in the appropriate region of school-life. We do not think, therefore, that any man has a right to be offended, whatever his own personal opinion or practice may be, if he finds that the principles of total abstinence are laid down and commended in our public schools. And no school authorities anywhere ought to hesitate in causing such instruction to be given. It is the safe course, assuredly, for the children and for the public, and no one may fairly object.—*The Congregationalist.*

## Notes and News.

## ONTARIO.

The publishers will be much obliged to teachers and others for items of information of interest to the profession in Ontario. It is much better that notes should be written instead of clipped from newspapers.

If ever an able and ambitious student had reason to feel grievously disappointed, Mr. Huston, of the Pickering College staff, certainly has. He was really "three days too old" when he began to write, although not 22 when he made his application. He reflected great credit on Canadian scholarship, and entered upon the examination with the assurance that he was eligible, as the following letter shows plainly:

[No. 993.]

PROVINCIAL SECRETARY'S OFFICE, ONTARIO,  
TORONTO, 11th June, 1880.

Sir,—I have the honor to acknowledge the receipt of your letter of the 7th instant, respecting the age of applicants for the "Gilchrist Scholarship," and to inform you, in reply, that a candidate who has not completed his twenty-second year at the time of his application is eligible for the scholarship.

I have the honor to be,  
Sir,

Your obedient servant,  
JOHN H. USSHER,

W. H. HUSTON, Esq.,  
Whitby.

Acting Asst. Secretary.

By hard work and his own native ability, he stands ahead of all competitors, and out of some 600 or 700 candidates from the English Universities who wrot from the same papers, holds the high position of only eighth from the head of the list, and thirteen higher than Mr. Murray Howard, to whom the scholarship was awarded. A mere technicality or error, for which Mr. Huston is in no way responsible, may deprive this gentleman of the honor given to another. Justice certainly gives Mr. Huston the Gilchrist Scholarship, and his friends will warmly congratulate him on the result.

The following gentlemen constitute the staff of the St. Mary's Collegiate Institute.—James E. Wetherell, B.A., Medallist in Classics, Toronto University, Principal; John E. Tom, First Class A, Medallist of Toronto Normal School; Wm. McClure, B.A., Gold Medallist in Mathematics, McGill University, Montreal; Isaac M. Levan, B.A., Honor Graduate of Toronto University. A fifth Master will be appointed for the Winter and Spring Terms. It is good policy for a Board of Education to get good men, and better still to pay them good salaries.

The Ontario Commercial College is doing a good deal to add to the respect entertained abroad for Canadian schools. During the last term of the college it was attended by students from Bermuda, West Indies, New York State, Pennsylvania, Quebec, New Brunswick, and all parts of Ontario. The following, clipped from the *Belleville Intelligencer*, shows that the reputation for thoroughness which the college has earned is producing results which must be gratifying to its managers:—"A young man named Donald Ross, son of Roderick Ross, Esq., Chief Factor of the Hudson Bay Company in the Norway House district in the North West, arrived in Belleville yesterday to attend Ontario Commercial College. The journey from Norway House to Winnipeg took fifteen days, and from Winnipeg to Belleville four. Mr. Ross chose the Belleville College for his son from among Canadian institutions owing to the reputation it has in the Hudson Bay Company service."

Farmersville High School passed 12 students at the last Intermediate—3 A, 5 B, and 4 Int. Well done, Farmersville!

The following is the Time Table of the next Entrance Examination for admission of candidates to High Schools and Collegiate Institutes in Ontario. Wednesday, December 21st, 1881: 9 a.m. to 10:30 a.m., Geography; 10.45 a.m. to 12 m., Composition; 1:30 p.m. to 3:30 p.m., Grammar. Thursday, December 22nd, 1881: 9 a.m. to 11 a.m., Arithmetic; 11.10 a.m. to 11:30 a.m., Dictation; 1 p.m. to 2:30 p.m., Fourth Book and Spelling; 2.35 p.m. to 4:05 p.m., History.

We are glad to learn that Mr. J. A. Wismer is succeeding in evoking a spirit of enthusiasm in Parkdale in favor of the Public School. Earnestness and tact generally produce this result. We clip the following from the *Parkdale Gazette*: "I have visited the

school several times since the new regime has been established, and find that the newly appointed master, Mr. Wismer, a gentleman of kindly disposition and classical attainments, has already raised the standard of the classes and brought the school to a state of discipline hitherto unattempted, adopting a curriculum intended to advance rapidly the progress of the pupils; but in order to successfully carry out this, a change in a few of the text books is absolutely necessary—without which the studies of the children would be seriously retarded."

We are glad to learn that Mr. J. C. Glashan, Inspector of Public Schools in Ottawa, and a member of the Central Committee of Examiners for Ontario has recovered from his recent severe illness.

The public spirited School Board of Kingston has provided an excellent library of over three thousand volumes in their handsome Board Room, for the use of the ratepayers of the City. It is gratifying to know that during the past year over twelve thousand volumes were taken out.

