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THE CANADA  
EDUCATIONAL MONTHLY  
AND SCHOOL MAGAZINE.

FEBRUARY, 1884.

THE SCHOOL READERS.\*

BY J. H. SMITH, PUBLIC SCHOOL INSPECTOR, WENTWORTH.

MR. PRESIDENT, LADIES AND GENTLEMEN:

**W**ITHIN, the past few years the question of the fitness of the present authorized series of reading books for the requirements of our Public Schools has been vigorously discussed, and the almost unanimous verdict rendered, that they have outlived their usefulness. It is well known to every thoughtful teacher that there are many and grave defects in them, and that they are not well adapted to our present wants. The progress of our schools, the improvement in "methods of instruction," as well as the general advance in literature and science, render it necessary that our reading books should be fully abreast of the times, both as to the subject matter of the lessons, and the manner of presenting it. The improvements made in our school-houses and grounds, the high literary attainments necessary for those who desire to become teachers, and the profes-

sional training required from all candidates for teacher's certificates, demand a correspondingly high standard in our text-books, especially in the readers, otherwise, how can the improved methods of teaching illustrated and enforced in our Normal and Model Schools be carried into effect? In every calling and business of life good work can only be done with proper appliances, how then can it be done in the school-room without them? To me it seems to be the necessary complement to this age of marvelous progress and ceaseless activity, that our schools be thoroughly equipped for the great work of education. We are blind to our best interests if, from motives of false economy, we allow any but the best books to be used. It is not desirable that changes should be made for the sake of change, but when it be found by practical experience that any book is defective, it should at once be superseded by one that more fully meets our wants. The path of learning is steep and

\*An Address delivered before the Wentworth Teachers' Association.

rugged enough without having any artificial hindrances placed in the way. Hurdles may do very well in a hurdle race, but they are sadly out of place in the race for knowledge. Let us then have the way made as smooth as possible, especially to those who are entering the race for the first time.

That we are fully ready for a change, is, I believe, very generally admitted, and I hail with pleasure the advent of a new series of readers. Two series have been authorized and a third one likely to be; the all important question is, which shall we adopt? In discussing this question I do not propose becoming the special advocate of any one of the series now before the public. We have special pleading enough in the circulars, advertisements and pamphlets issued by rival publishing houses without those belonging to the profession entering the arena and becoming special agents for any publishing-house, no matter how well they may be paid for their services. I regret very much to learn that there are those, who, forgetting or ignoring the dignity of their work and the honour of their position, have allowed themselves to become agents and have used their influence, outside of its legitimate sphere, in introducing a particular series of reading books. I feel that some of our leading teachers and inspectors have perhaps, unwittingly, it may be, allowed their names to be used in recommending every text book issued, whether in the interests of education or not. Perhaps the public will learn in time to place as little value upon these testimonials as they do those puffing patent medicines. If these books do not possess sufficient merit to be introduced without all this puffing, it might be advantageous to our schools to do without them. One has only to read these very flattering

letters of approval, and compare them with the books they praise, to learn that the writer did not carefully examine these books, or simply wrote a commendatory letter as an acknowledgment that he had received a copy of the books *gratis*. That these things should be so is a matter of regret, that they are so is a matter of fact. However much we may deprecate this indiscriminate puffing of books, yet it is the privilege and duty of every one connected with our educational system, especially those engaged in the practical work of the school-room, to discuss the principles upon which our text-books should be based, and to point out any defects observed in them.

With this object in view I propose discussing certain principles which in my opinion should form the groundwork of our reading books. But you may ask, What are we to understand by principles? It is not necessary for me to give a technical definition of the word, but simply to say that I mean, first of all, the mechanical execution of the books; secondly, the adaptation of the selections to the wants of our Public Schools, and lastly, the sentiments conveyed or the lessons taught by such selections. In the mechanical execution of the book there are several points that require attention. Of these I may mention the quality of the paper used, the style and class of binding, the size of the type, the proof-reading, the character and class of illustrations, and the general appearance of the page. The paper should be of good quality and of a tint that will be the least injurious to the eye; the type should be of suitable size, properly spaced, and leaving a clear and distinct impression. Every page, especially of the readers, with blurred or defective printing should be rigidly excluded from the make up of the book. The style of binding should

be neat and tasteful, so as to attract rather than repel, while the quality should unite strength with durability. Those who purchase school-books have a practical acquaintance with the flimsy nature of the binding of some of them, and justly complain of the small value they receive in return for the money expended. Careful proof-reading is indispensable, for nothing is more annoying to the teacher, or more perplexing to the pupils, than to find sentences differing in construction; words used in one edition that are not in another, and some of these incorrectly spelled. In our present Readers these defects are altogether too prominent, and the utmost caution should be exercised on these points in selecting a new series.

Another feature in the mechanical work that should receive careful consideration is the character and class of illustrations. Children who see none but high-class engravings, or superior works of art, unconsciously form a correct taste, and learn to appreciate the good, the true and the beautiful in nature and art. In and around the school-room everything should be neat and tasteful and the illustrations in the text-books should form no exception to this rule. These should be of a high order of artistic merit, and apt in illustrating the subject matter of the lessons. The general appearance of the page, though not of the same importance as some other features of the mechanical work, is yet worthy of attention. Some please the eye as you look at them, while others, to say the least of them, are by no means attractive. Good taste should be shown in arranging the paragraphs, placing the illustrations, and giving a symmetrical form to the whole page. Now that we are to have a new series of readers, the opportunity presents itself of rising to a higher level both in

regard to style and quality. The general standing of the community, in regard to wealth, is such that we should have a class of school books that are attractive in appearance, strong and durable in workmanship, and worthy of the high position our educational system occupies among those of the most advanced nations of the world.

There are, however, other considerations that challenge our attention in determining the value of a series of reading books. One of these is their adaptation to the wants of our Public Schools, for without this none should find a place among our text-books. It is true that some very excellent books have been prepared for other countries, but I have grave doubts as to their fitness for our schools, even after they have been rehabilitated. I am free to confess that I cannot see the necessity for going abroad for what we can produce as well, if not better, at home, nor have I any sympathy with that feeling that prefers the productions of other countries to those of our own. It is, however, an unpleasant reflection upon our boasted educational progress that Canadian enterprise and Canadian talent are unable to cope with the difficulties of preparing a series of readers that shall reflect credit upon our school-system, and be in accord with the spirit of our institution.

\* To have any series of readers properly adapted to the wants of our schools, it is necessary that both books and lessons be carefully graded. Before discussing this question, it might be well to consider the number of books that should constitute a series. Most of those that I have examined consist of five books, while some have six. I can see no real necessity for more than four, especially for our Public Schools. Admission to the High Schools, on the one hand, and the large number of the

classes to be heard daily in our rural schools, on the other, render it almost imperative that the fourth should be the highest. The fifth seems unnecessary unless reading is made compulsory in High Schools, which I think would be decidedly advantageous to the pupils. If this were done, then the fifth reader should be specially adapted for teaching elocution and the higher departments of expressive reading. You are doubtless aware that there are but very few schools that have what may fairly be called a fifth form. Pupils who finish the work for the fourth form either pass into the High School or leave to enter the active duties of life. It, therefore, seems evident that no matter how good the fifth book may be, it can scarcely be considered as one of the series—certainly not an important one. Hence, our work lies almost exclusively with the first four books.

In order to determine whether the books and lessons are properly graded, it will be necessary to enquire what objects should be kept in view in their preparation. The answer evidently will be, to make good readers and furnish useful information. But some may ask, What is good reading? By good reading I mean that the sense of the passage as intended by the author shall be clearly expressed, in a fluent manner, but without flippancy; that the voice shall be natural in its tone, and the words properly enunciated and correctly pronounced. When a pupil can do this well, without any aid from the teacher, he may fairly be called a good reader. That a large number of the children in our Public Schools are poor readers is a matter to be deplored, and we may well ask, why is this so? One cause is—and it is an important one—that the reading books now used are not well adapted for making good readers, either by the selections they contain or by any hints or suggestions

given in regard to teaching reading. Another is that too little attention is paid to this work in the primary classes, and I may add that in too many cases it is neglected in the higher forms.

A third reason that may be assigned is that parents in too many instances fail to provide the children, when at home, with suitable reading matter. I am not disposed to lay all the blame for poor reading upon our teachers, nor upon our school system, for there are those who will never read well, owing to some defect in their voice, or from want of mental ability. Our schools are not intended to take the places of home, nor our teachers to assume the responsibility of parents. There are many of the latter who think, or at least who act, as though their parental duties were at an end when their children are sent to school. What is wanted at the present time is that parents shall feel the responsibility of their positions and act accordingly, not only in regard to reading and furnishing reading matter, but in regard to many other things connected with the welfare of their children. If then we are right in assuming that the proper grading of the lessons must correspond to and be in harmony with the principles that underlie the most approved methods of instruction, it follows that a correct exposition of these principles will necessarily give us the true principle of grading both books and lessons. It is now generally conceded that the word-method based upon true phonic principles is best adapted for making good readers. Pupils should learn the letters as they learn the names of objects, incidentally. The vocabulary of children upon entering school is necessarily limited to the names of familiar objects and words used in ordinary conversation. The words selected then for the first lessons should be limit-

ed to those with which the child is well acquainted, and should contain only one power of each letter used. This principle should extend entirely through the primer and until each letter has been introduced. I believe we err in introducing new difficulties too soon. It is better to thoroughly master the first and simplest steps before proceeding to more difficult combinations. What is required is constant practice in reading, and this practice should be limited to the words already learned. If our primers contained more lessons for practice, and the more difficult combinations were not introduced until a later stage, I believe we should see a marked improvement in reading. Of course new words must be learned from time to time, but let them be as few as possible, and of the simplest form. When new words are introduced, they should be placed at the commencement of the lessons and the pupils thoroughly drilled upon them until they can be correctly named at sight.

Having thus briefly sketched the manner of teaching words, let us turn our attention to the sentence. Phrase reading should be practiced from the first, or as soon as the pupil can name a sufficient number of words at sight to enable the teacher to form a phrase or sentence from the words already learned. Sentences when formed should be plain, direct statements. Inverted or moderately complicated sentences should not be introduced until the pupil is well advanced in the Second Book, and even then it is better to adhere somewhat closely to the direct statement. By this I do not mean to exclude all imperative, interrogative or exclamatory sentences, but only those that are more or less involved in their structure. Those of a more difficult nature may be introduced in the selections for the Third Book, while

the Fourth should contain sentences of the highest rhetorical finish. Sentences that are obscure in their meaning, or that contain obsolete words, or quotations from foreign languages, should be rigidly excluded. The best literary style, both in regard to purity of thought and beauty of diction, should mark every selection, and nothing of doubtful propriety should be allowed. I confess that I have little sympathy with that class of literature known as "Nursery Rhymes" finding a place in our readers. In the wealth of our English literature selections can be made that will at once be attractive and instructive. Some of these rhymes may amuse children, but I have great doubts as to their utility in our school books, and am strongly persuaded that they should be relegated to their proper sphere, the nursery. Children, as a rule, have a strong desire for knowledge, and in many ways seek to gain new ideas. If any evidence of this is required, watch the eagerness with which they examine any new object presented to them and the many questions they ask concerning anything that attracts their attention or interests them. Let us then foster this desire by furnishing new thoughts, awakening a fresh interest in their work and supplying food for the mind. Simplicity of language does not imply childishness of thought, nor does it follow that children, because they are children, must be given the mental pabulum that simply amuses infants. Our school readers should be repositories of noble and elevated thoughts, clothed in chaste and elegant language, and the rising generation will be the better for it.

Before leaving this portion of my subject, I shall offer a remark or two concerning the questions, explanatory notes and other lesson helps that are intended as aids in preparing the

lesson. It has already been mentioned that all new and difficult words should be arranged in columns at the head of the lesson, as exercises in pronunciation and enunciation. These words should be properly syllabified, and the pronunciation indicated by simple diacritical marks. The propriety of appending a set of questions to each lesson is of doubtful value. Too much assistance is detrimental rather than beneficial. Something should be left for the pupil to master, so as to form habits of thought and inquiry. Self-reliance needs to be cultivated, and the proper preparation of the lesson should act as a stimulant to mental effort, rather than as a hindrance. Hints and suggestions as to the best methods of teaching reading, both as to the manner of expressing the thought and of understanding the meaning of the passage, are preferable to having sets of questions prepared for each lesson. Or it might be advisable to have one or more model lessons in which full explanations are given regarding the manner of explaining the lesson and the method of asking questions. To these a full set of questions might be appended to serve as models for the guidance of the teacher. Notes and explanations relating to any historical, geographical or biographical reference should form an appendix to each lesson. And in these care should be exercised not to give any help that the pupil can obtain for himself with a little exertion. In these notes attention might very properly be called to any peculiarity in the structure of a sentence or the use of a word, but I doubt the propriety of devoting much time or attention to either technical analysis or parsing.

There is another principle to be considered before I close this address, and that is the sentiments contained in the selections, or the lessons they

are expected to teach. These are of greater importance than those already discussed. The Minister of Education in his report of the Public Schools for 1881, gives the number of pupils of all ages in attendance as 476,268, and 13,136, as attending the High Schools and Collegiate Institutes. Of those attending our Public Schools, over ninety-seven per cent. were enrolled in the first four classes, leaving less than three per cent. in the fifth and sixth forms. If to these we add the number attending the High Schools and Collegiate Institutes, we find that less than six per cent. are studying subjects higher than those prescribed for the fourth class. It is therefore quite evident that a very large majority of young people acquire almost, if not quite, all their scholastic training in the first four classes of our Public Schools. This being the case, it is quite evident we cannot be too careful in examining closely each selection that finds a place in our school readers. The sentiments expressed throughout the different selections should breathe a spirit of pure morality, give noble views of life, and call into action the higher faculties of our nature. In short, they should instil into the mind of every child that,

"Life has import more inspiring  
Than the fancies of their youth,  
It has 'opes as high as heaven,  
It has labour, it has truth.

"It has wrongs that may be righted,  
Noble deeds that may be done,  
Its great battles are unfought,  
Its great triumphs are unwon."

Nor is this all. They should be distinctively Canadian in sentiment. Our neighbours across the line are wiser in this respect than we, for they have given to all their text-books a tone peculiarly American. Let us follow their example and have our books really and truly Canadian. When I say Canadian, I do not mean

that a lesson here and there is to be dovetailed into the books, to give them a semblance of being Canadian. Neither do I believe that Indian legends, stories of many heroes who have died on Canadian soil, nor even sketches of battles that have been fought, are sufficient to entitle them to be called Canadian. Surely the 470,000 boys and girls in our Public Schools should learn something more about their native land than the simple fact that our country was at one time the theatre of war between the English and the French, and at another, between the English and the Americans. Something more is required. What shall it be? Have we not almost illimitable forests? Are not our mines practically exhaustless? Is not our soil as fertile as any in the world? And our climate, has it any superior? Do not our waters abound in fish and our forests with game? Is not the scenery of the St. Lawrence, the Muskoka region and the upper Lakes as fine as any in the world? Have we not municipal and educational institutions that compare favorably with those of older countries? To say nothing of our manufactures, our commerce and the various industries scattered throughout the different Provinces. And yet, if we turn over the pages of our authorized reading books, do we find any of these subjects presented with a fair degree of fulness? Are they not more conspicuous by their absence than by their presence? The great majority of our children finish their education in our Public Schools, and I can see no reason why they should not be taught more concerning our own country, its resources and capabilities than has yet been done. I have unbounded faith in its future, but I cannot help feeling that the publishers and editors of our school books have overlooked many things that are of very great value to us as

Canadians. There is certainly room for improvement in this direction. To meet our present wants, lessons explaining the nature and functions of our municipal institutions and our local and federal Parliaments should find a place in our books. In short, our children should be taught to know how we are governed; how and for what purpose taxes are collected, and how justice is administered. These matters are of great practical value to the young, and when treated of in a general way, can be easily understood. This is rendered necessary by our system of local self-government. Soon these boys and girls will enter upon the active duties of life, and it must be apparent to every thoughtful person that it is better to have them understand these things than to have their minds filled with much that now finds a place in our reading books.

The leading thought in the preparation of these books seems to be to make literary men and women of our children, or to fit them for some of the learned professions. We are too much influenced by examinations and too little by the necessities of our every day life. Our reading books deal too much with the things of the past. There is an idea quite prevalent that, for a person to be considered reasonably well educated, he must have an intimate knowledge of the language and history of Greece and Rome, no matter how ignorant he may be of those of his own country, and of his duties as a citizen. The pursuit of this knowledge may be very pleasant and attractive for those who have the means and inclination to pursue it, but for the children of the workingman, and the farmer, something of a more practical nature is required. Some of the things I have already mentioned should be taught in our Public Schools, and this

can be done most effectively by having selections bearing upon these points placed in our reading books. Lessons on temperance, hygiene and science might very profitably be introduced. But some one may say the introduction of these things will make our books too cumbersome and expensive. This does not necessarily follow. There are now many lessons that might be struck out, and our children would not suffer intellectually by their absence. In this way the books need not necessarily be increased in size or price.

In conclusion, permit me to say that I have by no means exhausted this subject, but have simply given you my views concerning some points of the most important educational topic that has come up for discussion for many years. I have tried to look at it impartially, and in the interests of our Public Schools, believing that their interests and theirs alone, should be paramount in deciding which

series shall be adopted in this country. To those who may be called upon to assist in making a selection I may say that I should very much like to see only one series authorized in this country, and that whatever reading books may be adopted, that every teacher and every Trustee Board will see that none others are allowed to be introduced. It is not necessary for me to say more, but simply to ask you to consider carefully the following points: (1) The mechanical work of the books; (2) their adaptation to the wants of our Public Schools; (3) that the selections shall be of high literary merit; and (4) that they shall be distinctively Canadian. I firmly believe in these principles, and trust they will commend themselves to your judgment. If a wise selection is made, I look forward hopefully to the prosperity of our schools, and believe the community at large will cheerfully sustain them and take a deeper interest in their welfare.

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## ELEMENTARY TRAINING IN OUR SCHOOLS.

BY MISS M. A. ROBINSON, MODEL SCHOOL, BRADFORD, ONT.

