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THE

EDUCATIONAL RECORD

OF THE

PROVINCE OF QUEBEC,

PUBLISHED MONTHLY, UNDER THE AUTHORITY OF THE PROTESTANT COMMITTEE OF THE BOARD OF EDUCATION, AND CONTAINING THE OFFICIAL ANNOUNCEMENTS OF THE BOARD.

EDITED BY R. W. BOODLE.

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THE

EDUCATIONAL RECORD

OF THE

PROVINCE OF QUEBEC.

No. 2. FEBRUARY, 1882. Vol. II.

REGULATIONS OF THE EXAMINATIONS FOR TEACHERS' DIPLOMAS.

The following Amended Regulations relative to the Examination of Candidates for Teachers' Diplomas were printed some years ago in the late Quebec *Journal of Education*. As inquiries have been made as to the system of marking, and the subjects required for Teachers' Diplomas, it has been judged advisable to reprint the Regulations.

1. Article V of the Regulations to be amended as follows:

Candidates shall be examined by written or printed papers on every subject except *Dictation*, *Reading*, and *Mental Arithmetic*, with additional oral examination in such subjects as may require it, and the work shall be so arranged that the oral examinations shall be going on simultaneously with the writing of answers to the Papers.

2. Articles VII & VIII shall be considered as modified by the change of Article V, and the Book to be used for Reading and Dictation shall be some ordinary school text-book at the discretion of the Examiners.

3. The Examination Papers shall be prepared by a joint Committee, of which the Examiners of Montreal and Quebec shall appoint each two members, and those of Sherbrooke and Three Rivers each one, with the Secretary of the Protestant Committee, who shall act as Convener and Secretary, and the questions shall be circulated under seal to the different Boards to be opened by them on the days fixed for Examination and in the presence of the

Candidates. The answers shall be read and decided on by the local Boards, and sent to the Secretary of the joint Committee, who shall report thereon to the Committee of Council, three members of the Committee to constitute a quorum.

4. The place for the holding of the meetings of Examiners shall be fixed by themselves; but shall be as central as possible; shall be, if possible, an educational building; and in no case wherethis can be avoided, a hotel or tavern.

5. Every candidate for examination for an Elementary or Model School Diploma shall pay, before the examination, to the Secretary of the Examiners, in addition to his fee of $1, the sum of $1; and every candidate for an Academy Diploma, $2. These sums shall constitute a fund for paying the necessary expenses of the Boards of Examiners. The fees of the unsuccessful candidates shall not be returned, but they may come up a second time at a subsequent meeting of the Examiners without further fee.

6. The Schedule of Subjects for Examination shall be as follows:

1. PRELIMINARY.

All candidates for any grade of Diplomas must pass in the following subjects:—

	Marks.
1. English Dictation (including Hand-Writing)	50
2. English Reading	50
3. English Grammar	50
4. Arithmetic (ordinary rules)	50
5. Geography (4 Continents and British North America)	50
6. Sacred History (An Epitome of the the Old Testament and one of the Gospels)	50

No candidate shall pass unless he shall have already obtained one third of the marks in each of the above, except Dictation and Reading in which two-thirds shall be required.

Candidates for any Diploma, who have already passed in these subjects, may be exempted from further examination in them.

2. SPECIAL.

(*a*) *Elementary Diploma.*

	Marks.
1. Art of Teaching as in Abbott's Teacher and Morrison's Art of Teaching	100
2. History of England and of Canada	100

3. French, Dictation, Grammar and Reading in the case of those who desire a certificate in that language..... 100

Candidates must take at least two thirds of the aggregate of the marks to pass for a first class, and at least one third for a second class Diploma. Candidates in French taking two-thirds of the marks shall be entitled to special mention of the subject in the Diploma.

(*b*) *Model School Diploma.*

	Marks.
1. English composition (a short Essay).....	100
2. Advanced Arithmetic & Mensuration.....	100
3. Geometry, Euclid Books I, II, and III.....	100
4. Algebra, including Simple Equations.....	100
†5. French Dictation, Grammar and Reading.....	100
†6. History of England and of Canada.....	100
†7. Art of Teaching, as above	100
8. Book-keeping.....	100
9. Use of the Globes, or Linear Drawing.....	100

Candidates must obtain at least, one third of the marks in each Subject. If only partially successful they may be awarded Elementary Diplomas.

(*c*) *Academy Diploma.*

	Marks.
1. Greek, Xenophon, Anabasis, Book I and Grammar.....	100
2. Latin, Cæsar, Bel. Gal., Book I and Grammar.....	100
3. French, Grammar, Reading and Composition.....	100
4. Euclid, Book I, II, III, IV and VI.....	100
5. Algebra, including Quadratics.....	100
6. History, as above.....	100
7. Natural Philosophy, or Scientific Agriculture.....	100
†8. Art of Teaching.....	100

Candidates must obtain at least one-third of the marks in each subject

Teachers of French Schools may be examined in French, instead of English.

No Teacher shall receive a Diploma of the first class for a Model School or Academy unless he shall have obtained two-thirds of the total number of marks in the special examination for the Diploma.

† As in Elementary Examination.

Additional Explanations.

1. It appears that some Boards give full marks for reading. Others find the candidates very defective in this important subject. It is recommended that much attention be given to accuracy and style of reading.

2. Boards of Examiners will observe that it is imperative that the fees should be prepaid. The Examiners are authorized to expend so much as may be necessary of the fees for stationery and books, and for hiring examination room, if necessary, and for travelling expenses of Examiners from a distance,—any surplus to be transmitted by the Secretary of the Board with an account of expenditure, and number of candidates entitled to re-examination without Fee to the Secretary of the Committee on or before December 1st, in each year.

3. Under the Head: 2. Special. (*a*) *Elementary Diploma*,—the two thirds required is the aggregate of Art of Teaching, History of England and History of Canada. It is also understood that candidates for French certificates are held to pass in the English Branches. Should Candidates offer, knowing French only without English, these may be examined, but such cases must be regarded as altogether exceptional, and their acquaintance with French only must be specially mentioned in their Diploma. It is understood that all French Teachers of Protestant Schools are expected to know English as well, and that the French in the Model School and Academy Examination is imperative on all. Teachers, however, may be allowed to answer the questions in French, and may have the questions translated to them at the discretion of the Examiners.

4. Special attention is directed to the requirement on the part of Elementary Teachers of an examination in the Art of Teaching, and in Canadian and English History, and it is suggested to republish the regulations with these explanations in an early number of the *Journal of Education* to be sent to all schools, and to each member of the Board of Examiners. It is also reqested that a thousand extra copies be placed in the hands of the Secretary for distribution.

5. It is suggested that specimens of the Examination Papers may be occasionally published in the *Journal of Education* for the information of Teachers and intending Candidates, and that copies

remaining over after the examinations be circulated by the Secretary.

REGULATIONS FOR DIPLOMA EXAMINATIONS.

1. The examination papers to be forwarded by the secretary to the Presidents of the Boards.

2. At the meetings of the several boards, on the morning of the examination, the president or chairman of the meeting, to open the papers, and cause them to be distributed to the candidates.

3. If there be no candidate for any Diploma, the papers set for that Diploma to be returned unopened to the Secretary.

4. The times and places of meeting of the several boards for holding the examinations to be advertised by the secretary of each board.

5. No omissions or alterations to be made by the examiners in any of the questions printed.

6. The examiners to take due care in the placing of candidates, &c., to prevent copying, or communication of any kind.

7. Pens, ink and paper to be provided for each candidate, and no other paper than that provided to be allowed to be used.

8. Writing to be on one side of the paper only.

A CHAT ABOUT NUMBERS.*

By J. McGregor, LL.D., *McGill Normal School.*

'That 2 times 2 are, always have been, and always will be, everywhere 4, I am to take for granted. I take the liberty of doubting either the sanity or the truth of any man who says he cannot grant this. 2 times 2 being 4, 2 × (2 and 1) will be 4 and 2, that is 6; so we are fairly launched into the multiplication table. We who have this table can hardly think otherwise, and yet we are told that neither the Hindoos nor the Arabians had a multiplication table. Here is an example given by one of the best of the Hindoo arithmeticians, Bhascara:—

"Beautiful and dear Lilâvati, whose eyes are like a fawn's, tell me what are the numbers resulting from 135 taken into 12? If thou be skilled in multiplication by whole, or by parts, whether by division, or separation of digits, tell me, auspicious woman,

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* Part of a paper read before the Athenæum Club, Montreal.

what is the quotient of the product divided by the same number?"

He then gives six modes of solving this difficult problem:—

(1.) Multiply each digit by 12 and gather results.

(2.) Multiply by 8 and also by 4 and add, as 8+4=12.

(3.) Multiply by 4 and then by 3, as $4\times3=12$.

(4.) Multiply by 1 and by 2, as 1 ten + 2=12.

(5.) Multiply by 10 and by 2, as 10+2=12.

(6.) Multiply by 20 and by 8, subtracting the latter, as 20—8=12.

His commentator gives two other methods:—

(7.) Make as many squares as there are digits in the multiplicand, repeated as many times as there are digits in the multiplier. Draw diagonals through these squares, using the lower half for units and the upper for tens, and getting the complete product by adding along the diagonal spaces. This is really the principle of multiplication by *Napier's bones.*

(8.) The other is what we now call *cross-multiplication*, but, while *we* write the answer at once, in a single line, doing the rest of the work mentally, *they* wrote down each part. In this example, instead of four figures they used ten; and yet, he says, it is a method not for dull scholars. They seem to have had a strange dread of mental arithmetic, partly, no doubt, from the fear of making mistakes, and partly because, with their notation, it was so easy to write down and present to the eye all the different successive steps of the operation.

The Arabs had many ingenious ways of multiplying numbers between 5 and 10. 7×8 would be $(5+2)\times(5+3)$, where the highest effort required is 5×5; or it might be $(10-3)\times(10-2)$, where 2×3 is the highest multiplication. Some of their methods were spoken of as difficult with ink, but easy on a sandboard, as this afforded a ready means of erasure.

The Italians were, early, skilful arithmeticians, perhaps because they were the great merchants and bankers for the rest of the world. They were, however, evidently arithmeticians *con amore.* Among their methods of multiplication were the following, which they called:—

(1.) *The apricot* or *chess.*—It was like ours with all the horizontal and vertical lines drawn.

(2.) *The little castle*—the set of figures being turret-shaped.

(3.) *By the tablets, i.e.*, multiplication table, now used and extended even to 99×99, and carefully learned.

(4.) *Cross-Multiplication.*—acknowledged to be difficult, but *therefore* good and valuable, and to be acquired by the scholar on the ground that "the good and wise are few, while the wicked and foolish are many" (*sic*).

(5.) *The square.*—elegant and easy.

(6.) *The latticed*—this was the Hindoo method.

(7.) *By unfolding, i.e.*, taking component factors.

(8.) *By cutting up, i.e.*, separating the multiplier, or both multiplier and multiplicand, into parts, taking care that here, as indeed always, this principle is attended to, that *every* part of the multiplicand be multiplied by *every* part of the multiplier.

All these different arrangements of the work *i.e.*, of the partial products, are obligatory, owing to the simple, but essential, principle that only like can be added to like.

Just as we know that 4 is contained in 28 seven times, because $7 \times 4 = 28$, and not that we see 28 separated into sets of four each, and that there are 7 of them, though of course this is the *ultimate* explanation, we use the multiplication table for division. The Italians with their extensive table were able to do heavier work than we can do as short division. They called this *By the Rule*, as the example, when worked out, resembled a carpenter's foot-rule.

For long division they had,

1st, The method by *resolution, i.e.*, of the divisor into its factors.

2nd, "*A Danda*" (which is our common long division). Cataneo says "it is most necessary to every person who wishes to become an expert reckoner." It is, however, much less "pleasant" than the following.