Mr. Kidd, Inspector of Public Schools in Kingston, has been suffering from a severe illness for a considerable time. His many friends will be glad to learn that he is now convalescent, with the prospect of entire restoration to health.

Mr. James McNevin's recent experience is an illustration of the fact that trustees throughout the Province are keeping watch for the men who are most successful in raising the standard of their schools. When the comparatively small High School at Caledonia passed nearly as many pupils as the "Ambitious City Institute" many were surprised, and at least two School Boards decided to secure a portion of the Caledonia leaven. Mr. McNevin was appointed Mathematical Master in Walkerton High School, but had only spent a week in his new position when he received an offer of a similar position in Ottawa Collegiate Institute. He is worthy of the attention he receives, and his humility is as noteworthy as his ability.

## NOVA SCOTIA.

The first meeting of the Teachers' Association of Antigonish and Guysboro' was held in one of the rooms of St. Francois Xavier's College on Thursday and Friday, the 25th and 26th August, under the *ex officio* presidency of Inspector McDonald. After a short and appropriate introductory address by the President, the appointment of officers was proceeded with. The following officers were elected: Vice-President, Mr. Wm. McIsaac; Secretary, Mr. Wm. F. Kiely; Treasurer, Mr. Alex. McKinnon; Committee of Management, Messrs. Angus Chisholm, A.B., V. G. Parsons, A.B., Alex. McKinnon, R. C. McDonald, J. P. Hogan, W. H. Cameron, Wm. McIsaac. The programme of the first day consisted of papers from the following gentlemen: Mr. Jos. A. Chisholm, on the "Study of History"; Mr. Wm. McIsaac, on the "Duties of Teachers"; and Mr. Angus Chisholm, on "Mathematics,"—all of which were admirably written, and elicited animated discussions, participated in by Messrs. Parsons, McIsaac, Cameron, McDonald, Parker, Chisholm, and others. The proceedings of Friday were opened with a discussion on the duties of teachers to themselves and to one another, and the means that should be employed to raise their calling to the dignity of a profession. After a spicy debate on this question, a motion was referred by Mr. Parsons to gain an expression of opinion relative to compulsory education. The subject was vigorously and eloquently discussed, and on being put to vote resulted in a majority of four in favour of Compulsory Education. The last paper was from Mr. Parsons, A.B., on the "Art of Teaching," and attracted great attention by the brilliant and philosophical style in which he presented his views on the practical application of the principles of education. The paper was eloquently commented upon by Mr. McIsaac, who also paid the writer's ability a well-merited tribute of praise. By request of the meeting, Mr. Parsons consented to authorize its publication in the CANADA SCHOOL JOURNAL. The meeting was then brought to a close by an address from the President, who expressed his satisfaction at the very successful and creditable manner in which the proceedings had been conducted.

Copy of Resolution moved by Mr. Parsons.

"Whereas, by the Free School Act of 1864, provision has been made for the education of all the children of our province. And whereas, through the wilful neglect or stubborn opposition of parents on the one hand, or the gross carelessness of the children on the other, the average attendance of the latter is lamentably below what, by the law, was contemplated. Therefore Resolved, that

the members of this Association give expression to the Council of Public Instruction of their opinion that a law should be passed rendering compulsory the attendance of our youth at the Public Schools so generously provided for them, for at least one half of the regular school year."