**I**N these days of highly advanced learning, of High Schools and colleges, of examinations, and newspapers to tell of the result of these examinations, when the object of the great majority seems not to be to obtain the possession of a store of solid and useful knowledge, but simply to gain a notoriety for superiority, whether merited or unmerited, we are apt to give more attention to that which, apparently, will give the quickest and best returns, to build a fine superstructure, while neglecting to see if the foundation be sound, or in other words to cram and drill the senior pupil at the expense of the junior.

It is a fact, that in far too many cases a great part of the educated, as well as the ignorant portion of the population, judge of a teacher's capacity and standing, by the number of pupils he manages to literally shove through an examination. This, it is needless to say, is a very poor criterion, but, as it is one very generally accepted, it must necessarily have a great effect on the teacher's plan of working. For, as it is to the senior and most talented pupils that he must look to secure him this reputation, he, of course, is naturally tempted to give an undue share of his time and attention to these not favoured, but favouring few.

Again, there may be another reason for thus neglecting the less advanced pupils. By the time a young man has completed the prescribed course of high school studies and examinations, he has acquired a taste for the higher subjects and a more elevated line of thought. He enters on his teaching career with thought and feeling as far removed from those of the child he is employed to teach as are the branches of the lofty oak from the tiny shoot just springing into existence at its root. And, by this means, we can determine the character of the teacher. It has been said, and justly too, that the teacher's is a noble calling, second only to that of the ministry, but it depends on its followers whether they thus promote its lofty aim, or use it for their personal aggrandizement. If the teacher think only of his own selfish ends, and follows whither his desires and sympathies would lead him, he of course gives most prominence to those subjects and classes, that accord best with his taste and experience. Whereas, if he give to the junior pupils, the attention that their wants require, he must be of that self-sacrificing type which our profession demands.

It is a mistaken idea that any one can teach children. If we examine our graded schools, we find invariably that teachers of advanced pupils receive much higher salaries than those of younger ones. And those teachers, as a rule, are better qualified and are better entitled to receive higher salaries. But should this be so? Is it a more difficult matter to teach these advanced pupils, than those to whom the world of knowledge is just beginning to reveal its mysterious depths? The untrained, inexperienced teacher knows but comparatively little of the nature of children, and is, therefore, but ill qualified to teach them. The instructor of children must understand the

order in which the different intellectual powers come into full activity: that first the perceptive powers are awakened, then memory, then reason—and, in order to 've success, he must at all times conform to this order in his instruction. He must not appeal to a mental power which is not yet fully awakened, for, in such a case, the mind will be injured, and failure will ensue. Then, one method will not suit all children. The teacher must use different modes of treatment for the varied tastes and dispositions which the children will exhibit.

During the pupils' early years, the aim of the teacher should be simply to awaken a desire for knowledge, and show them how to acquire it, not to cram them with facts, as is too often the case, treating the mind as a remembering, and not as a thinking substance. It is not the number of facts read or expounded, or even remembered, but the power to apprehend these facts and their various relations, which constitutes the ideal of true teaching. We should aim to secure to our pupils as much mental training as possible, so that having aroused their activity of thought, having led them to the source of knowledge, they may drink therefrom, and that they may feel that to their own exertions, will be mainly due their increasing knowledge. And those pupils who on account of poverty, or other misfortune, are obliged to leave school at an early age will have received a stimulus sufficient to excite them to further study, to self-improvement and to love knowledge for its own sake.

The teacher of the newly awakened mind of childhood is he who standing at the fountain-head of a mighty river, holds in his hands the power to effectually dam its progress, to divert it from its natural channel, or to guide it in its just and proper course, while he who is appointed to the post of so-called superior instructor, is like

the tributaries which, in their mighty onward course, administer to the wants of the river, but are only subservient to the mighty principle generated in its earlier stages.

But some doubting one may say, "Do not those pupils, studying the more advanced subjects, of necessity need teachers that are better educated than those who have not yet mastered the rudiments?" If, by education, is meant a sound professional training, and a thorough insight into, and understanding of, child nature, I answer, yes; but it, as it is meant in the common acceptance of the term, mere literary acquirements, I dissent entirely. If a young man after a thorough course at High School, and after successfully passing the examinations on the curriculum, has not enough book knowledge to teach the highest class in our Public Schools, he should not presume to enter the profession; and would be no more successful in a junior division, than in a senior one, unless, as is sometimes the case, he has a great aptitude for imparting instruction. Besides, it is a fact which the observant person cannot fail to have noted, that the best scholar does not always make the best teacher.

Then again, the pupil in the advanced stages, is in a far less degree dependent on the teacher, than is his younger brother. With such a magnificent array of text books, as is supplied for our Canadian schools, a boy who from his infancy has been trained to search into the cause and effect of everything, not to accept a thing as correct unless his judgment approve of it, will need a teacher's careful guidance only to lead his footsteps onward in his wisdom-seeking venture, lest he turn aside out of the path which he has thus far successfully trodden. But he must not for one moment suppose that knowledge is confined to books, or that it has even its source there. The book is

but an artificial reservoir; the fountain, the source, lies outside in the great field of nature. Too often, the pupils are allowed to depend entirely on the book, the teacher becomes a mere hearer of lessons, and almost the only faculty of the child which is called into play is that of memory, while reasoning and observation are suffered to lie dormant.

This has been true in many cases in the past, but it has been remedied to a very great extent of late years. In most of our Model and Public Schools, the teachers of the higher departments are found to be competent and efficient men, who, by their long course of training and teaching, have become acquainted with the principles that underlie all methods of instruction. They reflect honour on their profession, and do credit to themselves. But, undoubtedly, there will always be teachers of different grades; and this difference will consist more in the professional training, in natural talents, than in literary attainments. Then, let the superior teachers take those positions where the responsibility is greatest, where the influence exerted is most lasting and most powerful, and where in as the case of elementary training, the methods employed affect, not only the present progress of the pupils, but, to a great extent, decide their whole life career. And, as a matter of course, these teachers who have undergone the best course of training, had the longest experience, and possess the greatest aptitude to teach, should receive the highest remuneration for their services, and vice versa.

Of course, to accomplish all this, although some of our leading educationists have given utterance to these same ideas, still, public opinion must, in this particular, be to a vast extent revolutionized; but reform is a watchword of our generation, and results wonderful and unexpected are daily

being realized. The whole system of education is making progress, notwithstanding the many obstacles it has to encounter.

And the inevitable result of this reform will be the enlightenment of the masses; for when the individual realizes that he possesses within himself the power to build up his own education, and that for it he is not dependent on ulterior circumstances, we shall see the population at large become a thinking, reasoning people, who shall follow the dictates of their judgment, rather than be guided by impulse and prejudice.

And this, in the language of Shakespeare, is "a consummation devoutly to be wished." For, on the cultivation of the intellectual faculties, coupled with the harmonious development of the moral nature, depends, to a vast extent, the true and lasting prosperity of the state. Though the country's

coffers overflow with wealth, though her resources be unlimited, and her people rejoice in the blessing of liberty, however salubrious her climate, and fertile her soil, yet, if the people who throng her cities and who cultivate her farms, be lacking in those qualities that ennoble and refine, all her advantages, both physical and political, will not elevate her to the true dignity of national greatness.

So, as it is the people who must exalt a nation, of what immense importance is it, then, that the masses be educated. Then let us devote ourselves to our work with renewed energy, and patriotic zeal, let us employ every means in our power for the attainment of our grand and noble aim, resting assured that, by the thorough education of the youth of our land, we are laying the foundation stone of our future greatness.

## LETTERS FROM A CANADIAN STUDENT ABROAD.

### II. PARIS TO BERLIN.

*Berlin, Oct. 23, 1883.*

MY DEAR B.,—

THERE are perhaps eight to ten Lycées in Paris. They correspond to the Gymnasias of Germany, or rather both to these and to the "Realschulen," for there are generally two divisions in each; one preparing for professions, and paying the chief attention to classics, and the other teaching chiefly mathematics and the natural sciences. As is the case in Germany, so with these schools; they give an education equal in many respects to that given by our best universities. The pupils very generally in the Lycées—rather very many of them—on leaving take the degree of Bachelier ès Lettres or Bachelier

ès Sciences. So a very large number of the university students have already a degree when beginning to attend lectures. There are in Paris a number of higher municipal schools, chiefly intended for those intending to enter commerce or manufactures. The tuition in them is free, but the admission is now competition, the best pupils from the public schools entering. I am afraid these few fragmentary hints about the schools will not give you much insight into their working.

I must not forget to say a word about the libraries of Paris. Abundant facilities are afforded the student for study. Adjoining the Sorbonne—which has also a library for the stud

—is the Bibliothèque de St. Geneviève, containing about 150,000 volumes. It has a large well-lighted and well-heated room, and is open to all during the day, and in the evening. Then there are two others—Bibliothèque Majarin, and de l'Arsenal, each of 300,000 to 400,000 volumes, free also. The Bibliothèque Nationale, which contains two million volumes, and is the largest in the world, has a public reading-room, and a large working-room; the latter is reserved for those engaged in special work. There are also other libraries, but these will show that Paris is lavishly supplied in that respect. I enjoyed my stay in Paris, *i.e.*, on looking back, perhaps, my feelings are warmer towards it, than often I felt while dwelling there. The people are too volatile and pleasure-loving to suit me. And yet I would not willingly give up my six months experience there. Nancy was the only other city in France I visited, and I only stopped over there a couple of days. During August and up to the middle of September I was travelling with J. A. H., who is now studying theology here, and was an old Canadian and university friend. We tramped Switzerland for two weeks, doing a great deal of walking, and seeing some of the finest points of view in that land of mountains, lakes, and streams. On leaving it we took a roundabout way of reaching here. We touched at Augsburg, Salzburg, Munich, and sailed down the Danube to Vienna. In Munich we spent several days, and were much interested in its great art treasures, for in that respect it has no rival but Dresden. It is a great city for beer. In 1878 of the twenty-five millions of beer manufactured there, about twenty million were drunk there, making probably 100 gallons for each man, woman and child. Yet one does not observe any drunkenness, though beer gardens are everywhere.

In Vienna, we spent several days. It is a very handsome city. A magnificent building is just being erected for its university, which is one of the largest in Europe. Last year it had 4,099 matriculated students attending, while Berlin had 4,062, and Leipzig 4,097, counting also, however, those who attended lectures merely as hearers. Berlin had the largest number, *viz.*, 5,158. Vienna is the greatest medical institution, having almost twice as many studying in that line as were to be found elsewhere, in any one university. On our way north from Vienna, we stopped a few hours at the old historical city of Prague, and thence passed on into the mountainous part of Saxony. We tramped very pleasantly for two days in the Saxon Switzerland, and sailed down the Elbe to Dresden, where we spent several days. It is a very fine city, rivalling Munich in its art treasures. I then boarded in a private family in Leipzig for several weeks pegging away at my German, trying to speak, but finding it hard enough work. One has not to spend long on the continent before becoming rather disgusted with his acquirements in moderns. Something seems to be radically wrong in the system of teaching French and German, when we can study them for years, without ever speaking them at all. They are taught and learned as are the dead languages, Latin and Greek. Well! there is nothing for it now but to work away, reading, committing, listening to lectures, speaking when one can muster up enough courage to expose his bad German. I rather liked Leipzig. The country about is very flat and not fertile. Still it has pretty walks, especially a wide boulevard extending around the main town. Though only there three weeks I had to show myself at the Police Office, show my passport, and answer any questions they chose to put to me.

The university is an old-looking building in the centre of the city, surrounded by shops, and anything but academical looking. Bookstores and printing-offices abound in Leipzig. It was the time of the "messe" or fair, which is held three times in the year, and at which a great deal of all kinds of merchandise is sold. I chose Berlin as my university, and hope to take also a semester in Leipzig. I am settled down in regular student's fashion, and rent my room from the

"Frau," who attends to it, and gives me coffee morning and evening. Then I get dinner at a restaurant. I underwent the imposing ceremony of matriculation on Monday, and am once more a university student. Lectures are just commencing, and I can hardly tell you yet anything definite about them. I expect to take at least two semesters in Germany. I should like to take a degree here, but may not be able to spare time for that. T. W.

## LIFE AND WORK OF DARWIN.

BY GEO. ACHESON, M.A., TORONTO.

(Continued from page 9.)

A CURIOUS breed of cattle is described as occurring in the Province of Banda Oriental. The *nâta* or *niata* cattle, he says, "appear externally to hold nearly the same relation to other cattle, which bull or pug dogs do to other dogs. Their forehead is very short and broad, with the nasal end turned up, and the upper lip much drawn back; their lower jaws project beyond the upper, and have a corresponding upward curve; hence their teeth are always exposed. Their nostrils are seated high up, and are very open; their eyes project outwards. When walking they carry their heads low, on a short neck, and their hinder legs are rather longer compared with the front legs than is usual. Their bare teeth, their short heads, and upturned nostrils give them the most ludicrous self-confident air of defiance imaginable." This breed is supposed to have originated less than 200 years ago among the Indians south of the Plata, and is a very true

one, a *niata* bull and cow invariably producing *niata* calves. A cross with common cattle produces offspring having intermediate characters, but with the *niata* character strongly marked.

Among other curious and interesting observations, such as those relating to *aëronaut* spiders, causes of the extinction of organic beings, sense of sight and smell in condors, the remarkable lizard *Amblyrhynchus* found in the Galapagos Archipelago, etc., I will only notice his description of the Fuegians. After casting anchor in the Bay of Good Success, a party was sent to communicate with the natives, a number of whom had collected on the shore. He says, regarding this: "It was, without exception, the most curious and interesting spectacle I ever beheld. I could not have believed how wide was the difference between savage and civilized man. It is greater than between a wild and domesticated animal, inasmuch as in man there is a

greater power of improvement. Their only garment consists of a mantle made of Guanaco skin, with the wool outside; this they wear just thrown over their shoulders, leaving their persons as often exposed as covered. Their skin is of a dirty coppery red colour. . . . The language of these people, according to our notions, scarcely deserves to be called articulate. Captain Cook has compared it to a man clearing his throat, but certainly no European ever cleared his throat with so many hoarse, guttural and clicking sounds." Again, speaking of another tribe, he says: "These were the most abject and miserable creatures I anywhere beheld. On the east coast, the natives, as we have seen, have Guanaco cloaks, and on the west they possess seal-skins. Amongst these central tribes, the men generally have an otter-skin, or some small scrap about as large as a pocket-handkerchief, which is barely sufficient to cover their backs as low down as their loins. It is laced across the breast by strings, and according as the wind blows, it is shifted from side to side. . . . These poor wretches were stunted in their growth, their hideous faces bedaubed with white paint, their skins filthy and greasy, their hair entangled, their voices discordant, and their gestures violent. Viewing such men, one can hardly make oneself believe that they are fellow-creatures, and inhabitants of the same world.

At night five or six human beings, naked and scarcely protected from the wind and rain of this tempestuous climate, sleep on the wet ground, coiled up like animals. Whenever it is low water, winter or summer, night or day, they must rise to pick shell-fish from the rocks; and the women either dive to collect sea-eggs, or sit patiently in their canoes, and with a baited hair-line without any hook, jerk out little fish. If a seal is killed, or the floating carcass of a putrid

whale discovered, it is a feast, and such miserable food is assisted by a few tasteless berries and fungi." He also states that the different tribes when at war are cannibals, and also that when pressed by famine, as they often are, they kill and devour their old women before they kill their dogs, the reason given being, "Doggies catch otters, old women no." It was impossible to discover whether they had any idea of a future life or not. He had no reason to believe that they ever performed any sort of religious worship. Their nearest approach to a religious feeling seemed to be an idea of retributive punishment for wasting food, the elements themselves being the avenging agents. The different tribes have no government or chief, are hostile to one another, and speak different dialects. He concludes his description of these savages with the following remark:—"There is no reason to believe that the Fuegians decrease in number; therefore we must suppose that they enjoy a sufficient share of happiness of whatever kind it may be, to render life worth having. Nature by making habit omnipotent, and its effects hereditary, has fitted the Fuegian to the climate and the productions of his miserable country."

This voyage, however, was not all pleasure to Mr. Darwin. He mentions as the chief disadvantages several obvious losses, such as separation from the society of friends, one which he felt very keenly, though alleviated to some extent by a constant correspondence with his old master and dearest friend, Prof. Henslow, the want of room, seclusion, rest, and leisure, which "although at first not felt, tell heavily after a period." But worse than all, he suffered greatly from sea-sickness; and this, together with the worry and fatigue incidental to his long land excursions, was the probable cause of the dyspepsia to

which he was a victim ever after. I cannot here help referring to another life-long victim to dyspepsia, whose death but lately we were called to mourn. What a difference between the characters of Darwin and Carlyle—sunshine, gloom! This physical affliction could not destroy the sweetness and amiability of the one, while the whole life of the other was so soured and warped by it, that as his mother expressed it, he was “gey ill to live wi’.” Indeed it is difficult to conceive of two characters so totally unlike; and their modes of thought are as wide apart as the poles.

Three years after his return from this voyage Mr. Darwin married his cousin, Miss Emma Wedgwood, and in 1842 settled at Down, near Farnborough, in Kent. Here, up almost to the very day of his death, he continued to work at the problems which had been suggested to him while on board the *Beagle*, patiently accumulating and reflecting upon all sorts of facts which could possibly have any bearing upon that mystery of mysteries—the origin of species.

Taking his works in historical order, we have first a paper on the “Connection of Volcanic Phenomena,” published in the transactions of the Geological Society in 1840. In the same publication, in 1842, there was another on the “Erratic Boulders of South America,” and somewhat latter, a paper on the “Geology of the Falkland Islands.” His principle researches, however, in Geology were contained in a work called the “Geology of the Voyage of the *Beagle*,” published in three parts under the auspices of the Lords of the Treasury. The first, on the “Structure and Distribution of Coral Reefs,” appeared in 1842, and must be regarded as one of the most original and interesting of the author’s works. In this volume he gives his views on the formation of the three

great classes of coral-reefs—Atolls, or Lagoon Islands, Barrier, and Fringing-Reefs. Important as these views are, I can only state here, that his theory is, that all the leading features in these structures can be simply explained by the upward growth of the corals during the sinking of the land. The formation appears first as a fringing-reef round an island or the shore of a continent. Now, if we imagine the island to sink and the coral to grow upward, we will get an encircling barrier reef; and if the same thing takes place with the continent, we will have a straight barrier. Let the encircling barrier reef and the island go on subsiding, and the corals growing vigorously upwards, and when the highest point of land has disappeared below the water, we have a perfect Atoll, or Lagoon Island. A conviction of the correctness of Darwin’s theory has been impressed on the minds of many naturalists. Its simplicity recommends it.