3rd, *The galley*, so called from the form of the completed work. The simplest form of it is given by writing the dividend in a long line; this makes the longest beam of the vessel. The divisor is written beneath, and, when the successive products of this by the different figures of the quotient have been subtracted, mentally or aside, the remainders are written above, and finished figures are all cancelled. The divisor is rewritten beneath (the first being cancelled) and so the work goes on to the end. The uncancelled figures are the quotient, and remainder, if there be any. More complicated forms were preferred as proofs of the

skill of the master, or as tests of the ability of the scholar. Lucas de Burgo gives, as an example, one which in its completed form is 35 figures in length of hull, 5 figures in depth of hold, 4 more in height at stern, and 6 more midway along the deck. He says of it: "In truth it is a noble thing to see in any species and scheme of numbers, a galley perfectly exhibited, so as to be able to observe in their disposition and arrangement its stem and stern, its mast, its sail, its yards and its oars launched into the spacious ocean of Arithmetic." He exhorts the student, before entering on this last and most difficult of arithmetical labours, to invoke Apollo to inspire him with genius and resolution. Work of this kind was considered by them as a very complete gymnasium, both physical and mental for the scholar. The slow introduction of what we now call "decimal arithmetic" is one of the strangest facts in the history of arithmetic, not so much in reference to the ancient Greeks, whose system of notation hindered them, as to moderns, after the introduction of the Hindoo notation. Stifelius simplified Ptolemy's sexagesimal notation and showed that it applied to quantities *above* the unit, as well as below it, and said it was easy to see that the same reasoning applied to the denary system. Fineus, of Paris, almost had decimals, but his successors went back and not forward. Stevinus established the truth of the new application, but his method was not accepted. Napier adopted and simplified the notation, and about 1650 published "Decimal Arithmetic, teaching to perform all computations without fractions." And yet we find him after that, still, occasionally, using the older forms. We find about that time, too, curious mixtures of the Roman, the old Arabic and the decimal. Even now, the conception of the perfect unity of our system of notation is injured, in many of our books, by speaking of numbers to the left of the decimal point as *increasing*, in a tenfold ratio; and those to the right as *decreasing* in the same ratio; instead of showing that the numbers *all* increase from right to left by a common ratio; and that 1 in *any place* may be adopted as the unit of the system.

1×1, 2×2, etc., up to 12×12, properly arranged, gives our multiplication table. If this form a square, as it does generally, there are some things in it worth noticing, other than the set of products for which it is written, *e.g.*, the diagonal from the left downwards consists of the square of all numbers from 1 to 12.

This diagonal increases by the numbers 1, 3, 5, 7, etc. The lines next it increase by the series of even numbers 2, 4, 6, etc. The second lines also from it on each side are the middle squares—1. The fourth line is composed of the squares—4, etc., The whole table on the right of this diagonal is identical with the part on the left, suggesting the more correct form of the triangle for this table. The only squares out of the diagonal are 16 and 36. If we continue the squares, say from 13 to 30, we find some interesting analogies, *e.g.* :—

$$\left.\begin{matrix}13^2=169\\14^2=196\end{matrix}\right\}\text{difference}=27=13+14.$$

$$\left.\begin{matrix}15^2=225\\16^2=256\end{matrix}\right\}\text{difference}=31=15+16.$$

We have here apparently a law that the difference between the squares of two consecutive numbers = the sum of these numbers. This is *not*, however, the law, for it can easily be shewn that the 31 is not 15+16, but $2\times15+1$. From this we see how the table can be extended to any length by addition alone, *e.g.*, $75^2=5625 \therefore 76^2=5625+151=5776$. Again :—

$$\left.\begin{matrix}24^2=576\\26^2=676\end{matrix}\right\}\text{difference } 100 \qquad \left.\begin{matrix}22^2=484\\28^2=784\end{matrix}\right\}\text{difference } 300.$$

i.e., numbers equidistant from 25 have squares differing by hundreds. This is reducible to the *same* law as before. Closely connected with this is the multiplication of two numbers each of two or three digits, and by an application of this law finding the answer instantly, *e.g.*, $74\times76=?$ $38\times32=?$ $197\times193=?$

There is another kind of square that has given a great deal of trouble, viz., the square of $\frac{1}{2}$. This is included in the general notion of multiplying by a fraction, $10\times\frac{1}{2}=5$. There were many who said, whatever that is, it is not multiplication. The first command laid on man was that he should multiply and replenish the earth; we have therefore here God's authority for saying that multiplication is *increase;* in this example we have *decrease, argal,* it is not multiplication. One of these, in reference to $\frac{1}{2}\times\frac{1}{2}=\frac{1}{4}$, said if we take a line $\frac{1}{2}$ ft. long, and another $\frac{1}{2}$ ft. long, the product of these gives the *area,* a much higher notion than length, so that though the number $\frac{1}{4}$ be smaller, in connection with area it is a greater thing. So he reconciled his Bible and

his arithmetic, knowing both were right. Since the days of the monks, there has been a good deal of needless wriggling about multiplying, and having the result less than the multiplicand. Suppose we are to multiply 234 by $\frac{1}{2}$, we have seen that by changing the place of *one* in that number, the $\frac{1}{2}$ becomes 5 and we multiply. If the *one* cannot change its place, then we must consider the $\frac{1}{2}$ as a number lying between 1 and 0; and the 234 is to be taken—not more than 1 time, that would give more—not just 1 time, that would give still the 234—but less than 1 time, this must be less; in this example 234 becomes 167. Is this changing the definition of number? If the definition was at first too limited for this purpose it ought to be changed; and we know very well there is no practical difficulty whatever, nor is any proper definition of multiplication interfered with.

Another difficulty is started by the question, Can £2 be multiplied by £2? Stifenius said "No!" Tataglia said "Yes!" A very convenient, but wretchedly false rule in mensuration is responsible for the confusion, viz., "length × breadth gives area." Arithmeticians often enough say, "feet × feet give feet; inches × inches give inches." I quite agree with those who say, "If feet can be multiplied by feet, then shillings can be multiplied by shillings."

$$(5\times3)\ (5\times3)=25\times9\ \therefore\ 5 \text{ ft.} \times 5 \text{ ft.}=25 \text{ sq. ft.}$$

Here the answer is right but the apparent process is all wrong. It seems so easy to say "a board 5 ft. long, 1 ft. broad, we call 5 square feet;" then 3 such boards taken together give 3 times as much; therefore there are 3 times 5 square feet, *i.e.*, 15 square feet, and there is no violation of common sense. If we try to deal with 5s. and 3s. in the same way we find we cannot. Or, in short, what is 5s. taken 3 *shillings times*?

De Morgan refers to Gladstone's question in parliament as to how many of the M.P.'s could give the quotient of £1,330 17s. 6d. ÷ £2 13s. 8d. One answered 658; another said it was impossible. He says these answers implied great confusion of idea; he shews the absurdity of 5d.×4d., and continues: "I am very sorry to say that these wrong notions have found support—I think no longer—in the University of Cambridge. In 1858 it was proposed at a College examination to divide a number of days, hours and minutes by another number of days, hours and minutes. Another actually proposed $\frac{\text{6s. 3d.}}{\text{17s. 4d.}}$ as a fraction, and requested an explana-

tion. Feeling ran so high against him that he was removed." Is he blaming the examiner? Surely not, for he says himself: "Magnitude *may be* divided by magnitude, and the answer *is* number." I should prefer "must be" and "is *a* number." Is he blaming those who caused the removal of the examiner? He should do it gently, for he says: "Magnitude may be divided by number, and the answer is magnitude." This is nonsense, of nearly as good a quality as theirs. The difference between abstract and concrete arithmetic, or, at anyrate, any difficulty connected with it, is easily removable in this way. Arithmetic proper has to do only with numbers, not at all with magnitudes; names are assigned in the problem proposed, the work is done without reference to them, and the name must be assigned to the number of the answer by common sense and by nothing else.

The number 2 appears in various ways as a modifier of the almost universal radix of scales of notation or numeration, *i.e.*, ten. 10 divided by 2 is common; but that is more likely as representing the fingers on one hand: 10×2 is perhaps rather $10 \div 10$, *i.e.*, the digits of hands and feet, for among many Indian tribes and others this number is called a *man*; but one word, *score*, shews that it was used as a radix. The French *quatre-vingt seize* is a good example of the former use of a vicenary scale. Perhaps the lowest specimens of system in numeration are among the South American tribes. For instance the Luli call 5, "4 with 1"; or, "one hand;" the Mocobi have almost as low a scale as our notation would let us go. Not quite as low, for we have with the binary scale no multiplication, no division, no addition other than 1+1. How easy! These have three as their highest name, and it is called "2 above"; 5 is said to be "2 above 2, 1" or in their own language, *Inibacao-cainiba-iniateda* (13 syl.). The Betoi call 1, *Edojojoi*; 2, *Edoi* (another). Here the one seems to be a qualified two, or, what is more likely, they both have a simple root. 3 is "beyond"; 4, "beyond 1"; 5, "a hand." We are told that this people have a common language quite complex and artificial. The Tamonaki have only two really independent names. All these (and the same remark applies to other peoples who have defective numerical systems) have practical modes of indicating larger numbers. It seems to me that the assigning meanings to the names of numbers must always be difficult, and especially so when they have to be gathered from those ignorant of your

language, and whose own language you have rather imperfectly learned as yet.

We find the very opposite extreme in Thibet. Our own system is wonderfully simple, and nearly perfect, but theirs is purer; *e.g.*, *gnea* means two, and *gnea gnea* = twenty-two, precisely as in our notation, 22 (two, two) = twenty-two. Following out this system, where we should *say* one thousand, eight hundred and eighty-one, and *write* 1881 (one, eight, eight, one), they would say one, eight, eight, one, and write the same. I think we can imagine no system nearer perfection.

THE UTILITY OF THE STUDY OF GREEK LITERATURE.*

By R. M. Smith, M. A.,

Principal of St. Francis College, Richmond.

Before the world advances much farther in its career of improvement, there are several fundamental principles which must be investigated, and universally understood and acknowledged as established truths. In this country, the question in regard to the utility of classical literature involves one of these principles. It is vitally connected, not only with the formation of our character as individuals, but with our improvement and happiness as a whole. While colleges are rapidly multiplying among us, it is becoming the one great question, whether it would not be advantageous, and serve the educational wants of the time better, to substitute the study of some one of the natural Sciences for that of Greek. This is no less a question than whether the whole mind of the country shall hereafter be shallow and empty, or strong, deep, and richly fraught with wisdom. It seems to be the general opinion of the calmest and most competent judges that, after, perhaps, a short time of unsettlement, the study of the Greek and Latin languages in this country, and throughout the civilized world, will take a larger and more vigorous life, a life of which the basis is firmer, and the springs are more elastic, than they have had since the Revival of Letters.

Our imperfect and very slight commencement of the study of classical literature, is the grand cause of most of the prejudices

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* Read before the Convention of Teachers held at St. Johns, P.Q.

that exist against it. In Germany and England they have very few prejudices, because they are such thorough classical scholars as to possess universal experience of the vast and manifold advantages of this kind of discipline and erudition. Here we merely remove the first difficulties, and then relinquish the work; advancing just far enough to find that like every great and noble acquisition, its attainment is laborious, we then return to say that it is useless. In this we are unwise as well as unjust. My object in bringing before you the claims of Greek Literature is to show, that a moral obligation rests upon every student to make himself a profound Greek scholar I shall prove that Greek Literature ought to be profoundly studied—first, for the native excellence of the Greek Classics; secondly, for the invigorating discipline which the study affords the mind; thirdly, for the practical knowledge and mastery of our own language.

There are many reasons why impartiality has been rare in judging the native excellence of any portion of the classics. A great many individuals leave the study so early, as to carry with them no delightful recollections of enjoyment in its pursuit, but only the memory of difficulty and tediousness. The multitude of minds that pass through college, never learn to think or to criticize, except in a perfectly vague and indefinite manner. There has been, moreover, a veneration paid to the great minds of antiquity, amounting almost to idolatry. Ficinus, the friend of Lorenzo de' Medici, kept a bust of Plato in his bed-room, and a light burning before it continually. Students have not read the Greek poets as they do the English, continuously, for the pure pleasure of the poetry but with the application of formal precepts about sublimity and beauty kept so constantly before the mind as to repress all movements of natural admiration. The imagination, which transfigures all images, paints whole landscapes in single epithets, pervades and quickens all materials, lights up the rudest with splendour, surrounds the meanest with dignity, makes the simplest magnificent with mind, has not been, as in Milton, Spenser, Shakespeare the object of notice. In judging of an ancient composition, we ought to set aside as far as possible all the qualities and features resulting from peculiarities of time and place, and inquire to what degree those characteristics, which are not the growth of artificial circumstances but belong to the cultured world, have been embodied by the genius of the writer.