The Teachers' Association of King's and Hants' counties held its third annual meeting in Windsor, on Thursday and Friday, September 15th and 16th. Seventy teachers were in attendance, most of whom enrolled as members. The officers appointed for next year are:—Conlin W. Roscoe, Inspector of Schools, President (*ex officio*); John F. Godfrey, Principal Windsor High School, Vice-President; Geo. J. Miller, Principal Kentville High School, Secretary-Treasurer; W. P. Shaffner and Miss Carrie Parsons, of Wolfville School, Mrs. B. Chandler, Windsor, and H. S. Jacques, Berwick, Managing Committee. Inspector Roscoe expressed the pleasure it gave him to meet so many of the teachers of his district at the association. He said he was requested by Dr. Allison, Superintendent of Education, to assure the teachers of his deep interest in the objects and aims of their society, and his regret at not being able to be present. He (the president) would not occupy the valuable time of the association by any preliminary remarks at this stage, but invite all present to participate freely in discussing the various topics outlined on the programme. Mr. A. D. Foster read a paper on "Spelling," in which he recommended a combination of oral and written spelling, as producing the best results. Words should be grouped in families, and special attention given to similar terminations, &c. This subject was spoken to by Messrs. Saunders, Pinceo, Craig, Mrs. Chandler, and the President, who, while agreeing in the main with the paper, added valuable suggestions from their own experience. A. J. Pinceo, B. A., Principal of Hants Border School, gave a paper on "Science in Schools," in which he strongly advocated the more general introduction of the physical sciences into school work. In giving reasons for taking this position, he showed the bearing of the subject upon the actual pursuits of life; their value in drawing out and developing the mind, by teaching the student to observe and think for himself; and the pleasure to be derived from the reverent study of the works of the Divine Architect. He showed the necessity of teachers seeking a preparation for this work, and suggested as an aid in the attainment of that object and as a means of encouraging the popular study of the sciences, the formation of a society. The idea was favorably received by the association, and a committee appointed to consider the matter and prepare a plan for the organizing and conducting of such a society. The Committee reported at a subsequent session, and the following resolution was adopted, viz:—*"Whereas* the study of the natural sciences tends directly to promote the comfort, well being, and happiness of those engaged in it, and, indirectly, of society in general; *And whereas*, in the opinion of this association, the more general introduction of this study into the common schools could not fail to be productive of the best results; *And whereas*, it is also the opinion of this association that the formation of a society, having for its object increased proficiency in the department of science on the part of the teacher and the awakening of a more general interest in, and diffusion of scientific knowledge, would be a laudable and effective means of reaching that end: Therefore *Resolved*, that this association lend its hearty co-operation in the work of forming and sustaining such a society; and further *Resolved*, that a committee be appointed to confer with the leading educationists and specialists in the several departments of science, asking their co-operation in forming such a society." Inspector Roscoe, A. J. Pinceo, B. A., Principal Hants Border School, and J. F. Godfrey, Esq., Principal Windsor High School, were appointed as such committee. A paper was then read by Miss Rachel De Wolfe, of Windsor School, on the "Phonic and Sight Methods of Teaching Reading." She gave a lesson to a class of her own pupils, illustrating the principles advocated in the paper. Both the paper and the lesson were excellent. Miss S. E. Cohoon contributed a paper on "How to Teach Geography." She emphasized *Map drawing* as essential to thoroughness in this study. Wall maps might in a large measure be dispensed with. Considerable discussion followed this paper in which many good ideas were exchanged. A public educational meeting was held in Temperance Hall on Thursday evening. Pres. Roscoe said he regretted the absence of Dr. Sawyer, of Acadia College, and Rev. J. B. Logan, whom he had expected to address the meeting. He briefly reviewed the formation of the Association and the work it was aiming to perform. It represented a district in which were laboring over two hundred teachers, in whose charge were ten thousand children. These were to be instructed and train-

ed to be useful citizens. The work was immense; and the results, incalculable. Mr. J. F. Godfrey read his paper, "Should Latin be generally taught in the Public Schools?" He was followed by Mr. A. J. Pinceo with a paper, previously read to the association, on 'Science.' Rev. E. M. Kierstead, M. A., addressed the meeting at some length. He dwelt, in a forcible and impressive manner, upon the necessity of true character in the teacher. The address was admirable, and listened to with marked attention. Edgar De Wolfe, Esq., Judge of Probate, followed in a short speech, in which he strongly favored compulsory education; and considered bad government at home was the primary cause of bad conduct in school. Friday morning's session opened with a discussion of Mr. Godfrey's paper. Almost all the teachers agreed with Mr. G. in the importance of teaching Latin, but did not see how time could be spared for it in miscellaneous schools without detriment to the many elementary branches which a teacher is expected to teach. The writer was highly complimented for his paper. Mrs. B. Chandler gave a paper on "Botany," and explained her method of teaching beginners. Mrs. C. exhibited to the meeting a book prepared by her pupils, containing specimens of leaves, etc., and a chart of a variety of plants, drawn by herself, for use in teaching this subject. By vote of the Association, she was requested to furnish her paper for publication in the CANADA SCHOOL JOURNAL. Mr. W. W. Saunders, Principal of Hantsport School, read a paper on "How to treat Backward Pupils." He gave his own experience in this matter, and presented many valuable hints to younger teachers. The last paper read was by Miss A. Burgoyne, of Windsor School, on "Drawing," Walter Smith's System. The paper was to the point and excellent. She illustrated her plan of teaching to a large class of her own pupils; the pupils all drawing simultaneously and executing rapidly some very fine and really difficult pieces. The lesson was very interesting, and made a strong impression in favor of linear drawing.

#### MANITOBA.

The fifth Convention of the Manitoba Teachers' Association, which was largely attended, has just closed. The following are the officers for the ensuing year, viz:—The Rev. W. C. Pinkham, President; J. H. Stewart, Esq., First Vice-President; Miss S. Wright, Second Vice-President; W. A. McIntyre, Esq., Secretary; Miss Maggie Eyres, Treasurer; Miss McEwen and Messrs. J. B. Ferguson, N. Hewitt, J. D. Hunt, and E. A. Ganalt, Councillors. Papers were read by J. H. Stewart, Inspector of City Schools; J. B. Adams, Cook's Creek; N. Hewitt, St. Paul's; and Stewart Mulvey, Chairman of the City School Trustees. The discussions upon the papers were eminently pointed and practical. Mr. Stewart, on behalf of the committee appointed at the last meeting to prepare a system of uniform promotion examinations, presented a report, which was taken up clause by clause. After a number of the clauses had been discussed, the report was, on motion, referred back to the Committee, with the request that they report again at the next meeting. It was resolved, "That the publishers of the CANADA SCHOOL JOURNAL be asked for quotations for fifty or one hundred copies of their journal, and that the Secretary notify the members and teachers through the press what subscription sum would entitle them to the JOURNAL for one year, as well as all the privileges of the Association. Mr. Stewart Mulvey was unanimously elected an honorary member of the Association.