The next part of this work was on the “Geology of the Volcanic Islands visited during the Voyage of the *Beagle*,” published in 1844. The third part appeared in 1846. under the title of “Geological Observations on South America.” These, together with a paper read in 1843, before the Geological Society on “Glacial Action in Wales,” complete his direct contributions to Geology; but his researches in other fields have had a much wider influence on the progress of this science, especially his chapters in the “Origin of Species,” on the “Imperfection of the Geological Record,” and “Geographical Distribution.” These have proved that geological history has followed a law of Evolution, not of Cataclysm or Uniformity.

Next in order of time comes his “Monograph of the Cirripedia,” published by the Ray Society in two volumes, in 1851 and 1854. This

exhaustive memoir shows the author's ability as a comparative anatomist, and his power to excel in the department of Morphology; but, as 'Nature' says, "we have to thank his native sagacity that such was not his choice." Better things were in store for him. He was to influence the science of Zoology more by his generalizations than by his particular researches, and the work which so completely revolutionized the scientific world was the "Origin of Species," first published in 1859.

The almost universally received idea concerning the origin of distinct animal and vegetable species, both fossil and existing, was that they were special, separate creations, variable within certain limits, but never passing into one another either suddenly or gradually. This doctrine had become so deeply rooted in the minds of both scientific men and theologians, that to express any doubt as to its validity or agreement with observed facts was regarded as rank heresy. In spite of this long-standing prejudice a suspicion entered the minds of a few, that this theory of special creation was inadequate to solve various problems in nature; that it was, indeed, quite at variance with some indisputable facts. Lamarck first formulated the doctrine of Descent in 1804 in his "Philosophie Zoologique." He held that species were not immutable, but that nature, starting with the formation of the simplest organic bodies, gradually evolved from these, in course of a long succession of ages, all organized beings, whether simple or complex.

In the "Origin of Species" Darwin upholds the theory of Descent, viz: That all forms of life, both past and present, have been produced by a series of gradual changes in a few original forms in regular descent from parent to offspring; but in addition, he claims to have discovered the method in which this evolution of

nature has taken place. Darwin's theory proper is not Evolution, as many suppose, but Evolution by means of Natural Selection. As one writer puts it, the idea of Evolution proved barren until it was fertilized by the idea of Natural Selection. How Darwin arrived at this idea he has told us in the introduction to the "Origin of Species," but more fully in a letter written to Haeckel, in which he says: "Having reflected much on the foregoing facts," (i. e. facts in the distribution of the inhabitants of S. America, and in the geological relations of the present to the past inhabitants of that country,) "it seemed to me probable that allied species were derived from a common ancestor. But during several years I could not conceive how each form could have been modified so as to become admirably adapted to its place in nature. I began, therefore, to study domesticated animals and cultivated plants, and after a time perceived that man's power of selecting and breeding from certain individuals was the most powerful of all means in the production of new races. Having attended to the habits of animals and their relations to the surrounding conditions, I was able to realize the severe struggle for existence to which all organisms are subjected; and my geological observations had allowed me to appreciate, to a certain extent, the duration of past geological periods. With my mind thus prepared I fortunately happened to read Malthus's "Essay on Population," and the idea of Natural Selection through the struggle for existence at once occurred to me. Of all the subordinate parts in my theory, the last which I understood was the cause of the tendency in the descendants from a common progenitor to diverge in character."

The general facts on which the theory of Natural Selection rests, viz: the struggle for existence, variation,

the survival of the fittest, and heredity were already known; and it is somewhat strange that no attempt was made to correlate these, and find out the general principle underlying them, except by Mr. Darwin, and about the same time independently by Mr. Wallace.

In his introduction to this book Mr. Darwin says, "In considering the origin of species, it is quite conceivable that a naturalist, reflecting on the mutual affinities of organic beings, on their embryological relations, their geographical distribution, geological succession, and such other facts, might come to the conclusion that each species had not been independently created, but had descended, like varieties, from other species. Nevertheless, such a conclusion, even if well-founded, would be unsatisfactory until it could be shown how the innumerable species inhabiting this world have been modified, so as to acquire that perfection of structure and co-adaptation which most justly excites our admiration. . . . It is therefore of the highest importance to gain a clear insight into the means of modification and co-adaptation. At the commencement of my observations it seemed to me probable that a careful study of domesticated animals and cultivated plants would offer the best chance of making out this obscure problem."

Accordingly after due deliberation he took up the study of domestic pigeons, procuring every breed that could be obtained, reading all the literature he could find on the subject, and associating himself with several eminent pigeon fanciers. Great as are the differences between the breeds, it may be regarded as almost certain that they have all descended from the Rock pigeon (*Columba livia*.) The various races such as the Pouter, Carrier, Fantail, Tumbler, Trumpeter, &c., differ from one another far more

widely than do well-marked species of the same genus, or even family. And these modifications are produced by the will of man exercised in the process of selection. It might be as well to mention also here a phenomenon which Mr. Darwin has called "correlation of growth." This consists in the fact that while man may be intentionally modifying one part of the organism by selection, one or more other parts are unintentionally modified along with it, and become characteristic of the race.

Man's conscious power of modifying both the external and internal characteristics of domestic animals is too well known to require any lengthened description. This artificial selection operates by accumulating natural variations in certain directions. Man can never act by selection, except on variations first given him in some slight degree by Nature. Over all causes of change Mr. Darwin is convinced that the accumulative action of selection, whether exercised methodically and more quickly, or unconsciously and more slowly, but more efficiently, is by far the predominant power. The consideration of variation under domestication, and artificial selection introduces us to variation in a state of nature and natural selection. The fact of variation in domestic animals and cultivated plants is a self-evident one; and the fact of variation in a state of nature, on a little consideration becomes equally so. Else what is the meaning of so many doubtful species, of monstrosities and sports? Amongst organic beings in a state of nature there is individual variability—no two beings are precisely alike. This fact, together with the high rate at which all organic beings tend to increase, necessitates a "struggle for existence." "Owing to this struggle for life, any variation, however slight, and from

whatever cause proceeding, if it be in any degree profitable to an individual of any species, in its infinitely complex relations to other organic being, and to external nature, will tend to the preservation of that individual and will generally be inherited by its offspring." This principle by which each slight variation, if useful, is preserved has been called "Natural Selection." The term "struggle for existence" must be understood in a wide and metaphorical sense, including the efforts a being has to put forth to accommodate itself to its environment, its dependence on other beings, the life of the individual, and its success in leaving offspring. More individuals are produced than can possibly survive; therefore, in every case there must be a struggle for life, one individual with another of the same species, or with individuals of a different species, or with surrounding physical conditions. In fact the life of every organism is a continual struggle with its environment. The relations existing between organic beings are often very complex. I will just give one instance noted by Mr. Darwin: "I have reason to believe that humble-bees are indispensable to the fertilization of the hearts-ease (*Viola tricolor*) for other bees do not visit this flower. From experiments which I have lately tried, I have found that the visits of bees are necessary for the fertilization of some kinds of clover; but humble bees alone visit the red clover (*Trifolium pratense*), as other bees cannot reach the nectar. Hence I have very little doubt, that if the whole genus of humble-bees became extinct or very rare in England, the hearts-ease and red clover would become very rare, or wholly disappear. The number of humble-bees in any district depends in a great degree on the number of field-mice, which destroy their combs and nests; and Mr. H.

Newman, who has long attended to the habits of humble-bees, believes that more than two-thirds of them are thus destroyed all over England. Now the number of field-mice is largely dependent, as every one knows, on the number of cats; and Mr. Newman says: 'Near villages and small towns I have found the nests of humble-bees more numerous than elsewhere, which I attribute to the number of cats which destroy the mice.' Hence it is quite credible that the presence of a feline animal in large numbers in a district might determine, through the intervention first of mice and then of bees, the frequency of certain flowers in that district!"

Now in what way does this struggle for existence act in regard to variation? Just in this way. If any being vary, even slightly, in any way favorable to itself under the conditions in which it may be placed, this being will have a better chance of surviving in the struggle, and will thus be naturally selected. "It may be said that Natural Selection is daily and hourly scrutinizing, throughout the world, every variation, even the slightest; rejecting that which is bad, preserving and adding up that which is good; silently and insensibly working, whenever and wherever opportunity offers, at the improvement of each organic being in relation to its organic and inorganic conditions of life." From the strong principle of heredity any useful variation will have a tendency to be reproduced in the offspring, and so any selected variety will tend to propagate itself with its new characteristics intensified.

In addition to natural selection the general result of the struggle for existence, another important factor comes into play, where a desire for propagation is concerned, which Mr. Darwin calls "Sexual Selection." This depends upon a struggle between

males for the possession of the females; and the result to the unsuccessful competitor is few or no offspring. It will not be necessary here to follow out the method in which this principle acts; it would seem, however, to be the cause of the modifications of the plumage in birds, and of the special means of defence of various male animals.

Natural Selection acts by the preservation and accumulation of infinitesimally small inherited modifications, each profitable to the preserved being. In this way varieties are produced, at first slightly, then strongly marked; and as the characters go on diverging the lesser difference between varieties becomes augmented into the greater difference between species.

Natural Selection also necessitates extinction. For, as we must suppose variations of all sorts to take place, some beneficial, others injurious, only the useful ones will be seized upon and preserved, while all the others will be ruthlessly destroyed as soon as they become injurious.

According to this theory the species now living are connected with older species by transitional forms or varieties, "species in process of formation;" these older species with others still more ancient, and so on; so that an infinite number of forms must have existed. The so-called transitional forms known to us are few in comparison with this countless multitude. Many more doubtless will be brought to light as the science of Palæontology grows older, but the geographical record is necessarily very imperfect, and the transitional forms must, from the very nature of Natural Selection, be of short duration. Therefore we must not be at all surprised if in many cases we do not see the connecting links between species. As Mr. Darwin says, "our ignorance of the laws of variation is profound. Not in one case out of a hundred can we pretend

to assign any reason why this or that part differs more or less from the same part in the parents. But whenever we have the means of instituting a comparison, the same laws appear to have acted in producing the lesser differences between varieties of the same species, and the greater differences between species of the same genus." He enumerates, however, some of the probable causes for this deviation in structure. It can easily be proved that the reproductive system is greatly influenced by changes in the conditions of life; and he believes that the varying or plastic condition of the offspring is to be attributed to the functional disturbance of this system in the parents. The direct effect of external conditions such as climate, food, etc., he thinks is very slight. Habit, use, and disuse seem to be more potent. Correlation of growth has great influence; multiple parts are very variable, because not having been closely specialized to any particular function, their modifications have not been closely checked by Natural Selection. Probably from the same reason, organic beings low in the scale are more variable than those higher up. Specific characters are more variable than generic characters. Secondary sexual characters are also highly variable, and parts developed in an unusual manner. Species descended from a common parent, and exposed to similar influences, will naturally tend to present analogous variations, and may occasionally revert to some of the characters of that parent.

The theory of evolution explains the nature of the affinities of all organic beings. All animals and plants, both existing and extinct, are related to each other in group subordinate to group, so that it is possible to arrange them all in varieties, species, genera, families, orders and classes, more or less closely connected with one an-

other. They cannot be ranked in single file, it is true, but the subordinate groups seem to be clustered round points, and these round other points, and so on.

There are a great many other things in connection with this theory which I should like to have noticed, did time permit, such as the difficulties surrounding it, though, it would seem, not fatal to it, the evolution of instinct, the facts of sterility and hybridism, the application of the theory to man, and its relations to Christianity. On this last head, I will just say, that in my opinion the doctrine of Descent and the facts in connection therewith harmonize completely with the teachings of faith, and the belief in a personal, omniscient God, acting through these natural laws instituted by His will and sustained by His providence. As far as the application of the theory to man goes, I believe that his physical organization has been evolved by the ordinary operation of natural laws, which are but expressions of the Creator's will; while his soul, or higher nature, an entirely different existence from his body, was created, not through the operation of secondary pre-existing means, but by the direct action of the Almighty. And this view Scripture plainly seems to set forth, when it says: "God made man from the dust of the earth (i.e. his body) and breathed into his nostrils the breath of life" (i. e. his soul). To those who ignorantly ask for the missing links between monkeys and man, I have to say, that Darwin never told us that man was descended from any of the apes, but only that man and the anthropomorphous apes are descended from a common extinct progenitor, along diverging lines; and that it is the height of absurdity to suppose that an evolutionist ought to be able to show how a gorilla transformed himself into a man, any more than he ought to be able to prove to

the satisfaction of the most incredulous, that by stripping the hair of a squirrel's tail he could change it into a rat!

Whether we accept Darwin's theory of Natural Selection or not does not alter the fact of Evolution, for it is quite possible for the theory of Natural Selection to be entirely false, and the doctrine of Descent still true. Mr. Darwin's greatest achievement perhaps in this work is, that he has finally established the fact of Evolution. That he has finally shown that Natural Selection is the cause of Evolution, I am not prepared to say. The law which impels the variation of species in known directions may be Natural Selection, or it may be an inherent principle of development working according to natural laws yet unknown, or perhaps both of these combined; but I believe all organic forms have been evolved by ordinary natural laws expressive of the Divine will, and acting "in obedience to a creative fiat originally imposed on the primeval Cosmos, 'in the beginning,' by its Creator, its Upholder, and its Lord."

In the closing words of the "Origin of Species," "There is a grandeur in this view of life, with its several powers, having been originally breathed into a few forms or into one; and that whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved."

I have dwelt at such length on the "Origin of Species" that I have very little space left for glancing at Mr. Darwin's subsequent works. Some of them I can only just name. In 1862 appeared a work on the "Fertilization of Orchids." In 1867 he published a volume on the "Variation of Animals and Plants under Domestication," which he intended as the

first of a series of memoirs on the great subject of which the "Origin of Species" was only an abstract. He promised in a second to deal with the "Variation of Organisms in a State

of Nature," and in a third to "try the principle of Natural Selection by seeing how far it will give a fair explanation of the several classes of facts alluded to."

*(To be continued.)*

## MORAL AND CIVIL INSTRUCTION.

BY A. YESSIOL, ACADEMIC INSPECTOR OF SCHOOLS, MARSEILLES, FRANCE.

**W**E advise our teachers to assign hereafter a large place in their work to instruction in morals and civil government.

Moral and civil instruction meets the wants as well as the wishes of the country; it is a necessary consequence of the profound change which is taking place in our institutions, in our laws, in our manners. The establishment of the republic and of universal suffrage, which is its basis, has given to the school a new character; it imposes upon the teacher new duties. The primary school is no longer merely local, communal; it has become in the highest degree a national institution, on which even the entire future of the country depends. It is no longer a place to which the child resorts to acquire certain information that may prove useful to him in private life; it is the source from which he is to be drawn, together with the principles of universal morality, a knowledge of his rights and duties in regard to public life; it is the school of citizenship and patriotism.

The function, then, of the teacher is notably, increased, and his responsibility extended. The teacher used to drill his pupils in reading, writing, and arithmetic; now, without neglecting that portion of his duty, he ought to have a higher ambition, namely, that of raising up for the country defenders and for the republic citizens.

The children now under his care will one day be voters and soldiers; they will have their share of influence in shaping the future of the country; their souls must then be well tempered, their minds must be enlightened; they must be acquainted with the intelligence of their times, with the society of which they are to become members, the civil duties they will have to fulfil, the institutions they will have to strengthen. They must be inspired with a generous patriotism; this does not mean that they are to be taught to hate foreign peoples—let us leave that cruel instruction to others—but that they are to nourish a passionate love of their own country. True patriotism consists in love, and not hate; it does not consist in any attempted systematic alteration of well established historical facts or jealous depreciation of the greatness and glories of other peoples. No, it does not involve the humiliation of others; it is inspired by justice, it is allied to a noble emulation. This it is that France needs, and this is what French youth should be taught.

Undoubtedly this double instruction is not entirely new, and it would be erroneous to suppose that moral and civil instruction now first makes its sudden appearance in our schools. Many of our teachers are now, and long have been, giving lessons calcu-

lated to make their pupils worthy people and good citizens. In fact, all instruction, the humblest and that the furthest removed from morality properly so called, has nevertheless a certain improving influence, and every virtuous person by the mere fact of frequent intercourse communicates to others, and especially to children, something of his own moral elevation. But what has heretofore been in some degree the involuntary effect of the instruction itself and of the morality of the teachers—personal in its inspiration and consequently unequal and intermittent—will now be due to a common and sustained effort towards a clearly defined object, to a general and persistent endeavour, in a word, to a branch of instruction. What shall be its character? What its form?

The teacher must grapple with the problem how to render lucid and pleasing those truths which flow from the very nature of man and the existence of society, and to induce children to make them the rules of their conduct. What is needed is that there should be awakened, developed, fortified in them those sentiments which give dignity to man, honour to families, and power to states.

Moral and civil instruction ought not then to be confined to one division or sub-division of the scholastic programme, restricted to one class or to a prescribed hour, pressed in the narrow mould of a few inert formulas or solemn maxims; it ought to permeate all parts of the work of instruction, blossoming out in varied developments and reappearing every day and every hour; it ought to be the life, the soul, of the school. It is in the school that a child should draw in morality and patriotism as he inspires air, without noticing it; for, to teach morality successfully there is no call for too much moralizing. That moral lesson which is an-

nounced risks being lost. Moral instruction should be combined with everything, but insensibly, like those nutritive elements which the scientist finds reappearing in all sorts of food, but which are concealed under the infinite variety of colour and form in which nature clothes animals and plants, and which man unwittingly assimilates without a suspicion. Thus moral instruction will enter into the various work of the class, the readings, recitations, dictations, the stories related by the teacher, the selections drawn from the poets and romancers, the familiar and sprightly conversations, the grave reflections on history, the games, the promenades—being everywhere present, in short, without making its presence remarked.