Our limits will permit us to do little more with this part of our subject than just to recall to the mind an array of names, which as long as the world preserves any true admiration of intellectual power and refinement, will be regarded as the symbols of genius: Xenophon, Herodotus, Thucydides, Plato, Aristotle, Demosthenes, Homer, Pindar, Theocritus, Æschylus, Sophocles, Euripides.

In their works we possess a collection of volumes, both in prose and poetry, unrivalled for energy of thought and language, for every kind and variety of material to discipline the mind, and polish the taste into refinement. Take, for instance, from the works of the first of these writers, the Anabasis of Xenophon; where in all modern literature can be found characters drawn with stronger discrimination than those of Clearchus, Proxenus, Menon, Cyrus? Where shall we look for a finer exhibition of a firm mind contending with great difficulties, and overcoming them by perseverance, energy and sagacity, or for more masterly examples of practical good sense and integrity, than in Xenophon's own conduct during the retreat of the Ten Thousand. Herodotus, the Father of History, has gained a story-telling reputation for which he may thank those scholars, who have gathered into one parcel, for the use of the pupil, all the garrulous tales and curious anecdotes to be found in his whole writings. We should owe not a little to Thucydides, if his only merit was that of having preserved the funeral oration of Pericles. But what grasp of mind and what deep reflection in his whole history! Plato and Aristotle are names which we often hear mentioned by the ignorant, the superficial, and those unacquainted with thorough study, in a style of contempt, which is truly amusing. However, before we arrogantly conclude that the philosophical systems of Plato and Aristotle were utterly obscure and false, it might be well for us to remember that these two minds have ruled the whole world of intellect for ages, and to reflect whether it is possible that two individual minds could rule for such a length of time this world of intellect by means of mere falsehood and obscurity. Even if it were so, their very errors are not useless. *Primus sapientiæ gradus est falsa intelligere.* We must not attempt to demonstrate that the few productions of the orators of Greece which have come down to us are worthy to be studied for their native excellence. No one ever really *studied* Demosthenes, whose mind did not undergo a mighty and strength-giving discipline; a

discipline which indurates the mental constitution, gives it muscle and energy, makes it like iron, girds the intellect with power, and teaches it to concentrate its energies. When we come to the Grecian poets, the argument from the excellence of the materials for study is equally powerful. There is more imagination in the Iliad, and therefore we admire each individual passage more deeply; there is more sweetness in the Odyssey, more attractive interest in the story.

Of Homer's rich language and melodious versification who can adequately speak? Almost every epithet he uses discloses the power of his imagination, revealing whole pictures, and landscapes, and groups of magnificent images to the mind. At the same time his language is perfect in grace, purity, freshness, and simplicity, and there seems to be no end to its versatile combinations. In passing from Homer to the "lofty grave Tragedians" of Greece, we breathe the same atmosphere of poetry, though the scene is dark, and its features partake more of the wild and terrible. Nothing affords a more astonishing proof of the great and peculiar genius of each of these tragedians, than their power of presenting the same story to the mind, according to the character of each one's taste and imagination, yet without either repetition or sameness, in all the grandeur of the richest poetry.

The spirit of Grecian tragedy has been often and admirably compared with that of Grecian sculpture. The Apollo Belvidere is not a more sublime creation and realization of the ideal of the god, than some of these tragedies, of all that the mind can imagine perfect in intellectual conception. The question has sometimes been asked, (and it is the question of an indolent mind, if put by one who had time and opportunity to make himself a classical scholar—and what industrious individual has not?) if the Greek classics are so transcendent in native excellence, why not become familiar with them through the medium of a translation? The answer is very plain for all: Because, in the first place, you lose one great object for which the Greek literature ought to be mastered,—the study, the discipline which the familiarity with such a language gives to the mind; and, in the second place, it is impossible through the yeasty vehicle of an English translation to gain any adequate conception of the richness and beauty of the original. There is as much difference between the poetry of Greece in the native language of the poet, and in another and a foreign,

especially a modern, tongue, as between a sky-lark in the woods and in a cage. Confine the bird to a gilded prison, and hang it up in a fashionable drawing-room, and if it sing at all, the notes will be spiritless, drooping and sad. The grand prominent feature of all Grecian literature, its ruling spirit, its distinctive character, is Thought, profound and energetic. Now, in every original writer, there are rays of thought which a translator cannot gather up, any more than he can chain the lightning. Even in history it is impossible to translate a work of genius from such a language as the Greek, without losing its freshness, life and fascination. Moreover, experience has proved that translations will not become popular. Who will say that the pleasure derived from the reading of such works as those of Plato, Thucydides, and Euripides is an inferior enjoyment. Surely if the music of sweet *sounds* be an *intellectual pleasure, then is the silent music of sweet language* still more so. A translation even from one modern tongue to another is rarely happy; there are, perhaps, not more than two in the whole range of our literature:—Carey's Dante and Coleridge's Wallenstein; and we could wish that this consummate master of language, had translated some of the tragedies of Æschylus from the Greek, as he has those of Schiller, from the German. But undoubtedly it is far more difficult to translate from an ancient to a modern language. A man may know about as much of the Apollo of the Vatican, by looking at a cast of the god in plaster, as he can of Demosthenes or Æschylus, through the medium even of a good translation.

Should we, any of us, be willing to study the Paradise Lost in any other dialect than Milton's vernacular tongue, or to read the Canterbury Tales in any other words but those of Chaucer's own pure English undefiled? Many of Milton's tremendous lines, and many of his sweetest, are utterly *untranslatable.* The eloquent *prose* of men of genius, its spirit, its soul, is equally *untranslatable.* No man in his senses would think of studying even Demosthenes or Æschylus in a translation; he might as well attempt to *study* the Cataract of Niagara at a copperplate engraving in a modern periodical.

Familiarity with Greek literature tends very strongly to train the mind to habits of patient industry. The ancient scholars and philosophers were impressed with a deep, abiding, practical conviction of the necessity of labour, repetition, and perseverance to

form an intellect perfectly trained. Aristotle considered the whole of philosophy, viewed in relation to the student, as consisting of habits, moral and intellectual, acquired by means of a regular process of mental discipline. The whole atmosphere of Greek literature is, indeed, too bracing for an indolent, debilitated habit of mind. No lazy, self-indulgent valetudinarian can live in it.

Whatever tends to invigorate and sharpen the intellect, prepares us for the prevalence of a better system of intellectual and moral philosophy. The general mind in our age is under the baneful influence of an unacknowledged, invisible materialism; it is mechanical in its speculations, and yet indefinite in its view. It is comprehensive in the sense of embracing a vast variety of objects, but it loses in depth what is gained in surface. Distracted by a multiplicity of engagements, it thoroughly encompasses and penetrates no one subject, nor gives perfect symmetry and polish to any performance. It is ever in a hurry. The world is turned into a vast factory, and the voice of the soul is silent amidst the confused whirring of ten thousand noisy engines.

It is not wonderful that the love and faithful study of one, who like Plato always directs the attention of his readers away from sensible things, and things taken for granted, immediately to their own inward being, endeavoring to make them *know themselves*, and not the object of their senses, should be followed by such a noble result in the discovery and exhibition of principles. Those educated under the full influence of the modern philosophy, and the multitude, who have received as an heir-loom a habit of contempt for the philosophy of Athens, regarding it but as another name for the essence of visionary absurdity, but who know no more about it than the inquisitors who condemned Galileo knew of the true system of the universe, will continue to raise the cry of mysticism, whenever any psychological writer shall attempt to advance by its light.

(*To be continued.*)

The Lion and the Unicorn.—A recent development of the sun-myth traces the arms of Great Britain to an old Aryan legend. The unicorn is the moon goddess with crescent horn. The lion and the unicorn fighting for the crown are an echo of the contest between the solar lion and the moon, in the mythopœic age.

OUTLINES OF ENGLISH LITERATURE.

NO. VIII.

By Chas. E. Moyse, B.A.

The Celt's melancholy, practical nature and humour.—The mind which joys in bright colour seems to be naturally inclined to fits of deep despondency. In the Celt, the change of feeling is sudden and also frequent on account of his inherent feebleness of purpose. But while despondency is a part of the Celt's being, we must not forget that it was in Great Britain made more poignant by the steady aggression of the Teuton. Two causes, then, one an essential mental quality, and the other an accident in regard to position, bring about that mournful note which can scarcely fail to awaken sympathy, when heard from Celtic lips. The Cymry were more unfortunate than their Gaelic kinsmen, for they had to bear the brunt of resistance; accordingly the melancholy which springs from defeat is expressed more emphatically and with more consistency by them. There were gleams of hope in the struggle of races, and when the Celt talks of these all his pride and scorn well up in a flood; but after the gleams come thicker darkness and sorrow more bitter. Arthur was the brightest of such gleams, Arthur the hero of one half of the Celts; but it was only sixty years after the victory of Mount Badon that the baffled Saxon, who had had time to get breath for another and more decisive effort, dealt a hard thrust at the foe, and called forth a song of despair from one of the worthies of Celtic Literature. It was the policy of the Teutons to break the continuous mass of the Celts into smaller and separate portions and to overcome these in detail. The isolation of the Cymry of Wales from the centre and the south-west of England was above all to be desired; so the Saxon, having made himself secure in the country which lies around the mouth of the Severn on the east and the south, conceived the bold venture which would lead him along that river, and carry him to the estuary of the Dee. The *Anglo-Saxon Chronicle* makes a note of these things in its own brief way. Under the date 577, it says that Cuthwine and Ceawlin fought against the Britons, slew three kings at the place called Deorham, (Dorham) and took three cities from them, Gloucester, Cirencester, and Bath. A subsequent dash brought the invaders face to face with Cyndylan, a Welsh prince, whose capital was Pengwern (Shrewsbury), and

whose court afforded a refuge to *Llywarch Hen* (Llywarch the Old). Llywarch, like many other Celtic bards, was also a warrior. In earlier life he had fought for the southern Celts, whom tradition connects with King Arthur, but when his leader, Arthur's knight Geraint, who finds a way into Nineteenth century thought, through Tennyson's Idylls of the King, fell in hot strife, Llywarch followed the fortunes of the renowned Urien, the Arthur of the northern Cymry. Urien met with an untimely death from an assassin's hand on the field of Pennok, and Llywarch took away Urien's head in his cloak.

I carry by my side the head of Urien, who gently commanded the army: on his white breast a black crow. I carry in my mantle the head of Urien, who gently commanded his people; on his white breast the crow battens. . . . The head that I carry carried me; I shall find it no more; it will come no more to my succour. Woe to my hand, my happiness is lost!

Geraint had fallen, Urien had fallen, so Llywarch betook himself to Cyndylan. But Cyndylan's end was near. The Saxons came quickly from the south, burned Uriconium, now Tarn, close to the Wrekin, and with it Cyndylan's hall. Cyndylan's family was slaughtered; the chieftain himself was killed in an attempt to stay the invader. Llywarch bemoaned the fate of Cyndylan in a pathetic strain, from which the following is taken:—

The hall of Cyndylan is gloomy this night, Without fire, without songs—Tears afflict the cheeks! The hall of Cyndylan is gloomy this night, Without fire, without family—My overflowing tears gush out! The hall of Cyndylan pierces me to see it, Roofless, fireless, My chief is dead and I alive myself! The hall of Cyndylan is an open waste this night, After being the contented resort of warriors: Elvan, Cyndylan, and Caeawg. The hall of Cyndylan is the seat of chill grief this night, After the respect I had; Without the men; without the women who there dwelt! The hall of Cyndylan is silent this night, After losing its master—The great, merciful God, what shall I do! The hall of Cyndylan, gloomy is its roof, Since the Lloegrians have destroyed Cyndylan and Elvan of Powys.