At a special meeting of the Protestant Section of the Board of Education, held recently, the following resolution was unanimously adopted, viz: "That the Superintendent (the Rev. W. C. Pinkham, B. D.) be hereby empowered to proceed as soon as possible to the Eastern Provinces, for the purpose of visiting some of the principal Normal, Model, and High Schools of the Dominion, and on his return to report to this Board upon a system of training schools for teachers, and of High Schools, for the Province of Manitoba."

The following gentlemen have been appointed Inspectors, viz:—J. H. Stewart, Esq., Inspector of City Schools, for the schools in the County of Selkirk on the west side of the Red River; S. H. Stewart, Esq., Birnie, for the schools at Brandon, Rapid City, Eden, &c., &c.; Rev. R. Young, B. A., St. Andrew's, for the schools in the municipalities of St. Andrew's and St. Paul's; Rev. A. Campbell, B. A., Rockwood, for the schools in the municipality of Rockwood.

## Readings and Recitations.

### GUARD YOUR WORDS.

Keep guard of your words, my darlings,  
For words are wonderful things:  
They are sweet like the bee's fresh honey,  
Like the bees they have terrible stings.  
They can melt like the warm, glad sunshine,  
And brighten a lonely life,  
They can cut in the strife of anger,  
Like an open two-edged knife.

Let them pass through your lips unchallenged,  
If their errand is true and kind;  
If they come to support the weary,  
To comfort and help the blind.  
If a bitter, revengeful spirit  
Prompts the words, let them be unsaid;  
They may flash through a brain like lightning,  
Or fall on a heart like lead.

Keep them back if they're cold and cruel,  
Under bar, and lock and seal;  
The wounds they make, my darlings,  
Are always slow to heal.  
May peace guard your lives, and ever,  
From this time of your early youth,  
May the words that you daily utter  
Be the beautiful words of truth.

### TWO AND ONE. RECITATION.

Two ears and only one mouth have you:  
The reason, I think, is clear:  
It teaches, my child, that it will not do  
To talk about all you hear.

Two eyes and only one mouth have you:  
The reason of this must be,  
That you should learn that it will not do  
To talk about all you see.

Two hands and only one mouth have you;  
And it is worth repeating,—  
The two are for work you will have to do,  
The one is enough for eating.

### AN OLD SAW.

A dear little maid came skipping out  
In the glad new day with merry shout;  
With dancing feet and flowing hair  
She sang with joy in the morning air.

"Don't sing before breakfast, you'll cry before night!"  
What a croak, to darken the child's delight!  
The stupid old nurse, again and again,  
Repeated the ancient dull refrain.

The child paused, trying to understand;  
But her eyes saw the great world rainbow-spanned;  
Her light little feet hardly touched the earth,  
And her soul brimmed over with innocent mirth.

"Never mind—don't listen—O sweet little maid!  
Make sure of your morning song," I said;  
"And if pain must meet you, why, all the more  
Be glad of the raptures that came before.

"O, tears and sorrow are plenty enough,  
Storms may be bitter and paths may be rough,  
But our tears should fall like the dear Earth's showers,  
That help to ripen the fruits and flowers.

"So gladden the day with your blissful song—  
Sing on while you may, dear, sweet and strong!  
Make sure of your moment of pure delight,  
No matter what trials may come before night."

## Teachers' Associations.

### SOUTH ESSEX.

The following is a synopsis of the discussions at the local or township conventions of teachers in South Essex on the 17th, 18th, 19th, 27th and 28th of October:

### HOW TO REDUCE IRREGULARITY OF ATTENDANCE TO A MINIMUM.

(1) *Teachers visit parents and guardians.*—Many wrong impressions and many false reports can be removed by a single visit to the children's homes. Teachers object to visiting, because of the time required. Short visits, with agreeable and useful conversation, are much more acceptable and profitable to all parties concerned. Parents rarely have time for lengthened visits. Two or three homes may be visited in one evening.

(2) *Give prizes for regularity of attendance.*

#### ARGUMENTS IN FAVOR OF PRIZES.

- (a) Long continued experience has shown that prizes are useful.
- (b) The expectation of gaining a prize increases interest in study.
- (c) The prospect of gaining a prize promotes competition.

#### ARGUMENTS AGAINST PRIZES.

- (a) Undue prominence is given to a comparatively unworthy object, the higher object being overlooked.
- (b) Jealousy is aroused and fostered.
- (c) The prize rewards success, not effort; talent, not worth.
- (d) Only a few pupils are stimulated, the rest become indifferent.
- (e) The gaining of the prize being the chief motive to effort, the habit will not be continued when the prize is withdrawn.

If prizes are given for attendance, all pupils who attend a given number of days should receive the same valued prize, e.g., all between whole year and 200 days, between 200 and 150, between 150 and 100 days, &c.; but there should be a minimum of days below which no prize should be given.