Does it follow that theory should be absolutely banished from the school? No, but it should have only the smallest place. It will suffice if once a week, and preferably at its close, the teacher expresses the substance of the last lessons he has reviewed and puts it into didactic form.

As far as practicable, it is the child himself who ought to draw the rules and moral laws from the facts which contain them, as the fruit contains the seed; and this is not so difficult as it appears. A reading finished, a story related, the teacher by means of questions invites the judgment of the child on the actions of this or that character who has figured in the recital; rarely does the child err as to the moral value of the actions submitted to his consideration. The teacher then asks the child if he would pronounce a similar judgment on all men who should act in the same way, and thus leads him to generalize his decision, that is, to formulate a principle, a rule. The child thus becomes his own legislator; he has himself discovered the law; having made it he understands it, and he obeys it more willingly be-

case it has imposed itself upon his reason instead of being imposed upon his will. It does not seem needful to us to mark out for teachers a programme of moral instruction; such programmes are to be had in abundance; but we prefer to leave with them the responsibility of incorporating this instruction with their other work as they deem proper. The weekly report, however, should contain a résumé of what has been done. These résumés themselves, collected for a period of several months, will gradually form a real course in moral instruction which the teacher, in the light of his experience, can extend or limit as he desires.

But our teachers should not forget that the work of giving moral instruction imposes upon them a moral obligation to make their conduct accord with their instruction. Of all lessons the best is the living lesson, the example of the teacher himself. Like teacher, like pupils. Children have a wonderful shrewdness in detecting inconsistencies between the conduct of the teacher and his counsels. The efficacy of this instruction is to be measured by the moral value of those who give it; and from this

point of view we are confident that moral instruction will exert a beneficial influence on the teachers themselves and that they will profit by their own lessons.

As to instruction in civil government properly so called, aside from the sentiments which it is its mission to encourage and disseminate, it ought to afford the child an image of society, to present to his eyes the different parts of a vast and rich whole; in this there is the material needed for methodical training, and, consequently, for a programme in which its limits are indicated and its work laid out.

We confidently intrust this double instruction to the enlightened zeal of the primary inspectors, to the tried patriotism of our teachers. We trustingly ask them to make a great and generous effort to elevate national education, to worthily respond alike to the solicitude of the government and the chambers and to the ever increasing sacrifices which the country has imposed on herself; finally, we ask them to raise up for the country a generation both healthy and strong.—*Issued by the Bureau of Education, Washington.*

IF cheerfulness is wanting in a school, it is usually the fault of the teacher. It is true, persons differ naturally in respect to cheerfulness. It is also true that this difference is largely due to habit. All may cultivate a cheerful disposition if they will. A teacher who has failed to do this is sadly deficient in teaching power. It is related of a Sunday-school teacher who, having taught the familiar lesson of Philip and the eunuch, asked, at the close of the lesson "Can any one tell me why the eunuch went on his way rejoicing?" "Yes, sir," said a little boy. "Why was it?" asked the teacher. "Because," replied the boy, "Philip was done at teaching him."

WHY SOME TEACHERS FAIL.—They are easily discouraged. They do not try to improve. They fail to know what the world is doing. They fail to have new ideas. They read no educational papers or books. They follow the same method with each class. They attend no teachers' meetings. They complain too much. They do not study their lessons. They fail to practice what the educational papers tell them. They do not determine to be the best teachers in the place. They forget that the art of teaching is an art that requires study. They do not seek information by studying the methods of the best teachers.—*Lansing Republican.*

## UNIVERSITY WORK.

## MATHEMATICS.

ARCHIBALD MACMURCHY, M.A. TORONTO.  
LEADER

## SOLUTION AND PROBLEMS.

By J. L. COX, B.A., Math. Master Collegiate  
Institute, Collingwood.

## SOLUTION.

Given the sum of the sides, the base and the height of a triangle; construct it.

Let  $AB$  be the base. From centre  $A$ , and at a distance equal to the sum of the sides, describe a circle  $HKG$ . Draw  $AF$  at right angles to  $AB$ , and equal to the given altitude. Draw  $FD$  parallel to  $AB$ . Draw  $BD$  perpendicular to  $AB$ , and produce it making  $BD = DE$ . Describe a circle passing through  $B$  and  $E$ , and touching the circle  $HKG$  internally at  $K$ . Join  $AK$ , cutting  $FD$  at  $C$ ; join  $CB$  and  $CE$ . Then the centre of this circle must be in  $DC$ , and also must be in  $AK$ ; therefore  $C$  is centre, and  $ACB$  is the triangle required.

## PROBLEMS.

Sum the following series to  $n$  terms :

(1)  $4 + 17 + 54 + 145 + 368 + \text{etc.}$

(2)  $4 - 14 + 117 - 632 + 3913 - \text{etc.}$

(3)  $3 - 1 + 27 - 41 + 179 - \text{etc.}$

(4)  $2 + 12 + 36 + 80 + 150 + \text{etc.}$

(5)  $-4 + 3 + 22 + 59 + 120 + \text{etc.}$

(6)  $3 + 13 + 25 + 41 + 65 + \text{etc.}$

(7) Describe a circle through two given points to touch a given circle.—*Selected.*

## PROBLEMS.

1. In 11 prop. Bk. ii., show that the squares on the whole line, and on the less segment, are together equal to three times the square on the greater segment.

2. A circle is described, passing through the right angle of a right-angled triangle,

and touching the hypotenuse at its middle point; prove that the area of this circle, intercepted within the triangle, is trisected at the middle point of the hypotenuse.

3. If a line be bisected and produced to any point, the square on the whole line thus produced is equal to the square on the part produced together with twice the rectangle contained by the line and the line made up of the half and the part produced.

4. In iv 10, Euclid. If in the construction  $AB$  be the line which is divided in  $C$ , and  $ABD$  be the triangle, and the two circles in the figure intersected again in  $E$ , prove that  $CE$  is parallel to  $BD$ .

5. If the circle inscribed in the triangle  $ABC$  touch the sides at the points  $DEF$  respectively, and  $P$  be the point of concurrence of the lines  $AD$ ,  $BE$ ,  $CF$ , show that

$$\frac{PD}{AD} + \frac{PE}{BE} + \frac{PF}{CF} = 1$$

with corresponding properties for the escribed circles.

6. If  $\left(\frac{a}{\beta} + \frac{\beta}{a}\right) \left(\frac{b}{c} + \frac{c}{b}\right) + 4 = 0$ ,

where  $a, \beta$  are the roots of  $ax^2 + bx + c = 0$ , show that  $a = \beta = 2$ .

7. If  $A + B + C = 180$

$$(y-z) \cot \frac{A}{2} + (z-x) \cot \frac{B}{2} + (x-y) \cot \frac{C}{2} = 0,$$

$$(y^2 - z^2) \cot A + (z^2 - x^2) \cot B + (x^2 - y^2) \cot C = 0,$$

prove that

$$\frac{y^2 + z^2 - 2yz \cos A}{\sin^2 A} = \frac{z^2 + x^2 - 2zx \cos B}{\sin^2 B} = \frac{x^2 + y^2 - 2xy \cos C}{\sin^2 C}.$$

8. Prove in any way that

$$a^2(b-c)(b+c-a)^2 + b^2(c-a)(c+a-b)^2 + c^2(a-b)(a+b-c)^2 = (a-b)(b-c)(c-a) [2(ab+bc+ca) - a^2 - b^2 - c^2].$$

9. A Bill upon which 576 members voted was lost on a division; subsequently the same members voting, it was carried by a majority half as large again as it was originally lost by, and the majority in the latter case equalled the number of those who first voted for the Bill. Find how many members changed their minds.

PROBLEMS FOR THIRD CLASS CERTIFICATES.

1.  $46\frac{1}{2}$  sovereigns of full weight are equal to a pound Troy. What will the weight of a sovereign be when 2.1% of the metal has been worn off? *Ans.*  $5\frac{1}{2}$  dwts.

2. A draper buys gloves in Paris at 45 francs per dozen pairs, and sells them in England at 4s. 2d. a pair. What percentage does he gain if £1 = 25.15 francs? *Ans.*  $39\frac{1}{4}\%$ .

3. What is the price of stock if a person can purchase £2343, 15s. stock for £2250, brokerage being  $\frac{1}{4}\%$ . *Ans.* £95 $\frac{1}{4}$ .

4. A person has £7800 India stock, paying 5%. He sells out at 125 and re-invests the money in  $4\frac{1}{2}$  R. R. stock at 97 $\frac{1}{2}$ ; find the increase in his income, brokerage at  $\frac{1}{4}\%$  being charged on each transaction. *Ans.* £9. 12s.

5. At what price should I buy 5 per cent. R. R. debentures in order that I may get 4% for my money, brokerage being  $\frac{1}{4}$  per cent.? *Ans.* £124 $\frac{1}{4}$ .

6. If £7334, 19s. 9d. be invested in 5 per cents. at 102 $\frac{1}{2}$ , what income will be obtained? *Ans.* £356. 10s.

7. At what price must I purchase  $4\frac{1}{2}$  per cent. stock so as to gain 5 $\frac{1}{2}$  per cent on my money? *Ans.* £85 $\frac{1}{2}$ .

8. The capital of a R. R. Company is £5,000,000; the gross earnings are £500,000 and the expenses are 55 per cent. of the earnings. What dividend per cent. can the Company pay on the capital? *Ans.*  $4\frac{1}{2}\%$ .

9. What income will be derived from investing £894, 12s. 6d. in the  $3\frac{1}{2}$  per cents. at 105 $\frac{1}{4}$ ? *Ans.* £27, 12s. 6d.

10. How much money should be invested in the 3 per cents. at 97 $\frac{1}{2}$ , to produce the same income as £2394 in R. R. stock at 126 paying a dividend of 4%. *Ans.* £2470.

11. How much stock must a man sell out of the 3 per cents. at 97 $\frac{1}{2}$  to buy £4500 worth of R. R. stock at 129 $\frac{1}{2}$ , a brokerage of  $\frac{1}{4}\%$  being charged on each transaction? *Ans.* £6000.

12. A broker invests a certain sum in the 3 per cents. at 97 $\frac{1}{2}$  and afterwards sells out at 98 $\frac{1}{2}$ , gaining thereby £27: what sum did he invest? *Ans.* £2343.

CLASSICS.

G. H. ROBINSON, M.A., TORONTO, EDITOR.

EXCERPTS FROM "LATINE."

FABELLA

FILIARUM MINIMA EST PSYCHE ET FORMOSISSIMA.

1. Quot filiae reginae sunt?
2. Quae filia minima filiarum est?
3. Estne Psyche longissima filiarum?
4. Quae est brevisissima filiarum?
5. Quae est filia minima reginae?
6. Estne Psyche formosissima filiarum?
7. Suntne tres puellae aequae formosae?
8. Nonne minima puellarum est formosissima?

Complete the incomplete words:

1. Minima regin—filiarum est formosissima?
2. Harum fili—minima est Psyche.  
*Scribe Latine:*
  1. The queen's daughters are beautiful.
  2. The smallest of the daughters of the queen is the most beautiful.
  3. The tallest of the queen's daughters is not the most beautiful.
  4. Is the queen the most beautiful of queens?

FORMOSISSIMA IN TERRIS EST.

1. Quae est formosissima in terris?
2. Suntne puellae in terra America?
3. Suntne puellae in terra Europa?
4. Nonne multae puellae in his terris sunt?

5. Quot terrae sunt? (in charta geographica).

6. Nonne multae puellae in terris sunt?

7. Suntne insulae in chartis?

8. Quot puellae in insulis sunt?

9. Suntne peninsulae in chartis?

10. Quot puellae sunt in penisulis?

*Complete the incomplete words:*

1. Puellas in sell—video.

2. Virg—in palm—unt.

3. Minimae puellarum in vi—non sunt.

4. Hae puell—in sell—unt.

*Scribe Latine:*

1. He sees the most beautiful girl in many lands.

2. The smallest of the daughters is the most beautiful in the peninsulas.

3. There are many lines in my palms.

*Grammatica:*

habeo = I have.

habes = you have.

habet =  $\left. \begin{array}{l} \textit{he} \\ \textit{she} \\ \textit{it} \end{array} \right\}$  has.

terra = land (subject).

terrae =  $\left. \begin{array}{l} \textit{of} \\ \textit{to} \\ \textit{for} \end{array} \right\}$  land.

terram = land (object).

in terra = in a land.

#### CAPELLA.

Capella, stans in tecto domus, lupum vidit praetereuntem, et ludificavit. Sed lupus, "Non tu," inquit, "sed locus tuus, me ludificat."

Ubi sto?

*In tabulato.*

Num stas (tu) in tecto?

Num (ille) stat in tecto?

Nonne capella stabat in tecto domus?

Quot capellae stabant in tecto?

Num tres capellae stabant?

Num stabam in tecto?

Num stabas in tecto?

Nonne capella stans in tecto domus lupum vidit?

Nonne me vides?

*Te video.*

Quomodo me vides?

Num capella me vidit?

Quot capellas vides?

Num vides duas capellas?

Num video unam capellam?

Nonne capella lupum vidit?

Quem capella vidit?

Videsne lupum?

Prætereo. Nonne me vides prætereuntem?

Nonne capella lupum vidit prætereuntem?

Quis præteribat?

Nonne lupus præteribat?

Nonne lupus præteriens capellam vidit?

Nonne lupus capellam vidit stantem in tecto?

Nonne lupus præteriens capellam vidit stantem in tecto?

Quæ ludificavit?

Quem ludificavit?

Quæ stans in tecto domus lupum ludificavit prætereuntem?

Intelligisne? (Georgi).

Te ludifico quod non intelligis.

Nonne lupus capellam vidit ludificantem?

Quid lupus inquit?

Quid lupum ludificavit?

Nonne locus capellæ erat in tecto?

Quo in loco stabat capella?

Nonne locus capellæ lupum ludificavit?

*Scribe latine: Kid was standing. Wolf was passing. Kid saw wolf. Wolf saw kid. Kid mocked wolf. Kid's place mocks wolf. You mock me. I mock you.*

## MODERN LANGUAGES.

JOHN SEATH, B.A., ST. CATHARINES, EDITOR.

NOTE.—The Editor of this Department will feel obliged if teachers and others send him a statement of such difficulties in English History, or Moderns, as they may wish to see discussed. He will also be glad to receive Examination Papers in the work of the current year.

### FRENCH.

CORRECTIONS OF SENTENCES PUBLISHED IN JANUARY NUMBER.

1. Il y a *quelque* vingt ans . . .
2. . . . que l'église entière ne s'éroule.
3. . . . l'âme que Dieu a lentement *ap-pauvrie* . . . Es-tu assez *malheureuse*!
4. . . . elle est *partie* . . .

5. . . . dont les a *pourvus* . . .  
 6. Il y a quelques années, elle publia, sous la signature de *Graviella*, des écrits qui dénotaient . . .

7. . . . Il fait les *rois* et les *défait*; il transforme en monarchies les républiques qu'il a formées.

8. . . . Dieu veuille qu'elle se *le* rappelle toujours!

9. Tous les jours, on se convainc . . .

10. Plus tard, le castillan, d'un côté, et le portugais, de l'autre, finirent par l'emporter en conservant néanmoins les nuances que leur avaient imprimées les autres dialectes.

11. Friedland coûte aux Russes 17,000 morts ou blessés . . . Mais la France paye trop *cher* cette victoire.

12. Quelle influence ont exercée . . .

13. *Avant* de lire cette adresse . . .

14. Un magnifique pain *bénit* . . .

15. A mesure que ces articles se sont succédés . . .

16. . . . les *premières* amours . . .

17. Immédiatement après qu'elle *eut* reçu le sacrement des mourants, elle s'est *entre-*tenu . . .

18. . . . après *quoi* elle fit un signe pour qu'on lui *donnât* son crucifix.

19. . . . déjà, elle avait *reçu* les derniers sacrements.

20. Le Kremlin . . . est *entouré* . . .

—J. O. G. in *Journal de L'Instruction Publique*.

## LONDON UNIVERSITY MATRICULATION EXAMINATION.

[SELECTED.]

I. Translate into English:

[Only One of the following Passages is to be translated.]

A. *La Vanité.*

On a dit: La vanité est une passion avare qui ne laisse rien traîner, et ramasse même dans les ordures. Il est curieux de suivre dans la conversation par quels détours on arrive à faire perpétuellement son éloge. Pendant un été que je passai à la campagne quelques amis, nous fîmes cette obser-

vation les uns sur les autres, et nous imaginâmes de constater chaque tentative de ce genre par deux coups frappés sur la table avec le doigt replié. Quelque adroite que fût la dissimulation, quelque déguisé que fût l'éloge, les esprits rendus attentifs par ce jeu ne s'y laissaient plus prendre, et l'inflexible *toc-toc* avertissait l'orateur qu'il était dévoilé, quelquefois même lorsqu'il était lui-même dupe, et ne s'apercevait pas de l'arrière-pensée qui dictait ses paroles. Les phrases les plus insignifiantes en apparence ne sont pas exemptes de vanité. Demandez le matin à vos hôtes comment ils ont passé la nuit, personne ne vous répondra qu'il a dormi comme de coutume, "comme dort tout le monde;" qu'il a un peu rêvé, qu'il s'est une ou deux fois réveillé et rendormi. Personne ne veut être "comme tout le monde"; l'un n'a pas fermé l'œil; l'autre a dormi tout d'un somme; celui-ci a fait des rêves épouvantables. Le premier joue le poète élégiaque ou l'homme que ses profondes méditations empêchent de dormir; le second veut se vanter d'une santé robuste; le troisième a tant d'imagination! Essayez du *toc-toc*, entre amis intimes, et je vous promets une série d'observations amusantes.—ALPHONSE KARR.