Such was the lament of a man whose sons were worthy of their fighting sire. Gwenn, the eldest, was slain at the ford of Morlas, and before his corpse was covered with turf, a bird sang sweetly on a pear tree above Gwenn's head. "That broke the heart of the Old Llywarch," moaned the despairing father. Doubting if God answered his prayer, and looked on with sympathy by the monks of Llanvor, Llywarch found a tomb in Llanvor monastery. A few

thoughts of the old bard, which show forth what one might call a tempest of Celtic melancholy are addressed to his crutch.

O my crutch! is it not autumn, when the fern is red, the water-flag yellow! Have I not hated that which I love?

O my crutch! Is it not winter-time now, when men talk together after that they have drunken? Is not the side of my bed left desolate?

O my crutch! is it not spring, when the cuckoo passes through the air, when the foam sparkles on the sea? The young maidens no longer love me.

O my crutch! is it not the first day of May? The furrows, are they not shining; the young corn, is it not springing? Ah! the sight of thy handle makes me wroth.

O my crutch! stand straight, thou wilt support me the better; it is very long since I was Llywarch. Behold old age, which makes sport of me, from the hair of my head to my teeth, to my eyes, which women loved.

The four things I have all my life most hated fall upon me together,—coughing and old age, sickness and sorrow.

I am old, I am alone; shapeliness and warmth are gone from me; the couch of honour shall be no more mine; I am miserable, I am bent on my crutch.

How evil was the lot allotted to Llywarch, the night when he was brought forth! Sorrows without end, and no deliverance from his burden.

If we are to believe all that has been associated with their names, Taliesin and Myrdhinn, (Merlin) the seer of Arthur, were equally unfortunate. Taliesin, the bard of Urien's court, and in aftertime the bard of Urien's son, Owain, saw his protectors vanquished by the Saxon. Merlin who prefixed Ambrose to his name, because he served Aurelianus Ambrosius, a leader of the Britons, witnessed a disastrous day of defeat when the Celts, as if in mockery of Teuton power, let their passions loose in civil war, and the inhabitants of the north, wishing to impose Scotch rule on all their race, overcame at Arderidd the tribes of the South, led by Aurelianus Ambrosius. From the service of Ambrosius, Merlin passed to that of Arthur, with whom Ambrosius seems inextricably confounded. Merlin's end was a repetition of that which befel so many of the early Celts of fame. He broke his sword, abandoned the society of men, consoled himself with melancholy song, and at last was discovered lying dead on the banks of a river.

But the Celt was practical, also. The bard did not forget that his talents had a high commercial value, and here he joins hands with the Saxon. Praise meant pay, and possibly as the Celts were a singing race by nature, and knew better how to flatter than did their brusque conquerors, this element of their character must be made duly prominent. The spoils of the spear are the reward of

his song, Taliesin informs his hearers, quite without disguise. Urien gives him honour, but, better still, abundance of mead and fair lands and feasting and gold and silver. Taliesin made in all three hundred requests of his lord, and he adds that every one was granted. "There would be reason for anger, if I did not praise thy deeds. And until I become old and in the sad necessity of death, I shall never rejoice except in praising Urien." The men whom the Celts most honoured were the bards. The Welsh laws tell us that the domestic bard shall receive of the family a beast out of every spoil in which he shall be present. If a bard asks a gift of a prince, he is to sing one piece, if of a baron, three pieces, if of a villain, let him sing until he falls asleep: his land shall be free. The Chief of Song was to begin the singing in the common hall, was to rank next but one to the patron of the family. When the Chief was installed in his noble office, the king was to give him a harp; the Queen, a gold ring. The harp he was never to part with.

The humour of the Celt is to be found everywhere. It differs from the humour of the Teuton, which rarely comes to the surface, in being more subtle and sustained. The proverbs of which early Welsh literature affords a rich stock, are often quaintly worded, but as I have already written beyond the prescribed limit, a quotation from the most distinguished Welsh poet of the Fifteenth century, Lewis Glyn Cothi, must suffice. The harp is the national instrument of Wales; the bag-pipe or "leather harp," says one writer, is fit only for an old Saxon, and its tones resemble "the shrill screech of a lame goose caught in corn." But this is the play of Celtic humour on brother Celt to which I have just referred:—

My polished ode, forsooth, they hissed,
And I 'midst laughter was dismissed.
For William Beisir's bag they bawl,
"Largess, for him!" they loudly squall;
Each rou'd with throat at widest stretch
For Will the piper—low-born wretch!
Will forward steps, as best he can,
Unlike a free, ennobled man:
A pliant bag 'tween arm and chest,
While limping on he tightly press'd.
He stares—he strives the bag to sound;
He swells his maw—and ogles round;
He twists and turns himself about,
With fetid breath his cheeks swell out.

What savage boors! his hideous claws
And glutton's skin win their applause
With shuffling hand and clumsy mien
To doff his cloak he next is seen;
He snorted; bridled in his face,
And bent it down with much grimace;
Like to a kite he seemed that day,
A kite, when feathering of his prey!
The churl did blow a grating shriek,
The bag did swell, and harshly squeak,
As does a goose from night-mare crying,
Or dog, crushed by a chest, when dying;
The whistling box's changeless note
Is forced from turgid veins and throat;
Its sound is like a crane's soft moan,
Or like a gosling's latest groan;
Just such a noise a wounded goat
Sends from her hoarse and gurgling throat.

We proceed now to talk of the Anglo-Saxon.

JOHN RUSKIN ON EDUCATION.

(*Continued from p.* 27.)

In considering the passages in which Ruskin more directly shows what should be the aims of education, we may notice two main points. First, education should teach the calling by which the individual is to live; and secondly, each individual must be enabled to live a life of healthy and rational enjoyment. *Good work must be learned.*

"The first condition of education . . . is being put to wholesome and useful work." Again: "One thing they (the ruling classes) were bound to teach—how day by day the daily bread they expected their village children to pray for might be earned in accordance with the will of God." Again: "It would be part of my scheme of physical education that every youth in the state—from the King's son downwards—should learn to do something finely and thoroughly, with his hands, so as to let him know what *touch* meant, and what stout craftsmanship meant; and to inform him of many things besides, which no man can learn but by some severely accurate discipline in doing."

In this way *technical education will aid moral education,* about which Mr. Ruskin lays down the following rules:—

"For morality they (the children) are to be taught gentleness to all brute creatures, finished courtesy to each other, to speak with rigid care, and to obey orders with the precision of slaves."

Perhaps it would be well if this element in education, the virtue of subordination to authority, were more attended to in our new world. Mr. Ruskin does not neglect physical education. No follower of Plato could attach greater importance to the necessity of athletics (or gymnastics, as Plato calls it,) than he does. He would have taught

"The laws of health, and exercise enjoined by them . . . Riding, running, all the honest personal exercise of offence and defence and music, should be the final heads of this bodily education . . . Next to these bodily accomplishments, the two great mental graces should be taught—reverence and compassion. Not that these are in a literal sense to be taught, for they are innate in every well-born human creature, but they have to be developed, exactly as the strength of the body must be, by deliberate and constant exercise. . . . To teach reverence rightly is to attach it to the right persons and things—first, by setting over your youth masters whom *they cannot but love and respect* (surely this is one of the principal means of religious education); next, by gathering for them, out of past history, whatever has been most worthy in human deeds and human passion, and leading them *continually to dwell upon such instances*, making this the principal element of emotional excitement to them; and lastly, by letting them justly feel, as far as may be, the smallness of their own powers and knowledge, as compared with the attainments of others."

In attaching this importance to reverence, Mr. Ruskin I may remind my readers, is following the theories of the great Goethe, propounded in "Wilhelm Meister's Travels." Education is there made to turn on the three Reverences—for what is above us, for what is around us, and for what is beneath us, and these three combine to produce Reverence for ourselves. We may some day take a peep into Goethe's school, so we will return again to Mr. Ruskin. Compassion has to be taught side by side with courage. It is as shameful to do a cruel thing as a cowardly one.

"Reverence, then, and compassion we are to teach primarily, and with these, as the bond and guardian of them, truth of spirit and word, of thought and sight—truth, earnest and passionate, sought for like a treasure and kept like a crown. This teaching of truth as a habit will be the chief work the master has to do, and it will enter into all parts of education. First, you must accustom the children to close accuracy of statement—this, both as a principle of honor and as an accomplishment of language—making them try always who shall speak the truest, both as regards the fact they have to relate or express (not concealing or exaggerating) and as regards the precision of the words they ex-

press it in, thus making truth (which indeed it is) the test of perfect language, and giving the intensity of a moral purpose to the study and art of words; then carrying this accuracy into all habits of thought, and observation also, so as always to *think* of things as they truly are, and to *see* them as they truly are, as far as in us rests. And it does rest much in our power, for all false thoughts and seeings come mainly of our thinking of what we have no business with, and looking for things we want to see instead of things that ought to be seen. Do not talk but of what you know; do no think but of what you have materials to think justly upon; and do not look for things only that you like, when there are others to be seen. This is the lesson to be taught to our youth, and imbred in them; and that *mainly by our own example and continence.* Never teach a child anything of which you are not yourself sure; and, above all, if you feel anxious to force anything into its mind in tender years, that the virtue of youth and early association may fasten it there, be sure it is no lie which you thus sanctify. There is more to be taught of absolute incontrovertible knowledge, open to its capacity, than any child can learn. There is no need to teach it anything doubtful. Better that it should be ignorant of a thousand truths, than have consecrated in its heart a single lie. And for this, as well as for many other reasons, the principal subjects of education after history ought to be natural science and mathematics. . . . For children whose life is to be in cities, the subjects of study should be, as far as their dispositions will allow of it, mathematics and arts; for children who are to live in the country, natural history of birds, insects, and plants, together with agriculture taught practically; and for children who are to be seamen, physical geography, astronomy, and the natural history of sea-fish and sea-birds."

(*To be continued.*)

EXAMINATION PAPERS FOR TEACHERS' DIPLOMAS.

We have received the following papers for publication. The last examination was held in the month of November, 1881

RELIMINARY EXAMINATION.

(*For Candidates of all grades, except in English Grammar, instead of which a special Paper is given for the Academy and Model School Diploma.*)

English Grammar.

1. Define any five of the following terms, giving an example of each:—*Consonant, diphthong, monosyllable, polysyllable, sentence, clause, phrase, transitive verb, intransitive verb, adverb, adverbial phrase.* (5)

2. Write the plural of:—*Coach, monarch, army, valley, knife, fife, muff, staff, chrysalis, fungus.* (5)

3. What Auxiliary verbs are used in the Indicative Mood and in what Tenses? (5)

4. In regard to what are verbs declined? (5)

5. Give the 1st persons plural active and passive of all the tenses of the Indicative of the verb *to choose.* (10)

6. (1) Change the following lines into prose: (2) Enumerate and define the different kinds of clauses in them, and analyse any one of them. (3) Parse the words in Italics:—

> "Blest *he*, though *undistinguished* from the crowd
> By wealth or *dignity*, *who* dwells *secure*
> Where man, by nature fierce, *has* laid aside
> His fierceness, *having learnt*, though slow to learn,
> The manners and the *arts* of civil life." (20)

Arithmetic.

1. Define the terms:—*Composite Number, Multiple, Least Common Multiple, Numerator, Denominator*, giving examples in illustration of the definitions. (5)

2. Why is it necessary, before adding fractions together, to change them to others having the same denominator? (5)

3. Subtract $\frac{3}{5}$ of $\frac{5}{6}$ from $1\frac{1}{2}$ of $\frac{4}{5}$ and divide the result by $(\frac{2}{3}-\frac{1}{7}) \times (\frac{1}{3}-\frac{1}{8})$. (10)

4. Divide 1·0191 by ·00079 and subtract from the quotient $5\frac{3}{4}$. (10)

5. If $\frac{3}{5}$ of a property be worth \$8,720, what is $\frac{4}{5}$ of the property worth? (10)

6. If the gas for 5 burners, 5 hours every day for 10 days, cost \$1.20, how many burners may be lighted 4 hours every evening for 15 days at a cost of \$21.60? (10)

Geography.