(3) *Visitation of school by parents, trustees, and school visitors.*

(4) *Enforcement of compulsory attendance law by trustees.*

(5) *Monthly public reviews.*

(6) *Monthly reports.*—Reports nearly always favorable to the pupils are made to parents; hence the teacher should in self-defence use every means to keep parents correctly informed on school matters. Some educators do not consider the management of a school, without a system of reports, perfect.

(7) *Merit marks.*

#### ARGUMENTS FOR THEM.

- (a) They aid in giving system to the working of the school.
- (b) They constitute a convenient medium of conveying a truthful account of the pupil's conduct, progress, &c., to parents and friends.
- (c) They facilitate making transfers from one class to another.
- (d) Although it does not appeal to high motives, yet the great majority of students have not formed high ideals of human perfection, and cannot be actuated by motives prompting to their attainment.

#### ARGUMENTS AGAINST THEM.

- (a) Only the merits of the recitation can be marked, no account being taken of difference in abilities or opportunities.
  - (b) Pupil's attention is diverted from the high object of study to the low one of gaining good marks.
  - (c) Much time is wasted in marking each lesson.
  - (d) Pupils cannot always correctly estimate the value of an answer or action, hence jealousy may be aroused.
- (8) *Make school interesting.*

(a) *Decorate school-room.*—Expensive decoration is quite unnecessary. Cheap pictures, illustrating natural scenery, historic characters or places, or animals, &c.; but all such pictures should constitute a subject of study for pupils, and they should be taught to appreciate their excellence.

(b) *Recitations.*—The selection should be known to the pupil and teacher only, also the time when it is to be recited. Stated times for recitations have very little influence on the rest of school-time. Give variety to school-work by having recitations frequently.

(c) *Singing*—both solos and choruses, at fixed times, and occasionally during the day.

(d) *School newspaper*—consists of a large scrap-book made of wrapping paper. Pupils gather news (not gossip), write a composition, which, when revised and corrected, is pasted into the scrap-book. At intervals during the day, or at stated times, the teacher, or some pupil, reads selections from this paper; but the book must be kept sacredly closed from the school, or it will cease to be entertaining.

(e) *Teacher must show himself to be the pupil's friend* by taking part in school games, by enquiries about his health, his friends, his engagements, his expectations, his reading, by giving advice how to gain more pleasure or some profit, &c.

(f) *Geniality of manner without undue familiarity* between teacher and pupils, and between pupils themselves.

(9) *Forfeiture of standing by pupil.*—Pupils may change places in class daily, weekly, bi-weekly, or monthly, or have names placed on honor-roll. Absence from school or lateness in arriving at school, or tardiness in coming to the class, may cause a forfeiture of standing.

Punctuality and promptness in all the school exercises will do much to promote regularity of action.

HOW TO KEEP THE YOUNGER PUPILS BUSY.

(1) *Pupils print or write lessons or figures on slates.*—Variety in exercise is the secret of success with little ones. A strip of wall-paper, on the blank side of which are placed the printed characters, the corresponding script forms being placed beneath them, may be placed across the school-room wall. Words in the reading lesson or words printed on the blackboard may be assigned to the pupils to prepare at their seats, and to be formed in both the printed and script characters.

(2) *Provide pupils with alivers, beans, etc.,* to learn the values of numbers by counting and handling objects.

(3) *Drawing.*—Copying pictures in reading books, or of animals, or make original designs, as illustrated in the JOURNAL a few months ago.

(4) *Monitors* may be profitably employed to assist the little ones in counting, spelling, &c.

(5) *Form sentences containing words in reading lessons.*—Put words on blackboard; pupils form as many sentences as possible, with one or more of these words correctly used in them. At first this may be done orally with a monitor, afterwards on the slate.

(6) *Adding by intervals.*—This gives an unlimited means of keeping the children busy. With a monitor pupils may count forward and backward by all the digits. If children cannot count in this manner, they cannot do addition and subtraction properly. One problem put on the board will by this plan keep pupils employed all day, while the teacher's work is much lessened, *e. g.*, "Begin with 6, count by 7's, write 6 numbers in each column, find the sum of each column."

(1)	(2)	(3)	(4)
6	48	90	132
13	55	97	139
20	62	104	146
27	69	111	153
34	76	118	160
41	83	125	167
141	393	645	897

The sum of the first column is the sum of the first addend and last addend multiplied by half the number of addends, *i. e.*,  $(6+41) \times 3 = 141$ . The sum of the second column is the sum of the first column added to the square of the number of addends multiplied by the number added each time, *i. e.*, the common difference, as  $141 + 6^2 \times 7 = 141 + 252 = 393$ . The sum of each succeeding column is found by adding the constant number 252 to the sum of the preceding column. The general expression for the process is  $(a+l) \frac{n}{2} = s$ .

$$s + dn^2 = s_1; s_1 + dn^2 = s_2; s_2 + dn^2 = s_3, \text{ \&c.}$$

Little children should not be kept constantly at work, unless the work combines pleasure, instruction, and exercise. If they are taught and exercised properly, they can with ease do large mechanical and somewhat difficult practical problems in addition before leaving the first part of the First Reading Book.