B. *La Suisse.*

L'histoire de la Suisse est honorée d'actions héroïques qui ne le cèdent en rien aux plus hauts faits de la Grèce et de Rome. Quelle légende plus fière, plus patriotique, plus humaine en même temps, que, celle de Guillaume Tell, le sauveur des enfants, la tueur des tyrans, le libérateur du peuple? Quel plus noble exemple proposé à l'admiration, à l'imitation d'un peuple libre? Quelle glorification plus décisive de l'initiative individuelle qui, à certaines heures, sauve une nation? Les guerres médiques n'ont pas vu de plus grands miracles que celles qui ont fondé l'indépendance de la Suisse. Sempach et Morgarten, Granson et Morat, valent Marathon et Platée; et le sacrifice volontaire, la mort triomphante des Suisses à Saint Jacques ne reste pas au-dessous de l'héroïsme des Spartiates aux Thermopyles. S'il leur manque quelque chose pour passionner les âmes au même degré, c'est uniquement,

comme le dit Sismondi de ses républiques italiennes, "ce vernis d'antiquité qui fait que nous respectons, à Athènes et à Sparte, la grandeur de l'homme dans de petits peuples." Un autre trait qui rapproche ces républiques de pères et de paysans des glorieuses républiques de l'antiquité, et qui est tout à fait étranger aux pays monarchiques, c'est le souvenir pieux et vraiment populaire qu'elles conservent à leurs grands hommes. Tandis qu'ailleurs une sainte nationale, Jeanne d'Arc, est à peine connue hors du monde lettré, tous les enfants de la libre Suisse connaissent le nom et les services de leurs libérateurs.—  
VICTOR CHAUFFOUR.

## II. Grammatical Questions.

### A.

[The questions in this Section form an essential part of the examination.]

1. Give the participle present and participle past of each of the following verbs, which occur in the foregoing passages:—*Suivre, faire, rendre, prendre, avertir, s'apercevoir, répondre, vouloir, empêcher, promettre, connaître.*

Give the future second person singular of *suivre, faire, avertir, s'apercevoir, vouloir, promettre, voir*: and the present subjunctive second person singular and plural of *être, laisser, faire, replier, pendre, dormir, réveiller, vouloir, essayer, céder, valoir.*

2. Give the feminine forms of *curieux, quels, quelques amis, attentifs, lui-même*. Give also the feminine forms corresponding to *malin, blanc, aigu, long, faux, frais, âne, traître*:—*majuer, auteur, libérateur, empereur, sauteur, pêcheur, sauveur.*

3. Put in the plural: "*une passion avare*"; "*cette observation*"; "*quelque déguisé que fût l'éloge*"; "*il était lui-même dupe*"; "*l'arrière-pensée qui dictait*"; "*il s'est réveillé et rendormi*"; "*un autre trait.*"

Give also the plural forms of *os, gaz, herminette, genou, cheveu, bleu, bal, balle, baïl, heureux, zif, fou, fatal, arc-en-ciel, chou-*

*fleur, timbre-poste, monsieur, madame, made moiselle, un on-dit.*

### B.

[Not more than Two Questions are to be answered in this Section.]

1. Give the respective genders of *tentative, arrière-pensée, parole, phrase, apparence, coutume, ail, rêve, imagination, quelque chose, âme, antiquité.*

State also according to what rule or rules *vanité, passion, observation, nuit, terreur, Suisse, mort*, are feminine; and *été, genre, doigt, jeu, monde, somme, exemple, miracle, sacrifice, souveur*, are masculine.

2. Form Interrogative sentences with the following:—"La vanité est une passion"; "Les esprits ne s'y laissaient plus prendre"; "Les phrases les plus insignifiantes ne sont pas exemptes de vanité"; "Personne ne veut être"; "Le troisième a tant d'imagination"; "Je vous promets une série."

3. Write in full in French: 27th June 1871; £225; £300; £3000; £80; £92.

4. What is the meaning of "whose" in the following sentences:—"The man whose wisdom we admire";—"Whose dictionary is this?" (meaning the owner);—"Whose dictionary is this?" (meaning the author). Render these sentences into French.

5. Show by examples the difference which exists between the homonyms *chaud, chaux*;—*cor, corps*;—*champ, chant*;—*tant, temps, tend, tan*;—*sol, seau, seau, saut.*

III. Correct and translate any three (and not more than three) of the following sentences:—

L'art et les soins ajoutent à notre jours.—On héritent du crime en recueillant son fruits.—Quelque soient les opinions qui nous trouble dans la société, elles se dissipent toujours dans la solitude.—Le peuple entrent en fureur quand ils eurent appris quels discours avait tenu Coriolan.—Quel sont les lieux, les temps, les images chéri, où se plaisent le mieux ses doux rêveries.

NATURAL SCIENCE.

H. B. SPOTTON, M.A., BARRIE, EDITOR.

EDUCATION DEPARTMENT, ONT.

JULY EXAMINATIONS, 1883.

FIRST-CLASS TEACHERS—GRADE C.

*Chemistry Paper, with answers*

NOTE.—The answers are appended to the following questions rather to suggest a desirable form of answering than to convey information which, of course, any student interested in the subject could readily obtain for himself. The writer's experience tends to show that unless students are specially trained in the manner of answering, they will waste valuable time at examinations, inserting quantities of irrelevant matter and developing slovenly habits generally, to the just vexation of the examiners and the irrevocable loss of marks to the candidate.

1. Explain the full meaning of the following, merely as chemical symbols:—O, OH<sub>2</sub>, 3Na<sub>2</sub>CO<sub>3</sub>.

1. O stands for one atom of oxygen. The weight represented by the symbol is always 16 units, that of the hydrogen atom being 1. OH<sub>2</sub> stands for one molecule of water, the molecule consisting of 1 atom of oxygen and 2 atoms of hydrogen. The symbol also indicates that 16 parts by weight of oxygen are combined with 2 parts by weight of hydrogen to form the molecule. 3Na<sub>2</sub>CO<sub>3</sub> stands for 3 molecules of sodic carbonate, each molecule consisting of 2 atoms (46 parts by weight) of sodium; 1 atom (12 parts by weight) of carbon, and 3 atoms (48 parts by weight) of oxygen.

2. The chemical constitution of a gas being known, how can you calculate its specific weight?

Apply your method to find sp. wt. of the gases whose compositions are—CO<sub>2</sub>, NH<sub>3</sub>, C<sub>2</sub>H<sub>10</sub>O.

Can you mention any gases which form an apparent exception to the general rule?

2. By Avogadro's law, equal volumes of gases (under the same conditions) contain the same number of molecules. Therefore the weights of equal volumes are proportional to the weights of the molecules of the respective gases. The hydrogen molecule contains 2 atoms, and consequently 2 units of weight; so that if the chemical constitution of any other gas is known its sp. wt. can be obtained by dividing its molecular weight by 2.

CO<sub>2</sub> — molecular wt., 44; sp. wt., 22.  
 NH<sub>3</sub> — " 17; " 8.5.  
 C<sub>2</sub>H<sub>10</sub>O — " 74; " 37.

Common exceptions to the working of this principle are furnished by the vapour of sulphuric acid (H<sub>2</sub>SO<sub>4</sub>) and of ammonium chloride (NH<sub>4</sub>Cl), the sp. wts. obtained being only about one-half of what we should expect. Nitrogen dioxide and tetroxide are also apparently anomalous.

3. The ultimate analysis of a substance composed of carbon, hydrogen, and oxygen, gives in one hundred parts—carbon, 40; hydrogen, 6.6; oxygen, 53.4, by weight, and the specific weight of its vapour is 30. Determine the formula of the substance.

3. Dividing each percentage by the atomic wt. of the corresponding element, we obtain the relative number of atoms of each in the compound:

$$C - \frac{40}{12} = 3.3$$

$$H - \frac{6.6}{1} = 6.6$$

$$O - \frac{53.4}{16} = 3.3$$

The simplest formula of the substance, therefore, is CH<sub>2</sub>O; but as its sp. wt. is 30, its molecular weight must be 60. Therefore the true formula is C<sub>2</sub>H<sub>4</sub>O<sub>2</sub>.

4. Describe the usual methods of obtaining the following substances, and in all cases

illustrate by symbols any chemical changes taking place: (a) Hydrogen, (b) nitrogen monoxide, (c) chlorine, (d) sulphur dioxide, (e) sodic carbonate, (f) "quick" lime, (g) magnesian sulphate, (h) ferric chloride.

4. (a) Hydrogen is usually obtained by displacing the gas from sulphuric acid by means of zinc, thus:  $\text{H}_2\text{SO}_4 + \text{Zn} = \text{ZnSO}_4 + \text{H}_2$ .

(b) Nitrogen monoxide is obtained by heating ammonium nitrate:  $-\text{NH}_4\text{NO}_3 = \text{N}_2\text{O} + 2\text{H}_2\text{O}$ .

(c) Chlorine is obtained by heating together a mixture of sodium chloride, manganese dioxide and sulphuric acid:  $-\text{MnO}_2 + 2\text{NaCl} + 3\text{H}_2\text{SO}_4 = \text{MnSO}_4 + 2\text{HNaSO}_4 + 2\text{H}_2\text{O} + \text{Cl}_2$ ; or by heating together hydrochloric acid and manganese dioxide:  $-\text{MnO}_2 + 4\text{HCl} = \text{MnCl}_2 + 2\text{H}_2\text{O} + \text{Cl}_2$ .

(d) Sulphur dioxide is given off when sulphuric acid is heated with copper:  $-2\text{H}_2\text{SO}_4 + \text{Cu} = \text{CuSO}_4 + 2\text{H}_2\text{O} + \text{SO}_2$ .

(e) Sodium carbonate is obtained by heating sodium sulphate along with excess of chalk and powdered coal in a reverberatory furnace. There are two stages in the process, in the first of which the sulphate is converted into sulphide:  $-\text{Na}_2\text{SO}_4 + 4\text{C} = \text{Na}_2\text{S} + 4\text{CO}$ . In the second stage the sulphide is converted into carbonate:  $-\text{Na}_2\text{S} + \text{CaCO}_3 = \text{Na}_2\text{CO}_3 + \text{CaS}$ . The carbonate is separated out of the resulting mixture by treating with water. If the solution be evaporated, and the residue be calcined and again dissolved, the crystallized carbonate will be obtained on slowly cooling the solution.

(f) Quicklime is obtained by heating limestone (calcium carbonate) in a proper kiln:  $-\text{CaCO}_3 = \text{CaO} + \text{CO}_2$ .

(g) Magnesian sulphate is prepared by treating dolomite (magnesian calcic carbonate) with sulphuric acid; thus (omitting the calcic carbonate):  $-\text{MgCO}_3 + \text{H}_2\text{SO}_4 = \text{MgSO}_4 + \text{H}_2\text{O} + \text{CO}_2$ . The crystals have the formula  $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ .

(h) Ferric chloride is obtained by treating iron sesquioxide with hydrochloric acid:  $-\text{Fe}_2\text{O}_3 + 6\text{HCl} = \text{Fe}_2\text{Cl}_6 + 3\text{H}_2\text{O}$ ; or by passing chlorine over red-hot iron, when direct combination takes place.

5. Describe and explain any phenomena observable, when—

(a) Copper is put into strong nitric acid;

(b) Water is mixed with strong commercial sulphuric acid;

(c) The breath is passed for some time through lime-water, and then carbon dioxide is passed through it in excess.

(d) A few drops of sulphuric acid is added to a solution of sodic thiosulphate.

(e) Ferrous sulphate is strongly heated in the air.

(f) A drop of a solution of potassic permanganate is added to water containing organic matter.

5. (a) Dense brown fumes are produced if the nitric oxide which is formed is admitted to contact with the air; this is due to the combination of NO with oxygen. The liquid, also, becomes green, owing to the formation of copper nitrate.

(b) Great heat is developed and a shrinkage in volume is observed, both phenomena being due to the chemical combination of the acid and the water.

(c) First, the lime-water becomes turbid owing to the production of calcium carbonate, the  $\text{CO}_2$  exhaled from the lungs combining with the CaO in the water. Secondly, the water becomes clear again, owing to the solution of the  $\text{CaCO}_3$  in the carbonic acid.

(d) Sodium sulphate and thiosulphuric acid are formed, the latter immediately decomposing into sulphurous acid and sulphur.

(e) White acid fumes are given off, which condense in oily drops. The sulphate is converted into ferric oxide, sulphur trioxide and sulphur dioxide.

(f) The permanganate gives up a portion of its oxygen to the organic matter and loses its characteristic colour.

6. What is the chemical difference in the bleaching effected by chlorine and that by sulphur dioxide?

Dry chlorine will not bleach. Why?

6. The bleaching effected by chlorine is due to the oxidation of the colouring matter; that effected by sulphur dioxide is a deoxidizing or reducing process. In the former case

oxygen is the bleacher : in the latter, hydrogen.

The goods to be bleached by chlorine must be wet in order that the gas, by combining with the H of the water, may liberate O, to the unusual activity of which, in its nascent condition, the bleaching is due.

7. Name the essential constituents of the atmosphere, and give, as far as you can, their particular uses in the economy of nature.

7. The essential constituents of atmospheric air may be said to be oxygen, nitrogen, carbon dioxide, aqueous vapour and ammonia. Oxygen is the great supporter of combustion ; without it animal life as at

present constituted would be impossible. The principal use of the nitrogen appears to be to dilute the oxygen. From the carbon dioxide in the air, plants obtain the carbon necessary for their growth ; and from the ammonia they obtain nitrogen.

The aqueous vapour plays an important part ; we experience discomfort when there is either a deficiency or an excess of it. It may serve also as a distributor of heat, the heat rendered latent during the excessive production of vapour in the tropics becoming sensible when this vapour is again condensed elsewhere. To this condensation is also, of course, due the supply of fresh water all over the globe.

## SCHOOL WORK.

DAVID BOYLE, ELORA, EDITOR.

EDUCATION DÉPARTMENT, ONT.

JANUARY EXAMINATION, 1884.

*Second Class Professional Examination.*

NORMAL SCHOOLS.

ARITHMETIC—METHODS.

NOTE.—This paper will be valued at 120 per cent.

1. Shew how you would teach the numbers from 5 to 10, using "number-pictures." How would you proceed when the combinations from 1 to 20 have been mastered ?

2. Shew how you would explain the reason of the rule for placing the partial products in long multiplication.

3. Give a lesson on finding the G.C.M. of numbers that can be factored.

4. Shew how to teach, by analysis, the "cases" of "Profit and Loss."

5. Give a lesson

(1) Developing the idea of a fraction.

(2) On the notation of fractions (vulgar).

6. You find that pupils misapprehend the "rule for finding the area of a rectangle"—

regarding the multiplicand, or multiplier, or both, as so many units *long* or *wide*. Indicate the teaching by which you would convince them of the error.

PHYSICS—METHODS.

1. Define force. What is meant by the *conservation* and what by the *correlation* of forces ?

2. Draw a diagram of the common pump, and give a lesson on this machine.

3. Describe fully how you would teach that heat is a *mode of motion*.

4. Your school-room is heated by a common stove. Show how you would ventilate it at the least possible cost, explaining fully the scientific principles involved.

5. Explain the *rationale* of the following :—

(1) Water placed on a stove in a room.

(2) A wet towel wrapped round a vessel containing water keeps it cool.

(3) If you sit near an open window you will probably catch cold.

ALGEBRA—METHODS.

1. Shew how you would impart clear ideas of a co-efficient. What arithmetical example

would you give to illustrate the following :—  
 $5a + 4a = 9a$ ?

2. Shew, as you would to a class, how to deduce the rule for factoring expressions of the form  $x^4 + 4y^4$ ;  $x^4 + 2x^2y^2 + 9y^4$ .

3. How would you develop the idea of the symmetry of an expression with respect to two or three letters?

4. Clearly illustrate the principle which enables you to shew (without actual division) that  $ax^3 - (a^2 + b) + b^2$  is exactly divisible by  $ax + b$ .

5. Shew how you would teach the distinction between an "Equation" and an "Identity."

6. Do the following in such a way as to show the advantage of taking fractions in "groups":—

(1) Reduce to simplest form

$$\frac{1+y}{1-y} + \frac{4x}{1+x^2} + \frac{8x}{1+x^4} - \frac{1-x}{1+x}$$

(2) Solve the equation

$$\frac{1}{x-a} + \frac{1}{x-b} = \frac{a+b}{ab}$$

JULIUS CÆSAR.

1. "The general cast of character in Shakspeare's females is tenderness and pathos."—*A. Mills*.

Discuss this statement with reference to the female characters in the play of Julius Cæsar.

2. "They would not have you to stir forth to-day."

Recount the arguments brought to bear on Cæsar in connection with this going "forth." What trait of character is disclosed by his yielding?

3. Explain the meaning of the following passages, and assign each to its speaker :—

(a) "Alas, my lord,  
Your wisdom is consumed in confidence."

(b) "The things that threaten me  
Ne'er load but on my back."

(c) "What touches us ourself shall be last served."

(d) "To you our swords have leaden points, Mark Antony."

(e) "This day I breathed first."

(f) "I know that we shall have him well to friend."

(g) "You yourself  
Are much condemned to have an  
itching palm."

(h) "Cowards die many times before their deaths."

(i) "I have a man's mind, but a woman's might."

(k) "Ambition's debt is paid."

PRACTICAL ENGLISH.

1. Indicate the quantity, or sound, of the accented syllable in each of the following words :—Dolorous, abdomen, apparatus, obverse, Genoa, telegraphy, museum, irremediable, sovereign, sonorous.

2. Distinguish—

(a) "A fool," says Solomon, "despises wisdom."

A fool says, "Solomon despises wisdom."

(b) Fetch the book.

Bring the book.

(c) He gave an answer.

He made a reply.

(d) A man of good reputation.

A man of good character.

(e) I saw my brother George only.

Only I saw my brother George.

3. Correct the following :—

(a) He did not cry out as some have done against it.

(b) He aint a good reader for he dont mind his stops.

(c) In the sister island, indeed, we have read of such horrors, but now they are brought home to us.

(d) If I am not mistaken, you are in the wrong.

(e) He rushed pell-mell down the stairs.

4. Write the following sentences, substituting equivalents for the italicised words :—

(a) The *assembly took place* in the *suburbs*.

(b) The two men are *mutually dependent*.

(c) *Not many* people *were present*.

(d) The *report* has spread but is not *credited*.

CHEMISTRY—METHODS.