1. Define any five of the following terms:—*Meridian, Equator, Ecliptic, Latitude, Longitude, Political Geography, Watershed, Oasis, Continent, Isthmus.* (5)

2. Name the great land divisions (1) in the *Eastern Hemisphere* and (2) in the *Western Hemsphere*, and say how the proportions of land and water in these Hemispheres compare. (10)

3. Name, and indicate the directions of the great mountain ranges of the world. (10)

4. Give the Maritime Provinces of the Dominion of Canada, with their capitals, and briefly describe the climate and productions of any one of them. (10)

5. Name the New England States. (5)

6. Write down either 10 counties of England, or of Scotland, or of Ireland, or 5 Countries of the Continent of Europe with their Capitals. (10)

Sacred History—Old Testament.

1. Name the Country left by Abraham at God's command, and say where he mainly sojourned afterwards. (5)

2. What was the first land owned by Abraham in Canaan? (5)

3. How were the children of Israel governed before Saul was made King? (5)

4. In whose reign did the tribes of Israel become divided, and how many revolted from the reigning monarch? (5)

5. Give the name of the King who carried the children of Israel captive to Babylon. (5)

6. (1) What two Kings of Babylon ordered the temple of Jerusalem to be rebuilt? (2) In whose reign was it finished? Under the guidance of what prophet did the Israelites then return to their own land? (5)

Sacred History—New Testament.

1. What was the first miracle performed by our Saviour? Where and on what occasion? (5)

2. Quote the words uttered by our Saviour when His disciples tried to prevent little children being brought to Him. (5)

3. On how many occasions is it stated in the New Testament that our Saviour restored the dead to life, and who were those so restored? (5)

4. State in few words any two of our Lord's Parables. (5)

MODEL SCHOOL AND ACADEMY DIPLOMA.

English Grammar.

1. Analyse the following extract from "Paradise Lost":

> Fallen *cherub*! to be weak is miserable
> *Doing* or suffering: but of this be sure,
> To do *aught* good never *will be* our task,
> But ever to do ill *our* sole delight,
> *As* being the contrary to his high will
> *Whom* we resist. (10)

2. Parse the words in italics, and paraphrase the passage. (10)

3. What is the subject of "is" in the first line, and "will be" in the third line? What is the antecedent of "whom"? What is the case of "delight"? To what substantive form is the participle "suffering" attached? (8)

4. Give examples of the various constructions of "as" and "that." Name some parts of speech that perform a double function. (5)

5. Explain the meaning of *orthoepy, idiom, syntax, case*, and give the best definitions you know of *letter, syllable* and *word*. (6)

6. What is meant by the term "conjunctive adverb"? Show by an example that you thoroughly understand the effects produced in a sentence by a conjunction and by an adverb. (5)

7. Give examples of a compound and a complex sentence. Your examples must contain not less than thirty words. (6)

EXAMINATION FOR MODEL SCHOOL DIPLOMA.

English Composition.

SUBJECT OF ESSAY.—Any one of the following three:—

1. *The Resources of the United States of America.* 2. *The Commerce of Great Britain.* 3. *The Benefits to be Derived from Travel.*

Arithmetic and Mensuration.

N.B.—*The work must be shewn as well as the answers.*

Answer any five.

1. (*a*) Divide $\frac{2}{17}$ of $\frac{3}{11}$ of $\frac{8\frac{3}{4}}{\frac{3}{7}} \times 3\frac{1}{7}$ by $\frac{4}{11}$ of $\frac{9\frac{3}{7}}{8\frac{3}{4}} \times 4\frac{1}{8}$.

(*b*) The sum of $\frac{\frac{2}{3} \text{ of } \frac{3}{4}}{\frac{1}{2}}$ and $\frac{\frac{2}{3} \text{ of } \frac{5}{8}}{\frac{2}{3} \text{ of } 4\frac{1}{2}}$ is equal to how many times their difference? (20)

2. A gentleman owning $\frac{5}{8}$ of a foundry sold $\frac{1}{3}$ of his share for \$2570$\frac{1}{3}$; how much was the whole foundry worth? (20)

3. To what sum will \$350.50 amount in two years 10 months at 7 per cent. per annum? (20)

4. In what time will \$654.32 give \$234.55, interest at 7 per cent? (20)

5. A young man having received a fortune deposited 80 per cent. of it in a Bank. He afterwards drew 20 per cent. of his deposit and then had \$5760 in the Bank. What was his entire fortune? (20)

6. What is the square root of 10795.21? What is the cube root of 44361864? (20)

7. A Tank is 8 feet long, 5 feet 4 in. wide, 4 feet 6 in. deep. Find the number of gallons it contains calculating that 1 cubic foot of water weighs 1000 oz., and that a pint of water weighs a pound and a quarter. (20)

8. Find the cost of painting the walls of a square room 14 feet high, and 18 feet long with two doors 8 feet by 4 feet, and three windows 10 feet by 5 feet, the amount saved by each window being £2.16.3. (20)

Algebra.

1. Show $(a + b + c)^2 + a^2 + b^2 + c^2 = (a + b)^2 + (b + c)^2 + (c + a)^2$. (5)

2. Remove the brackets from $(x - a)(x - b)(x - c) - [bc(x - a) - \{(a + b + c)x - a(b + c)\}x]$. (10)

3. Find the greatest Common Measure of $x^4 - 16x^3 + 93x^2 - 234x + 216$ and $4x^3 - 48x^2 + 186x - 234$. (15)

4. Extract the square root of $37x^2y^2 - 30x^3y + 9x^4 - 20xy^3 + 4y^4$. (20)

4. Solve the following equations:—

(*a*) $x - \frac{2x+1}{3} = \frac{x+7}{5}$ (20)

(*b*) $\frac{10x+17}{18} - \frac{12x+2}{13x-16} = \frac{5x-4}{9}$ (20)

6. Reduce $\frac{x^3+3x^2-20}{x^4-x^2-12}$ to its lowest terms. (10)

Euclid.

1. Define the terms:—*Circle, angle, parallel lines, sector, rectangle.* What is the difference between a *trapezium* and a *trapezoid*, between a *theorem* and a *problem?* (20)

2. If a point be taken within a triangle and from it lines be drawn to the extremities of the base, prove that these two lines contain an angle greater than the verticle angle of the triangle. (20)

3. Prove that, if a straight line be divided into two parts, the rectangle contained by the whole line and one of the parts is equal to the rectangle contained by the two parts together with the square of the aforesaid part. (10)

4. In an obtuse-angled triangle if a line be drawn from one of the acute angles perpendicular to the opposite side produced, the square of the side subtending the obtuse angle is greater than the squares of the sides containing the obtuse angle by twice the rectangle contained by the aforesaid side and the part of it produced. (20)

5. Prove that the rectangles contained by the segments of two intersecting chords in a circle are equal. (20)

Book-keeping.

1. Explain the meaning of *credit* in its various uses in commercial language. What is the derivation of the word? (20)

2. What purpose is served by keeping a *Journal?* Give the various rules for Journalizing. (20)

3. Draw out six different kinds of transactions in connection with a dry-goods business, and trace their record in the various books used, in the Cash-Book, Ledger, Journal, Bill-book, &c. (20)

4. Write in your neatest hand-writing the form of a promissory note. Give a rule for finding the discount of a note. (20)

5. Explain the following terms:—*Bullion, Stock, Bottomry Bond, Assets, Bill of Sale, Bills Receivable, Endorsement, Accommodation, Balance.* (20)

**Use of the Globes.*

How would you solve the following problems, and what furniture would you require with your globe to do so?

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* N.B. It is optional with candidates to take either Use of the Globes or Drawing.

1. Find the shortest distance between Quebec and London. (25)

2. Find the time of sunset at the Antipodes of Montreal. (25)

3. Name the stars or constellations which appear above the horizon every night in the year, and those which appear only during the month of October. (25.)

4. Find the position of a star when its latitude and longitude are given. (25)

*Linear Drawing.

(The lines by which each problem is solved must be shewn.)

1. Divide a line into nine equal parts. (20)

2. Bisect and trisect a given straight line. (20)

3. Describe a circle passing through three given points. Under what condition is that problem possible? (20)

4. Draw a square on a line which is two inches long, and on one of its sides draw an equilateral triangle, on the second a hexagon, on the third a circle, and on the fourth another square. (20)

5. Inscribe four circles in a square. (20)

EXAMINATION FOR ELEMENTARY DIPLOMA.

(To be passed also by Candidates for Model School and Academy Diplomas.)

Art of Teaching.

N.B.—*Answer any five of the following questions:*

1. What ought to be the leading traits in a Teacher's character? Show how the absence of these characteristics would affect the school conducted by a Teacher who did not possess them. (20)

2. "The synthetic and analytic processes ought to be thoroughly understood by every elementary Teacher." Explain what these processes or methods are. (20)

3. State how you would organize a school of 60 pupils with one assistant, the ages of the pupils averaging from 6 to 13 years. (20)

4. What is meant by simultaneous teaching? Explain this fully, and state for what classes it is most suitable. (20)

5. What kind of questions would you ask a class studying the map of the Province of Quebec? How would you introduce a class to the study of Geography? (20)

6. What system of Rewards and Punishments do you propose to adopt in your School? Enumerate some of the methods which no good Teacher ought to employ. (20)

7. What subjects ought to be taught to a class reading the Sixth Reader? (20)

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*N.B.—It is optional with candidates to take either use of the Globes or Drawing.

8. Write notes of lessons on Vulgar Fractions, or on the *Unitary Method.* (20)

9. Name some of the excellencies of good reading, and state how you would promote these among pupils of a School to which you may be appointed. Give a list of words which are frequently mispronounced. (20)

10 How would you teach a class in writing? (20)

History of England.

N.B. *Answer any six of the following questions.*

1. Give the dates of the commencement and close of the Roman Period with some of its leading features. (10)

2. State any ten of the chief events of the Saxon Period. (10)

3. (1) On what ground did William I. lay claim to the English throne? (2) What battle decided the victory for him? (3) In what year and in whose reign was it fought? (10)

4. Enumerate the leading events of the reign of Edward III. (10)

5. (1) State what you know of Wat Tiler, John Wycliffe, Joan of Arc, and the Lollards. (2) Mention, with date and result, the famous battle fought in the reign of Henry V. (10)

6. State briefly the principal events of Henry VIII's reign. (10)

7. What led to the execution of Charles I? (10)

8. (1) Name the Sovereigns of the Stuart Dynasty. (2) State what you know of Hampden, "Thorough," Titus Oates, Stafford, Monmouth, and the Duke of Marlborough. (10)

History of Canada.

1. (1) Who were the "Cent Associés?" (2) What were their privileges and obligations? (10)

2. Give, with result, a brief account of the Campaign of 1759. (10)

3. State what you know of the rebellion of 1837. (10)

4. (1) What causes led to the conspiracy of Pontiac? (2) How did it end? (10)

French.

1. Quand les substantifs:—aigle, couple, enfant, délice, hymne, page,—sont ils masculins, et quand sont-ils féminins? (15)

2. Ecrivez le pluriel des substantifs composés:—passe-partout, garde-robe, arc-en-ciel, chef-lieu, chou-fleur, Hôtel-Dieu, chef-d'œuvre. (15)

3. Combien y a-t-il de temps primitifs dans le verbe et quels sont-ils? (15)

4. (1) Qu'est-ce qu'un verbe actif, un verbe passif, un verbe neutre, un verbe pronominal, et un verbe unipersonnel? (2) Do nnez un example de chacque espèce. (17)

5. (1) Quelle est la signification du pronom *en?* (2) Dans quels cas doit-on se servir de ce pronom? (13)

6. Donnez les temps primitifs des verbes irréguliers suivants:—déchoir, bouillir, mettre, pouvoir, dire, aller. (25)

PETITION FOR AN INCREASE OF THE CITY SCHOOL TAX.

The following petition of the Protestant Board of School Commissioners has been presented to the City Council:—

To the worshipful the Mayor and Aldermen of the Corporation of the City of Montreal:—

The petition of the Protestant Board of School Commissioners of the City of Montreal respectfully showeth:

1st. That your petitioners are charged by law with the provision and maintenance of a system of public schools adequate to the educational needs of the Protestant population of this city.

2nd. That in fulfilment of their trust they have purchased lands, erected and equipped school buildings, and have provided schools in which upwards of 3,800 pupils are taught by 103 teachers.