HOW TO CULTIVATE INDEPENDENCE OF THOUGHT.

(1) *Object lessons.*—Pestalozzi said: "Observation is the absolute basis of all knowledge. The first object, then, in education must be to lead a child to observe with accuracy, the second to express with correctness the result of his observations." Object lessons are not designed to leave the pupil possessed with information, but to set in operation those processes of thought by which he will gain knowledge for himself. A misapprehension of this fact causes much failure in teaching. There are four great faults in teaching object lessons. First, too difficult an object is selected; second, teachers tell too much; third, terms are given before the pupil has felt his need of them; and fourth, a definite purpose is not followed. See *Sheldon and Calkin on Object Teaching*.

(2) *Pupils should be thrown on their own resources.*—It is the teacher's privilege to talk; but it is the pupil's sacred right to think. The former should never interfere with the latter. Knowledge can only be transmitted from one mind to another by setting up in the receiving mind the same operations by which the thought was first conceived. Direct the mind towards the knowledge, but let the pupil endeavour to discover it for himself. Arouse the appetite for knowledge; then the pupil will work as directed, and will appreciate what he has gained by honest effort.

(3) *Proceed from the known to the unknown.*—The truth to be taught should always be related to the knowledge the pupil already possesses. At the beginning of every lesson seek to connect it to some previous lesson or to some familiar fact or truth. This will show the beauty and uses of the facts to be taught—it will enlarge the scope of the old and familiarize the new.

(4) *Deduce lessons taught by extracts read, by the events of the day, or by those given in histories.* Care must be exercised that there may be sufficient data from which to draw an inference.

(5) *Require reasons for actions.*—For every action there should be sufficient reason. This course may reveal ignorance or rashness on the part of the pupil.

(6) *Use composition.*

- (a) Give substance of reading lessons orally and in writing.
- (b) Form new sentences containing difficult words in reading lesson.
- (c) Require variations in form of sentences.

(7) *Encourage pupils to ask questions.*

(8) *Avoid routine in questions and answers.*—The sameness in questions frequently causes failure when an inspector or strange teacher questions a class. Every question should demand thought to answer it.

(9) *Remove numbers from problems, and then require method of solution to be given.*

(10) *Give practical problems in arithmetic, laying special stress on mental arithmetic.*

(11) *Ask parallel questions.*

(12) *Avoid dogmatic teaching.*

(13) *Criticise expressions in reading books and those made by other pupils.*

HOW TO AROUSE INTEREST IN SCHOOL AFFAIRS BY PARENTS.

(1) Severely flog the son of a trustee or of some prominent ratepayer.

(2) Send monthly reports.

(3) Missionary work by teacher.

(4) Home exercises by pupils, which should never be given on new work, except in spelling or reading. They should be used to test pupils' understanding of lessons of previous day.

(5) *Quarterly examinations* should not consist entirely of reviews of lessons taught in school, but should combine reviews, recitations, singing, luncheon, and addresses. People are interested in what they can understand, and in nothing else.

(6) *Use newspaper.*—Printer's ink is cheap—advertise your schools—direct public attention to school work—give information on educational topics, &c.

**NORTHUMBERLAND.**—The regular semi-annual meeting of this Association was held in Cobourg on Thursday and Friday, the 6th and 7th October, Mr. D. C. McHenry, M.A., presiding. At the preliminary session the sum of \$30 was voted to supplement the subscription of members for the CANADA SCHOOL JOURNAL and the CANADA EDUCATIONAL MONTHLY. A discussion arose as to whether the county associations throughout the Province are, after all, rendering the best possible results to the profession in return for the great expense necessarily incurred in their management, at the close of which a resolution was unanimously adopted, instructing the secretary to correspond with the secretaries of the various county associations, requesting them to unite with us in memorializing the Honorable the Minister of Education on the matter of securing the services of some competent person to conduct Teachers' Institutes throughout the Province, to take the place of the present associations. The following subjects were discussed:—"English Grammar—The Verb," G. E. R. Wilson; "How to Conduct a Recitation," D. E. Stephenson; "Use and Abuse of Text-Books in Teaching," D. J. Johnston; "Elementary Physiology," R. K. Orr, B.A.; "Question Drawer," Messrs. Orr, Ellis, and Ash; "Uniform Promotion Examinations," Inspectors Tilly and Scarlett. The addresses, and the discussions on these subjects, were of the usually interesting character. The following were elected officers for 1882:—President, G. Dowler; Vice-President, J. E. Fleuwelling; Secretary and Treasurer, D. E. Stephenson; Management Committee, Messrs. Scarlett, I. P. S., Heyward, and Ellis, B.A., B.Sc.; Auditors, Messrs. Ellis and Black. An extremely interesting and instructive lecture was delivered in the Collegiate Institute on Thursday evening, by the Rev. S. S. Nelles, D.D., President of Victoria University. Subject: "Mistakes in Teaching." The next meeting will be held in Brighton early in May.