1. A molecule of water is composed of two atoms of Hydrogen and one atom of Oxygen.

Shew clearly how you would arrive at a knowledge of this fact.

2. How would you teach the characteristic properties of acids, alkalies, and bases?

3. You have three bottles - one containing nitric acid, one containing sulphuric acid, and one containing hydrochloric acid. By what experiments would you identify each acid?

4. Write notes of a lesson on the preparation and properties of carbon dioxide.

5. Give, as fully as you can, a lesson on hard water.

READING.

1. Answer the following questions on the Phonic Method of teaching to read: -

(1) What method is adopted in selecting the letters for the words of a lesson?

(2) How are the sounds of the letters taught? Give a brief illustration.

(3) How would you drill a class by comparison, contrast and building of words?

2. Spell the following words phonically, and use diacritical marks:—Have, above, heaven, dread, beauty, people, approve, tongue, catalogue, laughed, sought, island, schisms.

3. How would you teach the proper uses of inflection and modulation without reference to rules?

4. Give the principle for rhetorical pauses, based on the analysis of the sentence, and state when the grammatical relations would not sanction such pauses.

"O, pardon me, thou bleeding piece of earth,  
That I am meek and gentle with these  
butchers!

Thou art the ruins of the noblest man  
That ever lived in the tide of times.

Woe to the hand that shed this costly  
blood!

Over thy wounds now do I prophecy,—  
Which, like dumb mouths, do ope their  
ruby lips,

To beg the voice and utterance of my  
tongue,—

A curse shall light upon the limbs of men;  
Domestic fury, and fierce civil strife,

Shall cumber all the parts of Italy;  
Blood and destruction shall be so in use,

And dreadful objects so familiar,  
That mothers shall but smile when they  
behold

Their infants quartered with the hands of  
war;

And pity chok'd with custom of fell deeds;  
And Caesar's spirit, ranging for revenge,

With Ate by his side, come hot from hell,  
Shall in these confines, with a monarch's  
voice,

Cry *Havoc!* and let slip the dogs of war;  
That his foul deed shall smell above the  
earth

With carrion men, groaning for burial."

(1) Briefly indicate the predominant feeling with which the above should be given.

(2) What expression would you give to "butchers," and to the parenthetical clause, lines 7 and 8, and how would you vocally combine lines 6 and 9?

(3) What feeling and vocal expression should distinguish lines 17-22?

(4) Mark the inflections on "butchers," l. 3; "blood," l. 5; "revenge," l. 17; "hell," l. 18; and "Havoc," l. 20.

(5) Mark the one emphatic word in each of the lines 5, 9, 14, 19.

MUSIC.

1. Write the scales of E major and B flat major, on the staff, with proper key signatures.

2. How would you keep the attention of very young children while exercising a class on the sounds of the scale?

3. Write four measures of the melody of any song which you have learned; write also the corresponding letter, number, and syllable to each note.

4. What do the terms *legato* and *staccato* mean?

5. Supply bars and time signature to the following exercise:—

6. Transpose the preceding exercise to the key of A major.

SCIENCE OF EDUCATION.

1. Distinguish between *sensation* and *perception*. What are "acquired" perceptions?

2. Briefly discuss the question "What is in the Mind"?

3. "Whatever *Consciousness* may be, there are three characteristics attributed to it by common consent."

State the characteristics referred to.

4. Mention any of the "Secondary" laws of association.

5. "Mind starts from discrimination." Briefly explain this, giving illustrations.

Mention some of the conditions necessary to effective mental action.

6. Give the substance of Bain's remarks on Emulation, Prizes, Place-taking.

7. "A third aspect of the Object Lesson has reference to the acquisition of Language."

Give, as far as you can, Bain's remarks on this "Aspect."

#### HYGIENE.

1. "The erect position, then, which we assume so easily, and without thinking about it, is the result of the combined action of muscles." Explain this statement.

2. How are veins distinguished from arteries, with regard to (a) structure, (b) action, (c) the character of the blood?

3. State briefly the evil effects that arise from a lack of ventilation in crowded rooms.

4. "While very soft water cannot be stored for a lengthened period, with impunity, in leaden vessels, the danger of the storage of hard water, under the same circumstances, is in most cases much greater." (a) Explain as fully as you can. (b) How can you distinguish soft water from hard?

5. Write a note on under-clothing, stating, with reasons, the advantages or disadvantages of wearing, next the skin, (a) linen, (b) cotton, or (c) woollen fabrics.

#### GRAMMAR—METHODS.

1. In introducing a class of young pupils to the study of grammar, which would you present first, the noun or the verb? Give reasons.

2. How would you teach the qualifying relation of (a) an adjective, (b) a propositional phrase, (c) an adjectival clause?

3. Spring comes. The snow disappears. The earth grows warm. The flowers bloom. Combine these four propositions to form a complex sentence, and explain the process as to a class.

4. Explain your mode of teaching the

distinction between the use of *shall* and *will*, in (a) declarative sentences, (b) interrogative sentences.

5. Give notes of a lesson on conjunctions. N.B.—Four questions, of which 3 *must* be one, will be considered a full paper.

#### MENTAL ARITHMETIC.

1. Write down the product of 398745 by 19.

2. An army lost 10 per cent. of its numbers in its first battle, and 10 per cent. of the remainder in the second battle, and had 16,200 men left. How many in the army at first?

3. A person invests a sum of money in the 5 per cents. at 85, and an equal sum in the 6 per cents. at 96: the income received from the latter investment was \$80 more than that from the former. How much did he invest in each kind of stock?

4. The amount of a sum of money at simple interest for three years and three months was \$982, and for three years and six months the amount was \$996. Find the principal and the rate per cent.

5. A commission merchant sold flour at a commission of 3 per cent. on the amount received, and invested in tea at a commission of 2 per cent. on the amount paid for the tea—deducting his commission for both transactions from the amount received for the flour. His entire commission being \$200, find the amount invested in tea.

6. Sold goods at a *profit* of 12½ per cent.; had their actual cost been \$20.18 greater, the same selling price would have resulted in a *loss* of 12½ per cent. Find the actual cost of the goods.

7. B. rowed a two-mile race with A. and was beaten; had his speed throughout been one-fifth greater, he would have won the race by 22 yards. Find the ratio of their rates of running.

#### DRAWING.

1. Describe a broken line, and illustrate the same.

2. What is an indicated line and its use?

3. Give the plan for drawing the Maltese Cross.

4. Show the difference between a horizontal abstract curve, and a perpendicular curve.
5. What is requisite to draw an object correctly?
6. What do light and shadow give to an object?
7. Define light and shade. Illustrate the same by a design.
8. Draw a cone, base being above the line of sight.
9. How does colour effect light and shade?
10. Explain and illustrate what is meant by reflex of light.

#### VOYURLE TEACHING.

No reform in our school-life has been more fruitful of good results than the change from "nearing lessons" to genuine oral instruction. But every forward movement in education is dogged by a group of caricatures, exaggerations, and imitations, which threaten to overwhelm it, and often do postpone its true influence. Among these caricatures of oral instruction none is more mischievous than the habit of inordinate talking by the teacher, who confounds it with an interminable pouring forth of useful information by word of mouth.

We call this the most dangerous abuse, because the most common. An untrained teacher is not easily routed from the notion that instruction consists in pouring the contents of a book into the mind of a child. If forbidden this use of the book, a teacher of this description naturally falls back upon the next position, which is to fill her own mind with the contents of the volume, and and retail it in speech for the benefit of her class. Of course this is not oral teaching in any fair sense of the term. It is rather the worst form of book-teaching. It is to be supposed that the author of a good text-book will condense, arrange, and study a suitable method of presenting the matter he desires to impart. But an untrained teacher will surely not improve on this presentation, but will so dilute her author's statement in her dispensation as to rob it of its chief value and increase the difficulty of the scholar. Lowell, in his Fable for Critics, happily touched the

essential weakness of the "sacred poetry" of N. P. Willis when he characterized it a "inspiration and water." A great deal of the sort of teaching of which we write may be classified as information and twaddle,—the hazy, inconsequential, sometimes ungrammatical, flood of words that inundates the weary class, as effectually drowning the information imparted as a gallon of tepid water will strangle the most fragrant cup of tea.

This disease was well hit off by an afflicted little boy who came to his mother at the close of the first day of school with the plaint,— "O mother, I am tired to death; the new teacher talks so much with her mouth." Just that,—the interminable gabble that comes from no deeper place than the mouth or the shallows of a vacant mind, flooded with gossip and words,—is the curse of thousands of school-rooms. Perhaps this last stage of false teaching is worse than the first. It is possible that a child, by dint of storing the memory with the well-selected periods of a good text-book, may some time awake to a realizing sense of their contents and find himself possessed of valuable information. But we doubt if even the elastic mind of childhood is capable of wrestling with the flood of talk with which the devoted class is often deluged, with about the same probability of appropriating any valuable knowledge as a hungry boy compelled to receive his nourishment in the shape of liquid refreshment poured upon his head and trickling down his face.

We sat one day through a lesson in American History, given by a charming lady to a class of fifteen-years-old girls. The teacher was a perfect "flowing well" of historic lore; enthusiastic in her appreciation of the period with which she was dealing; inspired with a genuine desire to wake up a love for historical studies in her pupils, and fill them with patriotic zeal and pride in their American citizenship. But, alas for the poor children; the ruling passion for mellifluous and brilliant talk was the one ruling passion of the dear lady-teacher, which dwarfed even her love of her native land. So the inspiring topic became only the occa-

tion for opening the flood-gates of speech and pouring forth a forty-minutes lecture, well enough adapted for a lazy hour on a Newport piazza, or a reading-club, but fatal to the purpose in view as if the fire-department had been called out to drown the class-room in a flood. Not that the good lady intended to give a lecture, or supposed herself doing anything but conducting a recitation. At intervals a pupil was called up to answer a leading question or give an account of some event. Of course, if the pupil was a shirk, or had the least capability of being developed into one, she could easily "draw the fire" of the too-willing teacher, and stand the happy target of a fusillade of useful knowledge. The slow, thoughtful girl, who really had a valuable idea underneath her hesitancy of speech, found herself overridden, trampled, annihilated as effectually as the poor bewildered fox in Mr. Bennett's hunt. The result was that, in a recitation of forty minutes, probably ten were consumed by the answers of the pupils, few of these answers being accepted by their voluble mistress; while the half-hour was monopolized in a sort of *mélange* of lecture, conversation, and gossip, from which little could be gained beyond admiration for the wonderful powers of the speaker.

The *New York Herald*, a few years ago, for one day, tried the experiment of reporting the speeches in Congress exactly as they were spoken, with all their grammatical and rhetorical absurdities; but the rash act was never repeated. We have sometimes fancied the result, could every teacher be compelled, before sleeping, to read, *verbatim et literatim* everything spoken in the school-room during the day. We fancy this style of oral instruction would not survive many weeks of such exposure.

There is danger that this sort of teaching will greatly hinder the good results anticipated from our new educational methods. Every sensible mother knows how easily the kindergarten can become a mere "effluent pipe" for the discharge of a flood of baby-talk from a teacher of this sort. The object-lesson has become a nuisance in hundreds of schools where the young graduate from the Normal has simply recited her lesson from

her note-book, and told her children where to look and what to say. And there is great danger, especially in the classes in literature, history, philosophy, and kindred studies, that the pupil will be cheated of his right of individual acquisition, compelled to be one of an audience listening to a daily drizzle of talk, with occasional interruptions of a hurried answer during the pauses. And no class of teachers should guard more carefully against this fault than the brilliant graduates of colleges, placed in the school-room with no previous training in the art of instruction. To such a teacher, fresh from inspiration of senior-class studies, the slow gait of the average school-boy and the slight mental condition of the average school-girl is a positive torture. The habit of inordinate talk is thus formed as a refuge from what seems the stupidity of the pupil, or even from a conscientious desire to do something in the recitation-hour. But nowhere is self-restraint so needful, humility so precious, judicious silence so "golden," as in the presence of a class of children making their first essay at climbing the hill of knowledge. Here, as in the Christian life, it is only the wise teacher who "endureth unto the end" that "shall be saved."—*Boston Journal of Education*.

#### PROFESSIONAL EXAMINATION OF THE MODEL SCHOOL, COUNTY OF HASTINGS.

DECEMBER, 1883.

##### EDUCATION.

1. What are the characteristics of a good teacher? [5]
2. With what two objects should every lesson be given? and what is necessary on the part of the teacher so that he may successfully teach every lesson? [5]
3. You have a reading class of ten pupils in Second Book. Time at your disposal, twenty minutes. Lesson to be read for the first time. How would you occupy your time? [10]
4. What do you mean by a school well organized—(a) As to classification; (b) Discipline? [5]

5. In taking charge of a school you find the order and attention bad. How would you proceed to secure both? [5]

6. What are the points in regard to (a) premises and (b) pupils, which demand the teacher's daily inspection? [8]

7. How would you proceed in each of the following? - [8]

(a) Many of your pupils are frequently late.

(b) Some come irregularly.

(c) They have a bad style of reading.

(d) Some come with their lessons unprepared.

8. Would you keep scholars in at recess or after school hours for unprepared lessons? Give reasons. [5]

9. Show clearly and fully how you would teach each of the following subjects:— [49]

(a) The conjugation of the verb.

(b) The participle.

(c) Subtraction.

(d) Long Division

(e) Notation and numeration to 22.

(f) Division of decimals.

(g) Rivers of North America.

#### SCHOOL LAW.

1. Describe the duties of the school teacher regarding:

(a) The subjects to be taught in school.

(b) Public examinations.

(c) Maintenance of discipline in the school.

2. What is the law relating to:—

(a) Compulsory attendance at school?

(b) Holidays?

(c) Expulsion of a pupil from school?

(d) Suspension of a teacher's certificate?

3. What points are essential to the validity of an agreement between teachers and trustees?

4. What are the regulations respecting:—

(a) Attendance at teachers' meetings?

(b) Time-table?

(c) Visitors' book?

5. Give in detail that part of the course of study for Public Schools which refers to third and fourth classes.

6. Name, and describe, the reports which

have to be made, through the year, to the Inspector.

7. What is the law regarding the nomination and election of village and rural school trustees? Give the date for the annual school meeting.

8. Draft a notice, or advertisement, of the annual school meeting for S. S. No. 3, Mayo.

#### HYGIENE.

1. Describe the organs and the changes by which food is converted into blood.

2. Describe fully the organs employed, the processes undergone, and the results effected in the circulation of the blood.

3. Explain the structure and uses of the skin.

4. Notice the principal hygienical defects which appear to you to prevail in the structure, arrangements, and surroundings of rural school houses in this county.

5. Mention the ways in which the laws of health are most frequently broken or disregarded by teachers, and by pupils.

6. A school house is the most ill-constructed imaginable, its appearance and surroundings most uninviting, the trustees ably represent the indifference and penuriousness of the ratepayers: under such circumstances what can a conscientious teacher do to preserve his own and pupils' health, and to create and develop a respect for the laws of hygiene?

7. Criticize the structure of this Model School building from a hygienical point of view, taking up each of the class rooms separately, and pointing out its defects or advantages in reference to such points as heat, light, air, hearing, seats, furnishings, arrangement, etc.

#### COMPOSITION.

Write a composition (about 30 lines) on one of the following subjects:—

(a) The rural school-house of the present day; its general appearance, conveniences, or inconveniences, and surroundings.

(b) The uses and benefits of Teachers' Associations and Institutes.

(c) "Little way his learning reaches,  
Who learn, no more than what he teaches."

1 The following examples transgress no law of grammar, but are, nevertheless, faulty English: what changes would you suggest?

(a) He aggravates me by his impudence.

(b) The marriage was consummated on the first of April.

(c) A couple of ladies fell on the ice.

(d) The troops, though fighting bravely, were terribly decimated, and gave way.

(e) I expect you had a pretty hard time of it last term.

(f) The hay crop is one of the most abundant we have experienced in many years.

(g) Though in solitary confinement for life, he partook of his food with evident relish.

(h) More than a century was allowed to transpire before the Mississippi was revisited by civilized man.

#### GRAMMAR.

2. Explain the difference between gender and sex.

3. Explain the peculiar form of plural in the following words: *children, mice, strata, pence*. Do you regard the following as singulars or plurals: *riches, alms, heathen, news*? Give your reasons.

4. Examine the following extracts, and correct any errors you may discover, stating your reasons for any changes you deem advisable:

(a) Let's you and I go and see the lacrosse match.

(b) What this conjurer did was very different, in reality, to what the spectators imagined.

(c) Every human being has this faculty in common.

(d) He begun well, but misfortunes overwhelmed him.

(e) I had just laid down for a nap when the door bell rang.

(f) They don't like to study, and she don't like to compel them.

(g) She sat her pitcher down upon the ground.

(h) Every passenger must show their ticket.

(i) He set a hen on fourteen marble eggs, and there she still sits.

#### MENTAL ARITHMETIC.

1. By how much does the sum of  $\frac{1}{2}$  and  $\frac{1}{3}$  exceed  $\frac{1}{4}$ ?

2. By how much does the sum of  $\frac{1}{2}$  and  $\frac{1}{3}$  exceed  $\frac{1}{4}$ ?

3. Find H. C. F. of 121, 187, 165.

4. From what number can you take  $\frac{1}{2}$  of  $\frac{2}{3}$  of  $\frac{3}{4}$  of itself and have  $\frac{1}{4}$  of  $\frac{2}{3}$  of  $\frac{3}{4}$  of  $\frac{1}{2}$  of 18 left?

5. Find L. C. M. of 5, 7, 12, 30.

6. A man spent  $\frac{2}{3}$  of his money for clothing,  $\frac{1}{4}$  of what was left for food,  $\frac{1}{8}$  of what still remained for books, gave a dollar for charity, and had \$3 left. How much had he at first?

7. A man pays an income tax of  $3\frac{1}{2}$  per cent. and has \$1160 left: find his whole income.

8. In a certain school  $\frac{2}{3}$  of the pupils are in the first division,  $\frac{1}{3}$  of the remainder in the second, and 5 more in the third than in the second. Give the whole number of pupils.

9. A train running at the rate of 40 miles an hour takes 45 seconds to cross a bridge  $\frac{1}{4}$  mile long: how long is the train?