3rd. That for the acquisition of property that cost $365,000, bonds amounting to $300,000 have been issued under powers conferred by the Legislature, and a sum of $24,849.48 is annually set apart from the income of the Board to meet the interest of these bonds, and to form a sinking fund for their redemption in a term of years.

4th. That to meet the running expenses of the schools a sum of not less than $75,000 is annually required, the average cost for the past four years having been $77,500 a year.

5th. That as the income of your petitioners during the last five years has been less than its current expenditure, and as various mortgages on their property have matured and been cancelled, a considerable floating debt has accumulated for the liquidation of which within five years in addition to meeting the interest on mortgages and paying off mortgages at maturity, a sum of $9,500 will be annually required.

6th. That consequently, for maintaining the work of the Protestant Board of School Commissioners on its present scale, a sum of $109,300 is required each year.

7th. That the actual annual income of your petitioners at present is $94,300. The city school tax, which yielded them in 1876, $77,919.38, gave them in 1880, less than $64,400. The subsidy annually received from the provincial chest is about $4,900 and school fees amount annually to $25,000. Therefore

8th. That the total income of the Board is less than its instant needs by $15,000 a year.

9th. That such economies as are possible to your petitioners have already been pushed too far, that the efficiency of the schools has been distinctly impaired by the retirement of teachers, and that in school supplies, in repairs and in teachers' salaries the expenditures of the Board have been injuriously parsimonious.

10th. That an attempt to diminish expenditures to the limits of the present income can only be made by an abandonment of a portion of the work of the Board, which may be estimated as amounting to diminishing about 30 teachers and leaving more than 800 pupils destitute of education.

11th. That in the interest of the citizens of Montreal, it is desirable to effect the following enlargements and improvements in the work of the Board:—

(*a*) To restore to the schools the reading teachers now discontinued.

(*b*) To provide a teacher of French for each large school.

(*c*) To relax the strain on pupils and on teachers alike by allowing one year more than is now assigned for the completion of the Common School curriculum.

(*d*) To erect and equip in the St. Antoine Ward a school like the Sherbrooke Street school, and thus to relieve the over-crowding in the two largest schools of the Board.

(*e*) To establish a school for children of vagrant habits or of vicious character.

The annual cost of these improvements including interest on the capital cost of the new school, would be $10,100.

12. That to secure the additional income needed for the maintenance and improvement of schools, an augmentation of the city school tax to the very moderate sum of three-tenths of one per cent. is requisite.

Your petitioners therefore respectfully pray your worshipful body to use the influence which you possess with the Legislature of Quebec for the purpose of securing the increase of tax above indicated.

And your petitioners, as in duty bound, will ever pray.

R. W. NORMAN, D.C.L., Chairman of the Board.
J. F. STEVENSON, D.D.,
G. W. STEPHENS,
WM. LUNN, Hon. Treasurer.
J. W. DAWSON, LL.D.

THE PROTESTANT COMMITTEE OF THE COUNCIL OF PUBLIC INSTRUCTION.*

January, 1882.

(1). MEMBERS OF THE COUNCIL OF PUBLIC INSTRUCTION.

The Right Reverend James Williams, D.D., &c., Lord Bishop of Quebec.

Rev. John Cook, D.D., LL.D., Quebec.

The Venerable Archdeacon Leach, LL.D., Montreal.

The Hon. Judge Day, D.C.L., Montreal.

The Hon. James Ferrier, Montreal.

Principal Dawson, C.M.G., LL.D., F.R.S., &c., Montreal.

The Right Reverend Wm. Bennett Bond, D.D., Lord Bishop of Montreal.

The Hon. George Irvine, Q.C., Quebec.

R. W. Heneker, Esq., D.C.L., Sherbrooke.

The Hon. Gédéon Ouimet, &c., &c. (*ex-officio*), Quebec.

(2). ASSOCIATE MEMBERS OF THE PROTESTANT COMMITTEE OF THE COUNCIL OF PUBLIC INSTRUCTION.

Dr. Cameron, M.P.P., Huntingdon, P. Q.

The Hon. W. W. Lynch, Solicitor-General, Knowlton.

The Hon. L. Ruggles Church, Q.C., M.D., &c., Montreal.

The Rev. George D. Mathews, D.D., Quebec.

E. J. Hemming, Esq., Drummondville, P. Q.

SECRETARY, Rev. Professor Weir, M.A., LL.D., Quebec.

* Published by request.

EDUCATIONAL TOPICS.

Education and Crime.

Such is the title of a short pamphlet published by the Bureau of Education in the Department of the Interior, Washington. The paper is a report drawn up by J. P. Wickersham, LL.D., a gentleman who was for fifteen years the State superintendent of public instruction of Pennsylvania, and chairman of the committee appointed by the National Educational Association to investigate the subject.

The report opens with the attempt to ascertain the facts as regards the number of high school graduates in the Philadelphia prisons—it having been asserted that a very large proportion of the convicts in confinement in 1879 had received an education at the high school. The conclusion to which the committee came is that "the number of liberally educated native born Americans, whether graduates of high schools or colleges, found in our jails or penitentiaries, is exceedingly small; not more, we think, than 1 in 500 of the whole number. Such a fact must more than satisfy the most ardent friends of higher education." This, however, is but a small part of the question, viz., the general effect of education upon crime. Does education, higher and elementary, public and private, tend to diminish crime; and, if so, to what extent? Upon this point, after the investigation of some evidence drawn from the State of Pennsylvania, the following conclusions are reached:—

(1). That about one-sixth of all the crime in the country is committed by persons wholly illiterate.

(2). That about one-third of it is committed by persons practically illiterate.

(3). That the proportion of criminals among the illiterate is about ten times as great as among those who have been instructed in the elements of a common school education.

The writer then proceeds to support these conclusions by comparison with those arrived at by other inquirers, and certainly makes a point when he says that, as nations advance in civilization, crimes are more apt to be detected and punished—many acts being regarded as crimes that were not so in earlier stages of the world's life. The growing density of the population, the increasing intensity of the struggle for life, the consequent closing of the means of re-

munerative employment to thousands—all these combine to create crime in communities where education is necessarily higher than in more uncivilized conditions. "Apart from all misleading statistics, it is an undeniable fact, that wherever in this country you find public schools long and well established, there you find in the highest degree comfort, thrift, intelligence, culture, and whatever else go to make happy homes and a prosperous people. . . . It may seem marvellous to those who have not given attention to the subject, but the results of our reformatories for the young lead to the conclusion that if the population now filling our penitentiaries and prisons had been properly cared for and educated when young, at least three-fourths of them would have been saved to society and themselves." Nor should it be forgotten in considering the case of public schools on this continent that if, in some ways, as Grant White has pointed out, they have great advantages over those of older communities in being comparatively free from the sad heritage of crime and other evils left by the past, in other ways they work at great disadvantage. A striking letter lately contributed to the New York *Nation* on the evil influences of mixed schools, and reprinted in the November number of the *Canada Educational Monthly* ("A High School and its Moral,") gives ample illustration of this point. The good influences of the school are too often neutralized by the bad influences of the street, especially as the pupils in the public schools in the United States are under the eyes of their teachers, on an average, but one-fourth of the hours of the day, and scarcely more than one-fourth of the days of the year. Mr. Wickerham does not fail to make another point when he insists on "the popular demand for intellectual results." To produce these "teachers tax themselves to the utmost, forgetting that moral instruction, the formation of character, the shaping of life, is the grand purpose of all education. With these and other drawbacks that might be named, it is too much to expect the public schools to rid us of all the evils that afflict society; too much to expect attendance at school for a week, a month, a year, with ability to read, write, and cipher a little, to keep men out of prisons and penitentiaries who have had no home training in their youth, who have been allowed to associate with the bad, taking from them daily lessons in vice and crime, and who have grown up idle and without restraint."

The Classics and Education.

In our present number we reprint the first part of an address delivered before the St. Johns Convention of Teachers, by Principal Smith of St. Francis College, Richmond, upon the study of Greek literature. In its more general form, as the study of the Classics, the subject is one that is attracting a good deal of attention just now. It is only necessary to refer to Professor Fletcher's address, reprinted in the *Queen's College Journal* of Kingston, and to Sir Theodore Martin's remarks lately given by the English *Schoolmaster*. In each case the trite arguments are furbished up again with more or less speciousness; in each case we find assertions which it would be difficult to justify. Thus Professor Fletcher maintains that the student will not "find in modern literature models of literary style, either in poetry, or rhetoric, or history, or philosophy, to place for one moment in comparison with the models of Greece and Rome,"—which, of course, no one believes. On the other hand Sir Theodore Martin thinks that "The man who has grappled successfully with the great Greek and Roman writers may be trusted to have developed a faculty which will stand him in excellent stead, whatever he may be called upon to do, or wherever he may be called upon to go." We wish we could believe it, but, unfortunately, facts are too strong to the contrary; the truth is, that mere scholarship is a drug upon the market, and that the possession of it is almost as fatal to many young Englishmen as the neglect to lead trumps with five and an honour.

From such generalisations it is instructive to turn to an important contribution to the question, which has been recently made in Germany. Before the year 1870, those German students who had been trained in a real school (non-classical) instead of a gymnasium (classical school) were debarred from university education in Prussia, with the result that an increasing number of Prussian students had resort to universities lying beyond the Prussian borders. In these circumstances, the Government decided to open the doors of the universities to non-classical as well as to classical pupils. This was carried into effect by a decree in December, 1870. After ten years experience, the Philosophical Faculty of the University of Berlin put upon record their impressions as to the influence of the change. The paper received the signatures of all the scientific as well as of all the classical mem-

bers of the Faculty, and has been published. "It will hardly fail," writes the New York *Nation* (December 22, 1881), "to be regarded as the most powerful plea ever made in behalf of classical studies." First of all, the memorandum calls attention to the steadily increasing proportion of non-classical to classical students which threatens an entire change in the dominant characteristics of the University. Such an impending change justifies a careful inquiry into the scholarship of the students from the real schools. The results arrived at are most instructive. The Professors in Advanced Mathematics report that students who have received preliminary classical training, although less advanced at the beginning, show a clearer insight into the subtleties of the more abstruse mathematical relations, and, before they have gone far, leave non-classical students quite in their rear. To the same effect is the testimony of the Professors of Astronomy, Chemistry, Technology, English, German language and literature. The Professors of Chemistry go so far as to say that students from the real schools cannot be placed upon the same plane with the students from the gymnasia. These facts, coming upon such unimpeachable authority, demand serious attention.

The old grounds for maintaining the classics as a necessary part of Higher Education may have to be abandoned. But if it be proved that the classics, and the classics only, give a certain mental training, and that, without this, the mind is seriously impaired, it will be wise to retain them, or the study of one of the sister languages, for the sake of this mental training, for the present at least. It must be remembered always that the scientific study of modern languages is but a thing of yesterday, that most of those who are now assisting at the study of English, have never learned it scientifically themselves, and probably had a very imperfect knowledge of it when they began to teach it. It must also be remembered that a full, philosophical and consistent Grammar of the English language has not yet been written, and that when this has been done, much of the training that the German Professors desiderate in their pupils, will be obtained through this source. And lastly, it should be clearly understood that subjects of study, like forms of belief, depend much more for their vitality upon external influences than upon arguments for or against them. The superstitions of the past, such as witchcraft, according to Lecky, died hard, logically defended to the last, but discarded by the

church, because people ceased to believe in them. And the student of religious thought will be able to illustrate what we have said from contemporary history. The future of the classics, as a necessary part of higher education, depends upon a similar verdict. They will continue to be studied, perhaps for many years, but inevitably, as the scientific and utilitarian spirit makes its full influence felt in education, people will turn from them. Their disappearance from the curriculum may cause a temporary weakness; but what is lost on one side will be gained on another.

BOOK NOTICES.