**WATERLOO COUNTY.**—The semi-annual convention of the Waterloo Teachers' Association was held in the Model School, Berlin, on the 9th and 10th of September. The meeting was called to order at 9:30 on the 9th by the President, Mr. S. S. Herner, and after prayer the minutes of preceding meeting were read and adopted. The President then delivered an able address, in which, among other topics, he drew the attention of the teachers to the subject of "Moral Education" in our public schools. By request the delegate read that portion of his report bearing on the "Representation Question," but upon motion of Mr. Chapman, seconded by Mr. Brown, the discussion on that subject was deferred. Mr. W. S. Brown took up "Grammar" (verb and its inflections), which was followed by a discussion between Messrs. Suddaby, Linton, Chapman, Groh, and W. Linton, during which Mr. Chapman gave a very interesting illustration of how to teach pupils to distinguish between the simple tenses of the verb and their perfect forms. On motion of Mr. Suddaby, seconded by Mr. McIntyre, the first hour of each afternoon session was devoted to general business. Mr. Alexander gave notice that in the business hour he would ask "how long pupils should require to master the first part of First Reader." The delegate, Mr. C. B. Linton, then read his report, and on motion of Mr. Alexander, seconded by Mr. Suddaby, the report was adopted and the thanks of the association tendered to Mr. Linton for acting as delegate and preparing the report. Mr. Chapman asked for a discussion on the question, "Should a delegate to the Provincial Association vote according to the wish of



his Association or his own private opinions?" in which discussion Messrs. Knowles, Alexander, B. Hal. Brown, Chapman, Groh, Slater, Ballantyne, W. Linton, and C. B. Linton took part, when Mr. Chapman moved, seconded by B. Hal. Brown, "That in the opinion of this Association, a delegate or delegates appointed by the Association must represent the views, as he or they know them, of the Association he or they represent." Session adjourned till 1.45 p.m. At general business in afternoon Mr. Alexander put his question, "How long a pupil," &c., which excited a lively discussion, a great diversity of opinion being expressed, the time in all cases being modified by the age of pupil when starting and regularity of attendance. A motion to strike out certain words in the constitution (fixing the place of meeting) was discussed and lost. On motion, Messrs. Moyer and Martin were appointed members of Library Committee in place of Messrs. Gray and Steuernagel. Moved by Mr. Chapman, seconded by B. Hal. Brown, That the Library Committee be instructed to prepare a scheme for supplying the members of association with the leading educational periodicals at a reduced rate, the balance of the price being paid out of the association funds.—*Carried.* The Secretary was instructed to procure sufficient copies of minutes of the Provincial Association of 1881 to supply each member with one. Discussion about delegates' duties resumed, and after an amendment being brought forward, followed by a long war in words, the original motion carried. The topic, "Methods of improving our Association," was introduced by Mr. W. Linton, in an able essay, in which some very useful hints were thrown out. Mr. Alexander then opened up for discussion the "Galt half-time system," by giving a brief sketch of its origin, workings, and the objects aimed at. Messrs. McIntyre and Chapman asked questions regarding apparent objections or difficulties in the way of its general introduction, which were satisfactorily replied to by Messrs. Alexander and Groh, the latter giving some illustrations of the plans adopted by him in carrying out the scheme. Moved by Mr. Suddaby, seconded by Mr. Knowles:—That in the opinion of this Association, the "Galt half-time system," employing, as it does, the restless activity of young children as a means to secure their physical, moral, and intellectual education, is sound in principle, and that its adoption in all schools in which pupils under nine years of age are taught would immensely promote the interests of a properly balanced education.—*Carried.* After a few remarks by Mr. Bingham, the meeting adjourned until 7:30 p.m. In the evening a large audience gathered to listen to a debate on the subject, "*Resolved*—That it would be advisable for all English educationists to countenance the present reform movement, and to lend their influence in reforming the present irregular orthography of language." The chair was filled by Mr. Suddaby. Messrs. B. H. Brown and Knowles maintained the affirmative, and Messrs. Morrison and Herner the negative side of the question. At the close of a very interesting and instructive debate, the audience (by a very small majority) gave its decision in favor of the affirmative. At intervals during the evening vocal music was supplied as follows:—Duett by Misses Groh and Linton; solo by Miss Jones; duett by Misses Ziegler and Weaver; solo by Mr. C. B. Linton; duett by Messrs. Chapman and Winter. Miss Woodsend presided at the organ, which was kindly supplied by Mr. Bingham. After singing the National Anthem, the meeting closed. *Second Day.*—After routine business, Mr. Hilborn gave a short exposition of his method of teaching "Arithmetic" (from reduction), which was followed by an interesting discussion between Messrs. Groh, Alexander, Brueckner, Weismiller, and Hajey, during which Mr. Alexander drew special attention to the great want in most schools of the necessary weights, measures, and other appliances to properly teach reduction. Mr. Alexander presented the Association library with three volumes sent him by Col. Eaton, Esq., Commissioner of Education in United States. Mr. B. Hal. Brown read a well prepared essay on the "Teacher's influence over pupils before and after school hours." The subject, "To what extent should politics be introduced in the public school curriculum," was then opened up for discussion in an able essay by Mr. G. Lewis, followed by a very interesting and instructive discussion between Messrs. W. Linton, B. Hal. Brown, Chapman, Rogers, McRae, Ballantyne, Groh, Connon, and Knowles. The Secretary of Promotion Examination Committee presented their report as follows:—That the subjects for entrance to the Senior Third and for entrance to the Fourth be the same as they were last year. That the subjects of examination for entrance to the Fifth and entrance to the Sixth Class be the same as they were last year, except in the following:—(a) Reading to be tested on some selection other than those contained in the readers; (b) Literature for both entrance to the Fifth and entrance to the Sixth the same as that required for entrance to the high schools; (c) History of the Roman and Plantagenet line (to end of Richard II.'s reign) for both classes; (d) That an option should be allowed in the examination for entrance to the Sixth in the subjects of Algebra and Geometry. If Algebra be taken, the simple rules and simple factoring; if Geometry, the definitions, postulates, and first twenty propositions. The report also recommended that there be no examination for promotion higher than that for entrance to the Sixth Class. In the afternoon an amendment striking out the last clause of report was proposed, and that an examination of Senior Sixth Class pupils similar to that of last year be held. After a spirited discussion between Messrs. Bean, Linton, Erb, Ballantyne, Brown, and