10. What number must be subtracted from 77 to make it exactly divisible by  $5\frac{1}{2}$ ?

#### RULES FOR TEACHING.

##### I. WITH REGARD TO THE PUPIL.

1. TEACH naturally.

2. Regulate your teaching by the natural grades in the development of the growing individual.

3. Begin teaching at the standpoint of the pupils; guide them from there onward, steadily and thoroughly without interruption.

4. Do not teach what is in itself nothing to the pupil when he has learned it, nor what will be nothing to him at some future time.

5. Teach intuitively.

6. Proceed from the near to the remote, from the simple to the complex, from the easy to the difficult, from the known to the unknown.

7. Follow in teaching the elementary method (inductive from particular to gen-

eral), not the family scientific method (deductive from general to particular).

8. Follow, above all, the psychological aim, or the psychological and practical at the same time. Rouse the pupil through the same topic presented from as many points as possible. Combine, especially, knowledge with ability, and exercise the knowledge until it is shaped by the underlying train of thought.

9. Teach nothing but what the pupils can comprehend.

10. Take care that the pupil retains all that he learns.

11. Do not simply train and polish; education and discipline are not for this, but to lay the general foundation on which to build the character of the individual, the citizen, nation.

12. Accustom the pupil to work, make it for him not only a pleasure, but a second nature.

13. Recognize the individuality of your pupil.

#### II.—WITH REGARD TO SUBJECT TAUGHT.

1. Apportion the matter of each subject taught from the standpoint of the pupils, and, as indicated above, according to the laws of his development.

2. Dwell especially on the elements.

3. In the establishing of derived principle, refer frequently to the fundamental ideas, and deduce the former from the latter.

4. Divide each step into definite steps and little wholes.

5. Point out at each step some part of the following, in order that the curiosity of the pupil may be excited without being satisfied; proceed so that no essential interruption shall arise.

6. Divide and arrange the subject-matter so that, where it is practicable in each succeeding step of the new, the foregoing may appear.

7. Connect those subjects which are especially related.

8. Go from the thing to the sign, and not the reverse.

9. Be guided in your selection of a method by the nature of the subject.

10. Arrange the subject taught, not according to a special scheme, but consider constantly all sides of it.

#### III.—WITH REGARD TO OUTSIDE CIRCUMSTANCES OF TIME, PLACE, ORDER, ETC.

1. Follow up subjects with your pupils successively, rather than together.

2. Take into consideration the probable future position in the life of your pupil.

3. Teach with reference to general culture.

#### IV.—WITH REGARD TO THE TEACHER.

1. Strive to make your teaching attractive and interesting.

2. Teach with energy.

3. Make the subject to be learned palatable to the pupils; and require, above all, a good utterance, sharp accent, clear statement, and thoughtful arrangement.

4. Do not stand still.

5. Rejoice in development or progress; first, for yourself; second, for your pupils.

—*N. E. Journal of Education.*

THE best work the teacher does for a child is to teach him how to learn for himself. The crusade against textbooks had its inspiration in the prevalent notion that children who learned from books would never learn for themselves; and now we have been taught, at great expense of experience, that one can teach objectively, and still not train pupils to study for themselves. We have learned that it is in the teacher and her inspiring and directing power, rather than in any theory, that the secret of such success lies. Study this art, and your reputation is secure. The teacher does well to remember that the school-life is only from six to twelve years interjected into a life that may be threescore and ten, and the schoolroom is not the end of existence, but merely the means to an end, and the teacher should so use it.

## CONTEMPORARY LITERATURE.

REPORT OF THE MINISTER OF EDUCATION (Ontario) FOR THE YEAR 1883, WITH THE STATISTICS OF 1882. Toronto: C. Blackett Robinson, 1884.

*First Notice.*

FOLLOWING our usual custom, we shall but briefly notice this important blue-book, and leave the full consideration of it to future issues, as we have reason to know that the thorough analysis of late Reports given in THE MONTHLY have been of practical value, and very acceptable to our readers.

The present volume contains: Part I., Statistics of Public, Separate, and High Schools for the Year 1882; Part II., Education Department, 1882; Part III., University College and School of Practical Science; Part IV., Technical Education, and Mechanics' Institutes.

We remark, in passing, that the extracts from Reports of Public School Inspectors are very limited, only six counties being represented. Twenty pages are devoted to the Reports of Messrs. McLellan, Hodgson, and White. In reading the Reports of these gentlemen we are forced to the conclusion that our school system is unsatisfactory, and the results of all the teaching, and inspection, and examination, discouraging. Mr. White reports that he was unable to overtake his work; that a second inspector is urgently required; that one set of books, and that the best, is absolutely necessary; that too often the school houses are unsatisfactory; that the teachers do not understand ventilation; that little attention is paid to physical education; that there is wide-spread ignorance of the Separate School Law; that the teaching of reading is bad; that spelling is not a general accomplishment; that in arithmetic the work is generally beyond the pupil's capacity; that the study of geography is often productive of no real good; that literature is sometimes well taught, but often very badly taught, and children leave school, filled with disgust for all masterpieces; and that teaching has in

many cases not advanced beyond the dull routine of study and recitation.

Dr. McLellan calls "Quixotes" those that criticize the character of the Entrance Examinations, but admits that the Examination Papers are not perfect; offers a semi-apology to the Public School Inspectors for his statement of last year that "the work of the candidates is very badly put down—without neatness and without method," but repeats the statement in other words. He meets the expressed wish of the teachers that the whole period of English History should not be prescribed for Entrance candidates, by the remark that surely boys of to-day are no worse than the boys of a generation ago.

He admits that the Examination test to determine the teaching of literature is not very satisfactory, but still he cannot give up the idea of an examination, and would have better Examination Papers.

He condemns the multiplied option scheme as not being in harmony with the Public School work, and advocates a return to a judicious fixed course. He insists upon drawing being made an obligatory and fundamental branch in national education. As for music, he thinks that the Normal School training in it has been worthless. He would have every teacher capable of giving instruction in this art. Reading, he declares, is in too many of the Public and High Schools very much neglected, and he proposes some remedies for this state of things. He pleads for more science, and would introduce it into all the schools.

He condemns much of the teaching of English grammar in vogue, and seems inclined to give up Mason and pin his faith to Whitney. He regrets that the Department no longer gives substantial aid in the establishing and maintenance of libraries in the Public Schools. He mentions a recent example of what an active teacher can do in the establishing of a reference library, but he might have found if he had been willing as good an illustration years ago.

He thinks that the Head Masters and Boards of Trustees are unanimous in favour of professional training for Assistant High School Masters. He lauds the present mode of distributing the high school grant, and concludes, *mirabile dictu*, with the statement that in the department of mathematics our schools are superior to any he has seen, and that in general standing they are inferior to none.

Mr. Inspector Hodgson, in a very brief Report, ascribes the "failures" at the Entrance to the bad writing of the candidates. He also asserts that the teaching of reading in the High Schools is very much neglected, and that the art receives scant attention in the Public Schools. He finds few schools equipped with books of reference, and favours the preparation of a catalogue for the use of Masters and Boards.

He is in favour of a uniform fee of \$10 per annum for all High Schools and Collegiate Institutes. He, too, thinks that the High Schools and Collegiate Institutes are, in the main, in a healthy condition.

RECEPTION DAY NO. III. A Collection of Fresh and Pleasing Dialogues, Recitations, Declamations, and Short Pieces, for Practical Use in Public and Private Schools. Issued quarterly. E. T. Kellogg & Co., Educational Publishers, 21 Park Place, New York.

THE object of this collection is indicated by the title. It is a miscellaneous collection of dialogues, recitations, etc., some of which are suitable for use in schools, and some, on the other hand, highly fit to be thrown into the school stove. We find, side by side with Montgomery's "Our Country and Our Home," and similar extracts of real merit, such pieces as "Discussion of the Question, 'Do Animals Think?'" by the Club of the Ancient Order of Screaming Bald Eagles," the title of which hints at the contents, found on examination to be noisy, vulgar trash, varied with slang. Books which are to be committed to memory should be faultless in moral tone as well as correct in literary style. We have no doubt that the intention of the compiler was good; at the same time we cannot unreservedly commend his taste. If he

would revise the book and omit the slang, etc., we should be in a position to recommend it heartily.

PRINCIPLES OF THE SOLUTION OF EQUATIONS OF THE HIGHER DEGREES, ETC., ETC., by Professor G. P. Young, LL.D.

IN the current volume of the *American Journal of Mathematics* there appear two memoirs by Professor G. P. Young of University College, Toronto. The first and more important of these is entitled "Principles of the Solution of Equations of the Higher Degrees, with Applications." In it is given a complete analysis of the conditions of the algebraic solvability of equations of degrees higher than the fourth. The results obtained are, 1st: That the general equation of any degree higher than the fourth cannot be solved algebraically; 2nd: that the root of a "solvable" equation must be of a certain assigned form; 3rd: that there are two classes of solvable equations. The peculiarly technical nature of the subject forbids our entering into details, but we may say at once that Professor Young's discussion of this famous problem is extremely clear and even simple, when we take into account the generality and difficulty of the question. In the course of the investigation, there is revealed the exact nature of the flaw in Abel's "proof" that the higher equations are not in general solvable by radicals, a proof the validity of which has been upheld by many able algebraists and questioned by as many others every whit as able. Professor Young finds that equations range themselves in two distinct classes; Abel's investigation applies to only one of these.

The second memoir bears the title "Resolution of Solvable Equations of the Fifth Degree." It contains, 1st: A statement of the criterion of solvability of any given quintic equation of the fifth degree in one unknown; 2nd: the resolution of certain quintics which include as particular cases all those hitherto known as solvable; 3rd: a proof that if any algebraic relation be assumed to exist among certain "auxiliary" expressions the corresponding quintic can be solved algebraically. In the research for the criterion of solvability,

it is assumed from the "Principles" that if a quintic be solvable algebraically, its roots must necessarily have a certain form exhibited in that memoir. It is then shown that such being the case, any given quintic will be solvable or not according as a certain rational integral polynomial has or has not a rational linear factor.

These two papers bear the impress of originality and independence of thought, and show that the author can grasp a subject in its widest generality, and at the same time observe the strictest accuracy in the minutest details; a combination far more rare than is generally imagined. One cannot rise from reading them without a feeling of regret that Professor Young has not devoted his powers wholly to Mathematics.—J. C. GLASHAN.

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LATIN GRAMMAR AND JUNIOR SCHOLARSHIP PAPERS, by the Rev. J. H. Raven, M.A., Head Master of the Fauconberge School, Beccles, Suffolk. Rivingtons: London, 1883. pp. 122.

THIS little book consists of 115 papers, most of which the author thinks may be done and revised *viva voce* in three quarters of an hour. There are also three appendices: I. Rome; II. Literature; III. Mythology. By arbitrary signs the easy questions are distinguished, and thus the teacher may in a short time prepare papers of every degree of difficulty for his class. Many of the questions are new and provocative of close thought. We hope to be able to give some specimen papers from this book in our next issue. Meantime we recommend it as an exceedingly useful companion to the Latin Grammar.

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THE PRIMER OF POLITENESS: A Help to School and Home Government, by Alex. M. Gow, A.M. Philadelphia: J. B. Lippincott & Co.

THE preface of this eminently attractive and suggestive book is briefly this:

"He is best taught who has learned the secret of self-control."

"He is best governed who is self-governed."

"Other things being equal, that school is

the best where the government is the result of moral and not of physical force."

In the illustration and exposition of these propositions the author endeavours to enforce lessons which must be taught, if taught at all, to the majority of school children. His method is to relate a story, often a very good story, bearing upon a virtue or a vice, to have the children repeat the story in their own words, and then by questions find out the meaning and power of the illustration. The whole ground of school morals is covered and the lessons are taught with such simplicity, point and directness that we should think the school fortunate in which the book is used. The teacher who wishes to be helped in his ethical instruction should not fail to get a copy. He will serve his purpose best by writing direct to the publishers.

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A SYNTAX OF ATTIC GREEK, by E. E. Thompson, M.A., Assistant Master at Marlborough College. pp. 443. Rivingtons; 1883.

IN this new Greek Syntax we have the attempt to treat the subject on the analytical method, *i.e.*, by sentences, simple and compound, as is done in Dr. Kennedy's excellent Latin Grammars. The book is the outcome of Mr. Thompson's careful reading and collecting of examples for class use. He has not traversed the ground covered by Monro's Homeric Grammar, but has confined himself to Attic Greek. He has throughout the book followed, but not rigidly, the logical method, because teachers and boys are familiar with it in learning Latin. It is practically divided into: I. An Elementary Syntax; II. An Advanced Syntax; and special pains have been taken in the type, headings and references to distinguish the matter.

The work is admirable in many ways, and for fullness and perspicuity, leaves nothing to be desired. It embodies the latest researches of the best Greek scholars, and though not so brilliant as Farrar, nor so profound as Goodwin, it will probably soon supplant both of them. We commend it to the notice of classical masters.

## EDITORIAL NOTES.

OUR excellent contemporary, *Queen's College Journal*, is mistaken in supposing we felt an apology due to our readers for the reproduction of Principal Grant's speech on the University Question. We may not agree always with the learned Principal, but we are always glad to see him in THE MONTHLY. *Thracium est, etc.*

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DR. GOLDWIN SMITH ON THE  
VALUE OF THE ANCIENT  
CLASSICS.

AT the recent convocation, University College, Dr. Goldwin Smith, in presenting the prizes to the successful students in classics, said it was particularly interesting to an old student of classics to present the classical prizes, and still more interesting was it not only to him, but to all those assembled to witness and applaud the first step in what they hoped would be a bright and prosperous career. The winners, and those who had competed with them, were already in possession of what was best—the exercise of mind and the knowledge acquired in the struggle. They were then receiving the prizes which were the fruits and certificates of their exertions. He, as one concerned in the honour of classical education, hoped that they would bring back to the college in abundant measure, by their success in life, the honour which it now conferred on them. He hoped that they might, like many statesmen, and other great men of action, prove to the world that the study of classical literature, which, after all, is the best manual of humanity, is not a bad preparation for the struggles of practical life.

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THE READER QUESTION.

THE interminable Reader Question is still unsettled. Various plans all pointing to one series have, we understand, been proposed but have been almost immediately abandoned, owing to the difficulty of harmonizing the conflicting interests of the publishers. Every-

thing points, however, to a composite series; but how, or in what shape that will be ultimately accomplished has not yet been made public. The Premier of the Province has stated in his place in the House that the Government is determined to have but one series if practicable; and we may, therefore, confidently look for some solution to the difficulty that now not only embarrasses the Cabinet but paralyses the book trade. The matter demands a speedy settlement, not only in the interest of the schools, and of the publishers who have embarked their capital in preparing the books, but of the public who naturally crave a release from harassing rivalries that have turned board-rooms into cock-pits. Meantime we commend to the notice of the authorities the views of Mr. Inspector Smith upon the Reader Question, as presented in his admirable paper, our leading article.

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THE HIGH SCHOOL INTER-  
MEDIATE.

SINCE the death of the educational Chang, Payment by Results, the health of his brother monster Eng, the Intermediate, has been most precarious. There is little vitality in the Intermediate now, and an attack of syncope may any time terminate the career of these Siamese twins of our Provincial system of education. The raree-show is of necessity about over, though the promoters of it insist upon going on with the performance. The public, however, are a-weary and refuse to have their flagging attention aroused, and are quite ready to avow that the contemplation of even theoretical monstrosities is not wholesome or satisfactory. The educational world is ready for the return of the natural, the simple, and the useful. And the public ought to be gratified with a change of scene. The public has been more than kind to the management of the Provincial educational stage. It has paid in full for the entertainment, for the bill-stickers, the orchestra, the

big drum, the property men, the scene shifters, the supers, the subs, the programmes, the manuals, the hand-books, the ushers, the *claqueurs*, and now when the little theoretical monsters that have so long compelled our attention are dead or dying it is time to remove them from the stage. The carcasses of dead theories offend the mental eye and poison the intellectual atmosphere. The Educational Health Inspector should now interfere and have this nuisance removed. Perhaps it would be well to renovate the premises before the next season begins.

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#### MR. MATTHEW ARNOLD.

THE visit to Toronto of Mr. Matthew Arnold, widely known to teachers as the son of Dr. Arnold, of Rugby, and as one of Her Majesty's Inspectors of Schools, the author, too, of "Higher Schools and Universities in Germany," "On Translating Homer," "Essays in Criticism," and other educational works, and to the general public as a poet and philosopher gifted with a singularly acute and powerful mind which expresses itself in a beautiful style, is an educational and literary event of some importance. Although Mr. Arnold has, it is said, paid but little attention to school matters in his visit to America, and in Boston even declined a reception from the profession, yet it would not be wise to conclude that he takes no interest in the educational problem being worked out upon this continent. Indeed, we suspect from a very pungent essay of his two years ago, that his mind is quite made up upon the meaning and value of American common school education. He is not visiting America as a school inspector, but rather as a philosopher and observer of men and manners, and we shall not seek to blame him for his seeming neglect of a profession that for so many years has given him employment and called forth some of his best work.

It is of much more importance to observe that Mr. Arnold looks at education from an ethical and not commercial point of view, and the best education, in his opinion, is to know best what has best been said and thought in the

world. He has no quarrel with science for what it is worth, but, in his opinion, it has no power to relate its results to what he calls the instinct for conduct and beauty, for social life and manliness. He thinks a little of mathematics goes, and should go, a long way for the majority of mankind, and finds in literature, and especially in Greek, that which refreshes and delights, fortifies and elevates, quickens and suggests, that which will make a man live more, and that which satisfies the instinct for conduct and beauty.

In the controversy as to the merits of literature and science as educative instruments, we need not too ardently espouse the cause of either Arnold or Huxley. There is room for both, but in this intensely material age, it is well for those who have the direction of educational affairs to examine closely the trend of special lines of study. The visit of Mr. Arnold to America will direct the attention of educators to principles, methods and objects. If he is a prophet crying in the wilderness, let us heed his voice.

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#### ART EDUCATION IN ONTARIO.