Messrs. Gage & Co., of Toronto, have added to their valuable Educational Series a set of *English Readers*,* mainly a reprint of Chambers's excellent series, edited by Professor Meiklejohn, of the University of St. Andrews, and adapted for use in Canadian Schools by the addition of chapters having special bearing on Canadian life and history. It would be a sufficient testimony to the sterling merit of *Messrs. Gage & Co.'s Readers* to say that, after mature consideration, they have been adopted by the Protestant Board of School Commissioners in Montreal, for exclusive use in their schools, but we must add that the reading matter is good, and the printing and illustrations above praise. These are in fact the best and cheapest books we have met with, of the sort, printed in Canada. The First Primer is based upon two principles: "that the Alphabet is best taught in Words; that Words are best taught in and through Pictures." Thus to illustrate by p. 15, "man," "pan," and "fan" are pictured at the top of the page, and printed below in ordinary type and in script. Then come appropriate short sentences. The Second Primer is an extension of this principle and the pictures are here of increased merit and detail. In Book II, we have one step further in advance; all the extracts have been made with the view of instructing as well as interesting and are of a distinctly literary character, as they include matter taken from Lord Houghton, Longfellow, and *St. Nicholas*. The selections in Book III are equally judicious, Wordsworth, Southey, Scott and Parkman being pressed into the service. As in the previous volume the reading exercises are followed by well chosen questions and exercises. The Readers are more literary as they advance, and Book IV is specially so. Passages are selected from the works of such writers as Milton, Addison, Carlyle, and Tennyson. The portraits of many of the authors contributing are beautifully executed. Besides its literary character the value of the volume is enhanced by the lessons

*English Readers edited by J. M. D. Meiklejohn, M. A., Books I to V. Fully illustrated. (W. J. Gage and Company, Toronto.)

on Temperance and Hygiene that are introduced. In preparing Book V, "the chief aim has been to give pupils an acquaintance with what is most interesting and most important in connection with the world, past and present." Thus it contains many excellent historical extracts and the lives of eminent men. It would have been more complete if pre-Christian history had also been represented, for the days of Greece and Rome should be as real to the young for whom this book is intended as the story of later times. In conclusion, we cannot say too much in recommendation of this excellent series. It is suggestive, interesting, literary and practical. We must add that the Fourth Book contains a fac-simile reprint of a poem by Longfellow apparently written for the Series. The idea is a novel one. Messrs. Gage & Co. are to be congratulated on the excellence and completeness of their series of Readers, which must speedily oust all competitors from Canadian Schools.

Messrs. Lippincott have put a tail to their oyster. In a previous number (Vol. I p. 491) we were able to speak in the highest terms of the first four parts of their Popular Series of Readers. *Lippincott's Fifth Reader** now lies before us. As before, we have, perhaps, too much of Mr. Willson, but he has given the present volume a more literary character by pressing better writers into the service. The story of the previous volumes is continued and, in a series of letters "Around the world," brief but interesting characterizations of foreign peoples and countries, as well as historical sketches, scenes and incidents of travel, have been introduced. As compared with Gage's Fifth Reader, the present volume has the advantage of the interest derived from a continuous tale. The printing is equally good, the illustrations possibly superior, though there is a little room for choice. Gage's work, on the other hand, is of a more distinctly literary nature and has the advantage in its notes after each extract. Mr. Willson's Appendix, in which he jots down brief sketches of the writers, etc., to whom prominent reference is made, will be found quite as serviceable to the teacher as to the pupil. We can only say that the public of America are fortunate in having to choose between two such admirable series of readers, as those by Messrs Gage and Lippincott.

In a previous number we had occasion to notice the annual lecture of McGill College by Professor Moyse upon *Poetry, as a Fine Art.*† It now lies before us. To use a term which is appro-

*The Fifth Reader of Lippincott's Popular Series, by Marcius Willson, with numerous illustrations. (J. B. Lippincott & Co., Philadelphia, and Dawson Bros., Montreal.)

† Poetry, as a Fine Art: being the University Lecture of McGill College, for the session 1881–2, delivered by C. E. Moyse, B. A., ("Witness" Printing House, Montreal)

priate in this case, if somewhat trite, the printing and paper are quite "æsthetic." We don't know quite whether we like the color of the wrapper, but the contents will prove eminently instructive to those who need a clear introduction to poetical criticism from a temperate Wordsworthian point of view. Into the analogies between Poetry and the other Fine Arts, Professor Moyse hardly enters, but confining himself strictly to the material side of the Art, notices some characteristics common to all poetry and some peculiarities of individual poets. We have called Professor Moyse a Wordsworthian, but we hasten to add that as regards the nature of poetry he differs from his master. In calling Poetry, "the breath and finer spirit of all knowledge, the impassioned expression which is in the countenance of all Science;" or again in defining it as "the spontaneous overflow of powerful feelings," and tracing its origin to "emotion recollected in tranquillity," Wordsworth clearly belongs to the *imitation* school of Aristotle, rather than to the *imagination* school of Bacon. Professor Moyse inclines to the latter, though we cannot help thinking that both are true together. Poetry is *idealisation*, imitation of nature as it appears to the man gifted with rich imaginative powers; in Shakespeare's ever memorable words, which sum up the whole poin in dispute:

> "O'er that art,
> Which, you say, adds to nature, is an art
> That nature makes . . . . . .
> . . . . . This is an art
> Which does mend nature,—change it rather: but
> The art itself is nature."

Upon many other points in the lecture, we should like to say a word, but we must refrain. The lecture is suggestive, if, perhaps, somewhat uniform in style and treatment, and to be suggestive is the highest praise that can be given to a lecturer.

The Boston Society of Natural History is issuing a series of "Guides for Science Teaching," which are designed to supplement a course of lectures open to teachers of the Boston Public Schools. *Common Minerals and Rocks** is the title of the latest of these "Guides." This is an excellent little work fully abreast of the times and should be in the hands of every teacher of elementary mineralogy and lithology. In the first part of the work the author deals in a very pleasant manner, with abundance of illustrations, with the agencies, aqueous and igneous, that have operated in the formation of the rocks of the earth's crust. The second part is occupied with a description of our common rocks and their mode of formation, preceded by a brief account of the minerals of which these rocks are essentially composed.

* Common Minerals and Rocks, by W. O. Crosby. (Ginn, Heath, & Co., Boston.)

Among the educationals of the month, the New England publications always take a leading place. *Education* (Boston) takes rank, we imagine, as the first magazine devoted to the subject among English speaking peoples. The current number contains several readable articles. "Moral Instruction in Public Schools" is discussed by a clergyman who considers that we stand in need of four things,—a more intelligent public sentiment; alterations in the law of schools; teachers of higher character; and lastly, (Rejoice, educational publishers,) a text-book! The translated "Notes on the Development of Self-consciousness" will be pleasant reading to those, we hope, many people who take an interest in this important branch practical Psychology. "Have we a Science of Education?" begins by defining education as "the harmonious development and training of the spiritual, mental, and bodily powers of a human being," and gives rules for the attainment of this development, some of which, such as "education is not creative", are sensible. The article concludes with the following words: "The object of all education is power. There is no power without training and knowledge. Correct knowledge leads directly to goodness, therefore knowledge is the great aim and end of the science of education"—which we may balance against its previous law of teaching, that "knowledge must necessarily come before discipline." Verily the science of education seems to be in its infancy. The *Journal of Education* (Boston) is an intensely practical paper like the English *Schoolmaster*. They both give their readers the fullest knowledge of what is going on in the districts with which they are concerned. In the former, (Jan 5,) we notice a capital paper by Professor Payne of Michigan on "Teaching versus Lesson-hearing," and a letter on "But" in the issue of the 12th. The *Primary Teacher* for January begins the year well. We notice the first of a series of lessons in Tonic Sol-Fa, which will be invaluable to music teachers in our Elementary Schools. "Where shall I put the Apostrophe?" is a useful note. The poem on "Northern Voyages" suggests, what we have often thought before, that, though the poet is said to be a teacher, educators are sometimes inferior poets. The Philadelphia *Teacher* is as rich as ever in honey, manufactured in accordance with the old Roman theory, but printing and general get up are its strong points. The following which concludes an (apparently) original paragraph upon "Teaching" is admirable: "As the teacher is to be a model for his class, his salary should be such as to draw the best talent into the profession." The battle between the *Canada School Journal* and the *Canada Educational Monthly*, of Toronto, has become internecine. The raciest thing in the latter, which is not strong this month in original matter, is a severe dissection of Gage & Co.'s Practical Speller. The *School Journal*, published by Gage & Co., has rejoined by "lifting the veil" concerning the *Educational Monthly* and its

editor. Notwithstanding some "educators' poetry" on Santa Claus, the number is an excellent one, and the article on "Co-education". (of Mind and Body) gives some interesting facts. Both the Journals of the Presbyterian Colleges are live papers. That of *Queen's College* is stronger in reading matter, while the *Presbyterian College Journal* is, like the English *Schoolmaster*, better as a newspaper and register of what is going on in its special world.

We have received copies of the *Minutes of the 21st Annual Convention of the Ontario Teachers' Association*. The Minutes are carefully printed as well as the following papers in full: The President's Address; Religion in the Public Schools, by Dr. Wilson of Toronto; the Relation of the Will to the Intellect in Education, by Dr. Robins; Physical Education, by Mr. A. H. Morrison of Galt; the Morbid Results of Persistent Mental Overwork, by Dr. Workman of Toronto; Uniformity of Text-books, by Mr. S. S. Herner. Copies, price 10 cents, can be procured by application to the Secretary, R. W. Doan, Toronto.

RECENT EVENTS.

American Association for the Advancement of Science.—As the next meeting of this Association is to be held in Montreal, a public meeting was held in the rooms of the Natural History Society on Jan. 11th, to make preparations. The subject was discussed and several sub-committees were appointed.

Protestant Board of School Commissioners.—The first regular monthly meeting of the Board, for the year 1882, was held, Jan. 12th. After some preliminary business it was resolved upon the motion of Dr. Dawson "That in deference to the wishes expressed by the City Council, this Board will henceforth place a summary of its proceedings, at its ordinary meetings, at the disposal of any of the City newspapers willing to publish the same."

Canadian Academy.—Steps have been taken at the instance of the Governor-General for the establishment of a Canadian Academy. This will include both science and letters, English and French. It appears that a meeting has been held in Montreal, at which were present Dr. Dawson, C.M.G. (Chairman), and Dr. T. Sterry Hunt, Montreal; Dr. Daniel Wilson, President of the University of Toronto; Dr. Selwyn, of the Geological Survey; Dr. Lawson, of Dalhousie College, Halifax; Mr. J. M. LeMoine, President of the Literary and Historical Society of Quebec, and Mr. Faucher de St. Maurice, M.P. The object of the meeting was to draw up a preliminary constitution and plan of organization to be submitted to His Excellency the Governor-General on his return to Canada. The proposed Academy, it is said, is to be composed of six sections, representing English Letters, French Letters, History

and Archæology, Mathematical and Physical Sciences, Geological Sciences, and Biological Sciences. It is probable that the membership will be limited to 10 or 12 in each section.

The Hervey Institute of Montreal.—Publicity has lately been given to the ingenious modes of punishment—by mustard plaster, by tying to chairs, and by confinement in the coal cellar—in vogue in this institution, and condoned by its lady directresses. Light is hereby thrown on the ignorance of some mothers in regard to many matters of the deepest educational importance. To those who still believe in mustard plasters as a cure for misconduct, we would commend Mr. Herbert Spencer's short essay on education, for their study, and more especially his chapter on Moral Education, from which we quote his theory of punishment conveyed in the following words: "Is it not manifest that as 'ministers and interpreters of Nature,' it is the function of parents to see that their children habitually experience the true consequences of their conduct—the natural reactions: neither warding them off, nor intensifying them, nor putting artificial consequences in place of them?" Those who have charge of the young should permit wrong actions to meet with their legitimate result, but what true connection of cause and effect can be traced between the pecadilloes of youth and the mustard plaster?

EDUCATIONAL NOTES AND NEWS.