Erb, the original report was adopted. A Legislative Committee, composed of Messrs. Knowles, Herner, and Suddaby, was appointed to confer with the Legislative Committee of Provincial Teachers' Association. Report of Management Committee on programme for next meeting was read and adopted. After disposing of some formal business, the Association adjourned to meet on the last Friday and Saturday of January, 1882.

CHAS. A. WINTER, *Sec.-Treasurer.*

## REVIEWS.

THE CENTURY MAGAZINE (SCRIBNER'S MONTHLY).—It is sad and strange that Dr. Holland should have died just when his magazine was changing its name. *Scribner's* will enter on its new era with a new editor as well as a new name. The management seem determined to keep it fully up to the best point it has reached in the past. Among many others, we single out the following as specially good articles: "George Eliot," with the only reliable portrait yet issued of the great authoress; "The So-called Venus of Milos," an able discussion of the probabilities as to the true position of the arms in the original statue, with numerous illustrations; "A Curious Experience," by Mark Twain, a story which must not be described, in the interests of the reader; and "My Escape from Slavery," by Fred. Douglas. Mrs. Frances Hodgson Burnett, author of "That Lass o' Lowrie's," "Haworths," "A Fair Barbarian," &c., has begun a new story, "Through One Administration."

HARPER'S MAGAZINE, NOVEMBER.—The Editorial departments are as funny, as wise, and as instructive as usual. There are two good single-number stories, "The Sumach Gatherers" being a very delightful one. The illustrated articles of most interest to Canadians are, "Journalistic London," "In Cornwall with an Umbrella," "The Land of the Midnight Sun," by Paul B. Du Chaillu, and "A Week in a Dug-out." The latter recounts the adventures incident to a trip among the lakes of backwoods Canada. One gets a clear idea of the habits and customs of Cornish people from the second-named article; Du Chaillu makes one long to visit Sweden, Norway, and Lapland; and in "Journalistic London" we are favored with portraits and sketches of Sir Vernon Harcourt, John Walter of the *Times*, John Delane, Dr. Russell (the war correspondent), Edmund Yates, Labouchere, the society scandalist, and other noted London newspaper men.

HARPER'S WEEKLY for October maintains its reputation as an art and literary journal. Attention of teachers is respectfully directed to the Art department, in which portraits of men of note are given. Pupils will remember more concerning a person by seeing the portrait than if the facts are couched in the most eloquent language. The illustrations depicting the final honors paid to the dead President are very truthful. A timely article is given on "American Opium Eaters," which we would desire to see followed by one on "American Tobacco Eaters." The "Methodist (Ecumenical Council)," "Yorktown Celebration," "Baltimore's Supply of Water," and "Irish Independence," are timely and thoughtful articles.

CIRCULAR ON THE GRADING SYSTEM, FOR THE SCHOOLS OF WISCONSIN, BY W. C. WHITFORD, STATE SUPERINTENDENT, MADISON, WIS. *David Atwood, 1881, page 48.*—This work is an admirable compendium of the subject it professes to discuss. Unlike most programmes of study, which are but bare outlines, this gives a most excellent set of notes upon each subject, not only showing very clearly the amount of work to be done in each grade, but how to accomplish it, by giving very clear, if brief, explanations of the best method of teaching each subject, and also of teaching every stage of the subject. The reader is struck at once with the lively character of the methods recommended. Everything is fresh, crisp, and eminently practical, and recommended to be taught in a way that children love. While there are no hobbies in the work, the subject of Reading seems to be particularly well dealt with, and the advice to cultivate an agreeable voice in pupils a matter too often neglected. Mr. Whitford is evidently a practical teacher, and has done for his State what will no doubt obtain the praise of all interested in education. A similar work for the programme of our schools, with that programme in some respects changed, would be a boon to Canadian teachers.