THE visitor to the Normal School buildings, Toronto, if he be at all familiar with the place, will observe many changes that have recently been effected there. The Depository once so familiar to trustees and teachers in search of school outfits and prize-books, is shrunken to a mere book-stall for supplying the wants of the Normal and Model School students, and Art school-rooms, a library and a reading-room have taken its place. On any ordinary day may be seen large classes under enthusiastic and competent instructors, drawing from models or modelling in clay. The easel has taken the place of the book-shelf, and the plastic clay of the fossil. The intention of the authorities is not only to afford facilities for art students, but also to supply an efficient corps of instructors in drawing throughout the Province. A recent *conversazione* gave the public an opportunity to see that much substantial progress has been made and that the outlook for art education is most promising. In due

time the present scarcity of teachers competent to teach the rudiments of art education will be no longer felt. But only a beginning has been made, and years must elapse before the entire work of teaching the rudiments can be safely left to the public schools. The average pupil is too unwilling to study first principles, is so eager to draw something or paint something that he is in danger of being utterly spoiled for any really meritorious workmanship. Hence the Art School has at present to start at the beginning and eradicate bad methods; and the progress in this work of unteaching must necessarily be very slow. What is wanted is a large number of students willing to spend much time in hard study and thorough devotion to their task. A mere smattering will do little good.

The influence of the Provincial Art School is already bearing good fruit. The Board of Education, Toronto, has engaged the services of Mr. O'Brien, the President of the Royal Canadian Academy, to superintend the art education of the city schools. This is a very decided step in advance and will insure no small amount of good material for the Provincial Art School.

The schools that for years throughout the Province have been endeavouring to pay some attention to the æsthetic side of education will feel encouraged to make fresh efforts in this direction. An escape from a rigid programme of practical subjects and a release from the tyranny of examinations would afford welcome opportunity to many to lead their pupils into the inviting fields of Art. A caveat, however, must be uttered against anything but rigid elementary training. Pupils, if they are ever to produce anything of permanent value, must be made to feel that "art is long," and that there is no genius half so powerful as labour. The memories of a Provincial exhibition, or the recollections of a County fair, should be to all teachers both a warning and stimulus.

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#### THE PRESS AND THE PROFESSION.

IT is our duty from day to day to glance through the columns of the newspapers for

items of interest on educational topics, but we regret to state that the search is often fruitless. There are occasionally to be found in some of the better sort, fragmentary bits of news, scappy reports of board meetings, a few "personals," and, not unfrequently, a sly thrust at the inspector or the teacher for some imagined delinquency. A few newspapers apparently with no object but to give annoyance to the teacher, who probably differs in politics from the editor, persistently find fault with the management of the school and by innuendo imply that Mr. A. or Miss B. is not giving entire satisfaction, that he is looking out for more salary elsewhere, that she is late for school again, that the Inspector did not present his report, that he does not make his promotions, that the school tax is outrageously high, that the high school costs too much, that people who want higher education should pay for it, that the whole system is wrong and is herding boys into the professions and weaning them from the farm and the workshop, and many such things that serve to keep up irritation and impede progress. No sensible teacher, it may be remarked in passing, will object to fair criticism of his acts, or will be ungrateful for good advice however much he may have reason to object to the method of giving it. But the profession has some reason to complain that the criticism is often petty, unwholesome and superficial. It has, however, much more reason to complain that the press, as a whole, in this Province, pays but little attention to school matters. Apart from reports of meetings and "school news" there is scarcely an attempt to deal with the problems of education or to put the public in possession of the most important facts respecting it, or to awaken interest in the best school methods. The daily press, it is true, occasionally gives a half a column of news, but the subject is treated as a class subject, and of no special importance, a mere bit of padding that may be crowded out when the annual parliamentary talking-match begins. The papers teem with occurrences, full details of calamities, tales of murder, lust and rapine. A horse race, a prize fight, or

a cocking-man, will have a special correspondent; a nigger-minstrel, a ballet-dancer, or a champion skater will be graced with the applause of a regular contributor. The amours of some rascally old ruffian will be chronicled with disgusting minuteness, the hardships of Barnum's Jumbo, or the colour of his "sacred" elephant will monopolize the wire for days, while the never-ceasing jargon of political strife goes on. Every striping in the land is well informed by the party organ as to the merits of The National Policy, Free Trade, the Boundary Award, and the Algoma outrage, while the memorial to Dr. Ryerson goes a-begging, and the shrewdest politician would be stumbled to explain the Quincey system, or to give three coherent facts respecting Pestalozzi or Frobel. It will of course be urged that newspapers must be made interesting, that they are made primarily as razors, to sell, and must cater to the tastes of their readers. We would venture to remind our editorial brethren that educa-

tional topics are not *per se* uninteresting to the general public, that the school is essential to the state and that, therefore, whatever improves the school benefits the commonwealth. A great deal less of party politics and personal feuds, less of the annals of crime, less of so-called sport, and more of education and child-training, refinement and culture, would help the work of teachers and move the public to a consideration of educational methods and principles. The editor of the daily paper instead of catering to the tastes of his readers should assist the school master in correcting them, should keep the subject of education constantly before the public and should give it at least equal prominence with horse-racing, prize-fighting and clog-dancing. If the taste for educational matters does not exist it is the business of the newspapers we submit to create and foster it. The poorest school teacher is of much more value than the best jockey, and the meanest school-room than the gaudiest theatre.

## EDUCATIONAL INTELLIGENCE.

STRAFFORD High School, under its new Head Master Mr. McBride, is aspiring to be made a Collegiate Institute.

TWO ladies—Miss J. Jarvis and Miss L. Baldwin—passed the Civil Service examinations at Toronto successfully.

ON account of the growth of the High School, the Board of Education, Orangeville, is preparing to build a new school house.

THE East Bruce Teachers' Association will hold its annual meeting at Chesley on the 22nd and 23rd inst.

INSPECTOR McFaul, of St. Catharines, has resigned his position to accept a more lucrative one of another nature in Toronto.

THE Hon. the Minister of Education, has offered a gold medal for competition among the teachers in training at the Normal School.

THE next meeting of the East Middlesex Teachers' Association will be held in London on Friday, Feb. 29 and Saturday, March 1.

LAST month the city of London Board of Education received over 50 applications for a \$600 situation. Mr. T. Steele was appointed.

THE Alma College for Young Ladies at St Thomas has affiliated for the purpose of examination with the Ontario School of Art, Education Department.

MR. D. M. MALLOCK, who succeeded Mr. Dewar, as Inspector of North Huron, has also been appointed in his place as Inspector of the Town of Clinton.

MR. L. FLECKENSTEIN, late teacher at Nilestown, having resolved upon attending the Toronto Normal School for a session, was hospitably entertained by his friends before leaving.

OF the nineteen students in training last session in the County Model School at Madoc, Hastings County, only one failed, not nine as, owing to a clerical error, was stated in our January number.

MR. R. H. WHALE, who was drawing-master in the Brantford Collegiate Institute, has been appointed by the Minister of Education to a similar position in the Normal and Model Schools of Ottawa.

THE attendance at Strathroy High School has increased so much that a fifth teacher has become necessary, at least temporarily. C.

H. Waldron, B.A., of Victoria Minn., has been appointed to the position for the rest of this half year.

THE school board, Lindsay, after examining a number of applications appointed Miss Rose to the position of junior teacher in the east ward school. Miss Rose has had experience for some years. No applications were received from parties living in the county.

It is understood that Inspector Miller, of South Huron, contemplates resigning his position before very long to enter the legal profession. As a preliminary step we see that he has applied to the Ontario Legislature for an Act to admit him as an Attorney without serving the usual term in an office.

MRAFORO and Essex Centre are discussing the propriety of applying for the establishment of High Schools. We trust that if the Minister decides to establish any more he will not forget to increase the total amount of the High School grant correspondingly.

AT the banquet of the Provincial University, Toronto, Friday evening, February 15th, Mr. Principal MacMurphy, Toronto Collegiate Institute, and Mr. Principal Miller, St. Thomas Collegiate Institute, responded to the toast: "The Collegiate Institutes and the High Schools." Mr. Principal Seath, St. Catharines, who was also expected to reply was unavoidably absent.

MR. McCORMACK, Orangeville, has resigned the head mastership of the Public Schools and gone into business. Mr. Denton third assistant in the Public School has been appointed to a position in the Preparatory Form, Cobourg Collegiate Institute. Mr. McCormick's place is taken by Mr. McCordle formerly of the Ottawa Model School, and Mr. Denton's place by Mr. Ferguson of Chatsworth.

BY a decision of the Council of the Ontario School of Art, twelve scholarships will be granted annually to pupils of the Public Schools of Ontario, and six to those of the High Schools and Collegiate Institutes. These scholarships will entitle the holders to free tuition for three years in the Ontario Art School. The successful candidates will be determined by the results of an examination to be prescribed by the Council of the College.

THE change of policy in the Reader question has virtually stopped the sale of both Gage's and Campbell's series, and in consequence has thrown a large number of canvassing agents out of employment. Most of those who had been teachers are returning to their profession. Amongst others we notice that ex-Inspector Moran has accepted an assistant mastership in Stratford High School, and Mr. T. R. Walmsley has taken a school in Arran Township, County of Bruce.

FROM present appearances it would seem that the plan adopted by the Council of the Agriculture and Arts Association, Ontario, for inducing young men engaged in farming pursuits to engage in a course of agricultural study has been eminently successful. The secretary has been fairly deluged with letters of inquiry on the subject, and already several entries have been made for the examinations to take place next July.

EDUCATIONAL LEGISLATION.—The Legislative Committee of the Ontario Teachers' Association had a conference with the Minister of Education on the 11th ult. The following members of the committee were present:—Messrs. James L. Hughes chairman; Wm. Carlyle and Wm. McIntosh, inspectors; H. B. Spotton, M.A., L. E. Embro, M.A., and A. McMurchy, M.A., High School masters, and S. McAllister and R. W. Doan, Public School masters. Among the questions discussed were:—1. Improvement in model schools. 2. Third-class teachers' certificates and permits. 3. Remuneration of examiners at High school entrance examinations. 4. Propriety of High school masters presiding at High school examinations. 5. Propriety of the same examiners preparing the papers on the same subject for all the departmental examinations during the current year. 6. Public school inspectors' certificates. 7. Success in teaching, an element in awarding the grade of certificates. 8. A knowledge of science imperative in case of second-class certificates. 9. Fees for candidates at Public school teachers' examinations. 10. Increased efficiency in training of Normal schools. 11. New programme, 1882. 12. Teachers' associations. 13. One year's notice to be given of changes in the school programme. 14. High school fees. 15. English history textbooks. 16. Bible-reading in schools. 17. One series of readers. 18. Suggestions regarding entrance examinations. 19. Professional training for High School teachers. 20. Superannuation of teachers. 21. The advisability of abolishing the intermediate examination. 22. The propriety of conducting third-class examinations by County Boards, as formerly, and fees of examiners in case the old plan is adopted. 23. Should candidates be allowed to write for second-class certificates without previously obtaining third-class certificates? 24. Relative value of subject at second-class examinations. With regard to Bible-reading in schools and 21, 22, and 23 of the questions discussed, the Minister expressed his intention of taking immediate action. As to the Bible-reading it is proposed that passages be selected, one for each day in the year, and that a circular containing these be sent to each teacher in the province.

## TO OUR READERS.

1. Matters connected with the literary management of THE MONTHLY should be addressed to The Editor, P. O. Box 2675. Subscriptions and communications of a business nature should go to The Treasurer, Mr. Samuel McAllister, 59 Maitland Street, Toronto.

2. The Magazine will be published not later than the 20th of each month. Subscribers desiring a change in their address will please send both the old and the new address to Mr. McAllister not later than the 15th of the month. Subscribers failing to receive the magazine after the 25th of each month, should communicate at once with him.

3. The Editor will be glad to receive school and college news, notices of meetings, and concise accounts of conventions.

4. Correspondence on all questions relating to education is solicited. No notice will be taken of anonymous communications.

5. Subscription, \$1.50 per annum, post paid. Club rates—Five copies per year at \$1.25 each; ten copies at \$1; twenty copies at 85 cents, net, post paid. Send money by registered letter or P.O. order. Be careful as to the address. Letters intended for us sometimes go elsewhere, and are not recovered without delay and annoyance.

6. For bound volumes of previous years, apply to Mr. McAllister, enclosing stamp for reply.

7. Circulars respecting THE MONTHLY may be had on application to the Publishers.

8. THE MONTHLY is sent to all subscribers until ordered to be discontinued. The law respecting newspapers applies to THE MONTHLY, and our subscribers will confer a favour by remembering that the law provides that a notice of discontinuance must be given to the publishers and that all arrears must be paid before the liability of the subscriber is discharged.

Get the New Webster Unabridged, if you want a good dictionary.

*Choice Literature* (\$1.00 a year: Jno. B. Alden, New York.) is a wonderfully cheap and surprisingly good monthly magazine. One thousand pages of the cream of serial literature for One Dollar is a marvel.

*The Critic and Good Literature*, lately amalgamated under the joint title, retaining the principal features of both publications. The combination is attractive and valuable to the reading teacher. See our new club rates.

*The Musical Visitor* (\$1.50 a year: Jno. Church & Co., Cincinnati, Ohio,) is an interesting and valuable Monthly, containing news, editorials, correspondence, gossip, and original music. It is now in its thirteenth volume.

Messrs. RAND, AVERY & Co., the well known Publishers of Boston, are about to issue a thrilling tale on Mormonism, a question replete with interest. They hope to rouse the nation to action as in the old days when they published *Uncle Tom's Cabin*.

We are obliged to hold over a somewhat lengthy notice of Messrs. Harpers' Periodicals. Meantime, we may say that *The Magazine*, *The Weekly*, *The Bazar*, and *Young People* are almost without rivals in the whole round of literature. Some one of them at least should find entrance into every Canadian family. *The Magazine* and *Bazar* have always something interesting to the teacher and his home.

Just as we go to press, a little book, "The Adventures of No. 7" (price 25 cents) reaches us. It is a Canadian school story and touches upon such ticklish questions as Religious Instruction in Public Schools, "Recommends" and Bogus Certificates. It is, we see from a hasty glance, a clever, pungent, and entertaining book. If we are not mistaken, it will produce a sensation. For sale at Ye Olde Bookshoppe, 353 Yonge St.

THE ever delightful *Atlantic Monthly* [Houghton, Mifflin & Co., Boston: \$4.00 a year.] is to hand for February and contains many valuable papers. In addition to four serials, contributions of first-rate merit, the articles "Voices of Power" and "Reminiscences of Christ's Hospital" may be mentioned as very good reading. The *Atlantic* is always strong in literary criticism. The Contributors' Club and the Book of the Month furnish piquant sauce to the viands.

We have to thank a large number of our friends for their promptness in remitting their subscriptions. January has been our best month in this respect in the whole history of the magazine. Some, however, are still indebted to us for one, two, or even three years, and we would kindly urge them not to delay longer in supplying the means to make THE MONTHLY more acceptable and useful to them. Our friends will help us also in inducing others to become subscribers. We have no gift books, prize packages, watches, or chromos to offer. We think THE MONTHLY is worth its subscription to any teacher deserving the name, whether he agrees with all we have to say or not. THE MONTHLY is *par excellence* the teacher's friend.

*Lippincott's Magazine*, for January, seems fairly to reach the high-water mark of the best American monthlies. The number opens with a description of the new Civic Buildings of Philadelphia illustrated in a profuse and artistic manner, and is at the same time not too technical to be interesting. "Notes on Conversation with Emerson" gathers up a few more interesting facts from a rather well-gleaned field. "Undergraduate life at Oxford" is a short racy paper on life at the great English home of the "Classics," and is sure to be read with approval. An account of the coronation of the King of Hawaii is extremely amusing and readable. The fiction of the number is rather above the average, and the short stories are especially good.

FOR the information of our readers we mention a few new books and new editions likely to be helpful to them in their work. Blackie & Sons, London, advertise *Deschanel's Natural Philosophy*, 6th edition, 1883, or four parts, separately, 4s 6d. each; *Praxis Primaaria*, 5th edition, 2s.; *Ogilvie's Students' English Dictionary*, 7s. 6d.; *A Synopsis of English History; or Historical Note Book*, by Wills, 2s.; J. Griffin & Co., Portsmouth: *An Explanatory Arithmetic*, by Principal Bickernell, 3s.; Isbister, London: *Object Lessons*, by Geo. Ricks, Inspector of the School Board, of London; Griffith & Farran, London: *Preparation for Science Teaching*, 1s. 6d.; Cassell & Co., London: *Morley's English Literature*, 9th ed., 7s. 6d.; *Brewer's Dictionary of Phrase and Fable*, 14th ed., 3s. 6d.; Clarendon Press, London: *Xenophon's Selections* (for schools), by Philippotts, 3s. 6d.; Chas. Griffin & Co., Strand, London: *Cruttwell's History of Roman Literature*, 3rd ed., 8s. 6d.; *The Student's Mechanics*, by W. R. Browne, Fellow of Trinity College, Cambridge, 4s. 6d.; Crosby, Lockwood & Co.: *De Fiva's French Grammar*, 46th ed., with an appendix on the History and Etymology of the French language; *The Civil Service Coach*, 2s. 6d.; *The Precise Book, or Lessons in Accuracy of Statement and Preciseness of Expression*, by W. C. Monkhouse, 2nd ed., 2s. 6d.—*Key*, 2s. 6d.; also *The Civil Service English Grammar, do. Chronology of History, Art, and Literature*, 3s. 6d.—*do. Orthography*, new ed., 1s. 6d.; Sullivan Bros., Dublin; *Geography Generalised*, 65th ed., revised, 1883, 2s.; Simpkin, Marshall & Co.: *Stone's Hannibalian, or Second Punic War*, from Livy, 3s.; A. Johnston, London: *Mental Arithmetic Cards* (seven standards), per packet, 1s. We shall conclude for the present with a mention of *Skeel's English Dictionary*, already reviewed in THE MONTHLY, the *Classical Dictionaries* published by Murray, London, and the new *Encyclopaedic Dictionary*, of Cassell & Co., 1st vol., "a work for the school-room table, or of reference for the general reader alike, unique, its well-executed illustrations adding much to its value."