Payne and Spencer as Educationists—At a meeting of the Education Society, London, Nov. 28th, Mr. C. H. Lake read a paper on Joseph Payne's educational writings. He pointed out that Payne's chief doctrine as an educationist was the necessity of the teacher following nature's method; that is to say, the pupil can only learn by his own action, and therefore all telling or didactic teaching is useless, at least in the early years. The function of the teacher is then to record the progressive stages of the pupil's discoveries and to guide his inquiries. At a subsequent meeting, Dec. 12th, Mrs. Bryant read a paper on Herbert Spencer's Educational Writings. Confining herself to the question of the relative importance of subjects and the formation of the curriculum, she showed that Mr. Spencer's method of reasoning on education is purely deductive, and that his conclusions, though logically deduced, have never been put into practice by teachers. Criticizing his argument in detail, she showed that Mr. Spencer assumes without sufficient proof, firstly, that the value of a study as discipline is in proportion to its value for knowledge-giving; secondly, that the highest achievements of art require a knowledge of the principles of science, physical and mental, on the part of the artist.—*The Athenæum.*

Domestic Economy in Elementary Schools.—A deputation from the Domestic Economy Congress and other bodies interested in

the above subject, lately waited on the Council of the Education Department of England. The following which we extract from the *Schoolmaster*, expresses the view of the deputation :—

"That your memorialists regret to hold the belief that the past teaching of the duties of home life in public elementary schools to boys and girls has been much impeded by the phraseology of the codes and the use of the terms domestic economy and its explanations, and they respectfully suggest that such terms may be abolished, and that plain English words in common use among the people, such as food, cookery, rules for health, rules for the house, and thrift may be substituted. That your memorialists respectfully urge that these subjects should be taught practically even in infant schools, being of the first importance in every-day life, and that each subject may receive State encouragement as class or specific subjects. Finally, your memorialists venture to suggest that measures may be taken through local action to secure the superintendence of the teaching of these subjects by women, and that localities be encouraged to offer prizes and hold public local examinations annually, as is done with elementary drawing and science."

Moral and Religious Training of Children.—This subject was discussed at the meeting of the Massachusetts Teachers' Association, held during the last days of the old year. An able paper was read by Mr. G. Stanley Hall, who has made a special study of pedagogic subjects in Germany, an abstract of part of which we reprint from the *Journal of Education*.

Religion is the most generic kind of culture as opposed to all sects that are one-sided, but the differences of sects should have no place in the education of the young,—as well might the medical student attempt the fine distinctions of optics before studying the human eye. The religion should enter into a child's education from the cradle. The first things noticed by the infant are the mother's face and voice,—the mother is the infant's God, and the less its feelings are trained towards that deity, the less will they be developed later towards the true God. As the child grows it is like a plant, and like the plant it should live out of doors,—nature is now its religion,and religious training is standing out of nature's way. Bodily training is the best assistance possible in this portion of the child's religion. Next, the child's curiosity is aroused by nature's forces, storms, rocks and trees. To see a natural phenomenon and to accurately describe it may be difficult for a child, but it is admirable training. The elements of science should therefore be taught children for their moral and religious effect.

Church going and piety are dangerous for a child, at least before the first school year. Familiarity with sacred things will dwarf the natural curiosity which should come later. The child's conception of God should not be early encouraged, and when first encouraged it should be with a feeling of reverence rather than love. That child is said to be unfortunate who has never heard its parents pray, but more unfortunate is the child who is early encouraged to frequent communication with God by prayer,—it causes self-consciousness and retards true religious feeling. Before the Bible is put into the hands of a child, it should be told some of the most entertaining of the biblical stories, to which a series of the myths and traditions of other religions may be added. Then teach it the Old Testament, in the Teacher's own words, as is done in Germany, where only those specially prepared for it are allowed to instruct children in the study of the Bible. So far in the life of a child there is no essential difference in the training of the Jewish, Catholic, and Protestant religions, and up to this point some general form might be agreed on for use in our public schools.

Now approaches one of the most important periods in the life of a child;

the craving for association appears, the formation of friendships. The life of the individual ends and that of the race begins,—the golden age of life. Everything now depends on the direction given to the new forces. The greatest danger, greater than intemperance,—is that the sexual elements will be abnormally developed. Education should now keep the child busy and prevent preoccupation of mind; no routine should be followed, but entire change of labor. All the evils that flesh is heir to may appear at this period, when all is solvent and plastic and more susceptible than any other period of life. A pleasant home and intellectual training are now most valuable. Finally, when a young man takes his affairs into his own hands, his previous religious instruction should be brought to a focus, for then a personal sense of purity or impurity is possible. The great danger is that changes will be too violent, and forces meant for a lifetime may be broken down all at once.

School Libraries.—The School Board of the town of Ipswich has lately declined to take any steps for the formation of a School Library. The *Schoolmaster* writes as follows in reference to this decision:—"We regret that any Board should arrive at such a decision. To provide a well-selected library for the information and amusement of the older pupils is a part of the School Board work which ought to be considered absolutely essential. To encourage a habit of reading at home is to assist in developing the intelligence of the pupils, and the work of the school must be greatly improved by such development. Where a free library is at hand there it less necessity for such a collection of books in school, but, in the absence of a public supply of wholesome literature, the School Boards of the country would be greatly adding to their own efficiency by the provision of such a benefit for the young."

SCIENTIFIC DEPARTMENT.

INTERNATIONAL GEOLOGICAL CONGRESS—VEGETABLE MOULD AND WORMS—DEVELOPMENT OF CANADIAN MINERAL RESOURCES—PRESERVATION OF FRUIT—MONTREAL AN ISLAND IN THE OTTAWA.

The most important meeting in the interest of Geology of which we have reports since the appearance of this department in the RECORD of December last, is undoubtedly the International Geological Congress which was held at Bologna, Italy, in the latter part of September. About 200 geologists were present, the United States being represented by Prof. James Hall and Canada by Dr. T. Sterry Hunt. The Congress was chiefly occupied in discussing two subjects: 1st, the unification of geological nomenclature; 2nd, the unification of colors, signs, &c., employed in geological maps and sections. With reference to the first subject the Congress came to the conclusion that it would be advisable to designate the divisions of sedimentary formations by the following terms, the most comprehensive being placed first: Groupe, Système, Série, section or Abtheilung, Étage. The corresponding chronological terms recommended are Cycle, Periode, Epoque, Age. With reference to the colors and signs to be employed in geological maps, the Congress advised that all nations should represent the various groups by the same colors (which were named) the sub-divisions to be shown by shades of the color adopted or by colored lines. The Congress resolved to prepare and publish a geological map of Europe according to the plan recommended. This map will be published at Berlin, at a cost of about $12,500.

No other recent work has received anything like the amount of attention bestowed upon the latest production of Mr. Darwin's pen, entitled, "The for-

mation of Vegetable Mould through the Action of Worms." Magazines and newspapers of every description from the most profoundly scientific quarterly to the comic weekly have made extracts from or commented upon this work which is the record of observations and investigations extending over nearly half a century. Mr. Darwin believes on evidence which seems very satisfactory to his reader, that each English earth-worm probably passes, on an average, about twenty ounces of matter through its body in the course of a year; but then it brings that quantity of matter to the surface of the earth, and there deposits it, and brings it up in a form very different from that in which the matter existed before it passed into the worm. In the first place, the earth is finely triturated in the gizzard of the creature with the fibrous parts of the leaves on which it feeds, and with which it lines its burrows, so that the mould which results is what we know as vegetable mould, a totally different substance for the purposes of the farmer and the gardener from the substance on which the worm first begins to act. Mr. Darwin says "Worms have played a more important part in the history of the world than most persons would at first suppose. In almost all humid countries they are extraordinarily numerous, and for their size possess great muscular power. In many parts of England a weight of more than ten tons (10,516 kilogrammes) of dry earth annually passes through their bodies, and is brought to the surface, on each acre of land: so that the whole superficial bed of vegetable mould passes through their bodies in the course of every few years. From the collapsing of the old burrows the mould is in constant, though slow movement, and the particles composing it are thus rubbed together. By these means fresh surfaces are continually exposed to the action of the carbonic acid in the soil, and of the humus acids which appear to be still more efficient in the decomposition of rocks. The generation of the humus acids is probably hastened during the digestion of the many half-decayed leaves which worms consume. Thus the particles of earth forming the superficial mould are subjected to conditions eminently favorable for their decomposition and disintegration. Moreover, the particles of the softer rocks suffer some amount of mechanical trituration in the muscular gizzards of worms, in which small stones serve as mill-stones." When we consider that a single earth-worm is not supposed to pass more than twenty ounces of earth through its body in the year, such a total result as this seems almost incredible. But then we must remember that from at least twenty to thirty thousand of these creatures are believed to be at work on every acre of British earth suitable for their activity, and that in Great Britain there are thirty-two millions of such acres. If ten tons of earth pass through these creatures on every one of such acres in the year, three hundred and twenty millions of tons of earth are brought to the surface by them in Great Britain alone, in a single year; and when this large weight of soil is multiplied by the number of years during which their agency has certainly been at work—Mr. Drawin thinks a million years not at all an extravagant estimate—the effect that they have produced in making the vegetable mould of the world can hardly be exaggerated.

The mineral resources of our country are being rapidly developed. A short time ago an American Company bought up the property known as the Harvey Hill Copper Mine a short distance from a point on the Quebec Central Railway and are to commence operations at once. Quite recently another firm purchased some 11,000 acres of land in Hastings County upon which are valuable deposits of Magnetite. Some of the veins are over 100 feet in width. The ore gives from 66 to 68 per cent metallic iron. It is probable that an establishment for the manufacture of Bessemer Steel, will be erected in connection with the development of these mines. A company with a large capital has also been formed in this city for the purpose of manufacturing iron and steel by an improved process. This company intends to acquire mining pro-

perty in the Spring, but will purchase the ore with which to commence operations.

The preservation of foods and fruits is a subject of great interest as upon it depends to a great extent the abundance or scarcity of some of these at various seasons of the year, and the price we must pay for the same. Fruits and vegetables preserved in tins after being boiled are expensive and do not retain their natural flavor. The acids of the fruits thus preserved act to a certain extent upon the tin and cause such fruit when consumed to produce at times very unpleasant results. Professor Charles E. Monroe, of Annapolis, states that the ordinary fruit acids, such as those contained in apples, tomatoes, rhubarb, lemons, etc., all act upon tin. Some cider which he examined, and which had been stored in a tin fountain, contained one hundred and seventeen milligrammes of metallic tin to the litre in solution. One case was given where persons eating fruit preserved in tin cans were made violently sick, and tin only was found in the fruit. Dried apples which were formerly a staple article, are now rarely seen. In their stead we have what are known as "evaporated" apples. The apples after being peeled, cored, and sliced in one operation, are placed over the fumes of burning sulphur which prevent them becoming brown in color. They are then placed on trays in a chamber and air heated to about 200° Fah. passed over them until the greater quantity of water is carried off. So little of any substance except water is withdrawn that when these evaporated apples are cooked it is impossible to destinguish them from ordinary cooked fruit. This process has we believe been conducted successfully with cabbages and potatoes as well as with such small fruits as cherries and raspberries. It is not unreasonable to expect that in the near future "evaporation" will be the process by which fruits and vegetables generally will be preserved.

Montreal Island is usually said to be in the St. Lawrence, but from a paper read before the Association for the Advancement of Science, at its Boston meeting, we learn that if the River Ottawa should cease to exist, and the River St. Lawrence should remain, what is now the island of Montreal would probably—from the high level above Ste. Anne and below Vaudreuil, of the bed of the then extinct Lake of Two Mountains, and also from the very considerable fall, which would, on the disappearance of the Ottawa, take place in the St. Lawrence below the Cascades Rapids—be an island no longer; but if the St. Lawrence should cease to exist and the Ottawa should remain, what is now the Island of Montreal would be an island still. The author holds therefore, that the Island of Montreal is an island in the River Ottawa, and should be designated as such.

J. T. D.

CORRESPONDENCE.

THE PENSION ACT.

To the Editor of the EDUCATIONAL RECORD.

SIR,—In the correspondence department of the January RECORD is published a communication from "Teacher," in which he appears to think that teachers are chosen somewhat as in the theory of the "elect,"—being obliged to teach, whether they will or not. Now there is no reason at all why a teacher, when dissatisfied with his profession or pay, should not leave it for something more lucrative, if he can find it. The true way of benefiting teachers in this Province is to raise their salaries, not to cut off from 2 to 6 per cent. from that which they already have. This would make the profession self-supporting, as teachers could lay by enough in the "prime and flower of their days" to take care of themselves when superannuated.

Yours, J.