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THE CANADA
EDUCATIONAL MONTHLY
AND SCHOOL CHRONICLE.

APRIL, 1881.

A BOY'S BOOKS, THEN AND NOW—1818, 1881.*

BY HENRY SCADDING, D.D., TORONTO.

IT is singular to observe how soon, in a progressive age, and in a progressive region, numerous things become "curiosities," objects, that is, suitable to be placed behind glass in a museum or private cabinet. We gaze with astonishment at the costumes of our grandfathers and grandmothers; at their coats and gowns, their ruffles and furbelows; at their hats, caps, wigs and headgear generally; at their shoe-buckles, their snuff-boxes, their smelling-bottles, their patch-boxes. In the matter of dress, indeed, we gaze with wonderment at what we have worn ourselves, or what our wives, our sisters, or our lady friends have worn a few years back; and we say we must have been insane, and the whole community around us must have been insane, when such articles of attire were deemed beautiful and convenient.

It seems natural enough that the few relics which have come down to us from primæval times should excite interest and be looked at with a certain sense of superiority; as, for example, the tools and domestic utensils of the lacustrine inhabitants of Switzerland and elsewhere; or the arms and ornaments of our fellow men in the bone, stone and bronze periods. But that within the space of our own short lives, objects once most familiar, common-place and indispensable, should become rarities and seem to us odd when we do chance again to see them, is surely very extraordinary. A tinder-box, with its flint and steel, is now a "curiosity." The like is to be said of candlesticks of certain forms, of snuffers, and "lanthorns," and fire-dogs; of the tall case-clock, the bull's-eye watch, the quill pen.

And so, when for some reason, you have to turn over the volumes which have insensibly accumulated in an old

* Read before the Canadian Institute, Toronto, April 2, 1881.

family house, or the contents of a library of some standing, how soon you come to strata of fossils! In some such strain, at least, we are probably ready to speak of long rows of folios, quartos, *et infra*, that meet the eye; although with books, as Milton admonishes us, there is a difference. They are not absolutely dead things, but "do contain a potencie of life in them," to use his own words "to be as active as that soule was whose progeny they are." So that, let its exterior be ever so antiquated, and its interior ever so dry, it is difficult to find a book that is wholly fossil. There are yet subsisting within it particles of a vital force, even as in the seemingly cold ashes of the hearth, you shall sometimes find, if you stir them, a spark or two of live fire.

I have been led to these thoughts, from having had occasion lately to disturb the contents of an out-of-the-way shelf, which I had made a kind of limbo for old School-books and other chance survivors of the period of boyhood and youth. Old friends of this sort, associated with the first awakening of the mind and its earliest growth, we are all of us, I suppose, more or less loth wholly to part with; although, generally, in the lapse of years, most of them pass away out of our sight, dissipated and lost, one scarcely knows how.

Now it had happened that in the receptacle referred to, I had stored away a good many of such waifs and strays of the past, on re-handling which, I found to my surprise and no slight pleasure that not a few among the motley assemblage had begun now to acquire the odour of antiquity and to be entitled to classification under the head of "curious." I have accordingly thought that possibly a brief account of some of them might not be unacceptable. To you perhaps as to me, the objects presented will be as "the distant spires and antique

towers" of Eton, seen from "the stately height of Windsor's brow" were to Gray, restorative for a while of the sensation of youth; but far from our review be the morbidness of spirit which marks and surely mars the famous composition of Gray.

I have ventured to name 1818 and 1881 as my Then and Now, partly for the sake of the alliteration, if one may so speak, of the figures; but also because, at the former date, there can be no doubt every thing that was homely and old-fashioned in school-books and juvenile literature was still flourishing in full vigour; whilst, at the same time, it is certain that from that date onward the revolution in matters educational which has landed us where we are to-day, became more and more perceptible. Further too, I think I have reason to believe that the fascination of books must have begun with oneself about that time, recalling as I can do now, with considerable freshness, the rude wood-cut or copper-plate illustrations, if not the text, of several small tomes which about that time came in my way.

The books in my recent find, then, may, as I hope, assist us in taking stock of scholastic and literary progress amongst us, furnishing for the purpose some material for comparison and contrast. In several instances, too, they may give, incidentally, an idea of what the disadvantages of a young aspirant after knowledge were in this region of Canada some sixty years ago.

I have doubts as to being able to inspire in you the interest which I find enkindled in myself by the somewhat unpromising row of volumes before us. But should I succeed in doing so in even a moderate degree I shall be content. If no other result ensue, it may refresh the eye to gaze, for a short while, upon their not forgotten sheepskin and brown calf covers, once smooth and bright, now rubbed and faded; the joints in some

cracked; the corners bent and battered; the paper and print made dingy by dust and smoke; the pages at certain difficult places fingered and thumbed, and frayed at the edge; and retaining still the pencillings and pen-scrawls of former possessors.

I would premise also at once that although I have found the collection as a whole such as must now be designated a little antique, if not antiquated, I have not found it, in respect to its contents, in any way despicable. If the books in question now and then shew narrowness, they do but so far reflect the era in which they originated, which was necessarily circumscribed in its view of the sciences and its recognition of the real scope of education. I am pleased to confess that I have discovered in them points of excellence which were veiled from my perception in the days of inexperience. Taken severally, they are most sterling in substance and quite effective so far as they go. Perhaps their chief defects are unattractiveness in form, and a too sternly exacted employment of a language not yet sufficiently understood to be a vehicle of instruction—two particulars that could not fail to be stumbling blocks to the young in the path of learning.

I shall begin with a genuine typical school-book, Lily's Latin Grammar, a work dating back to the early part of the sixteenth century. King Henry the Eighth, in his zeal for centralization and uniformity made a decree about the year 1543, that Lily's Grammar should be the one universal Latin Grammar for the realm of England; "that so" as the merry old Church historian, Fuller, observes, "youths though changing their schoolmasters, might keep their learning," there having been previously in England, as elsewhere, a great variety of conflicting grammars, which begot confusion and obstructions in the working of schools. Through the prestige thus

acquired, Lily's Grammar maintained its ground down to a late period. Even in this section of Canada Lily's Grammar was in vogue during a portion of my boyhood, but it was soon displaced by the Eton Latin Grammar, which itself is an outcome of Lily. In New England, too, it was substantially Lily's Latin system that was introduced by the many learned, not to say pedantic, scholars, such as the Mathers and others, who migrated thither from England; and where it was confirmed and maintained by the usages established at Harvard College, as we may gather from the *Magnalia*, and elsewhere. In Virginia also the same thing took place, through William and Mary College in that quarter, in 1692. The same thing took place in Barbadoes also, and the British West India Islands, at the later period; and in New Zealand, likewise, Australia and Ceylon, and other parts of India in quite recent times, through the emigration to those parts of English University men, and the setting up of schools and colleges, all of them more or less tinged, in their textbooks and uses, from the scholastic springs and fountains of the old mother-land. So that what Erasmus predicted of Lily's school has curiously come true, principally through his grammar. In a set of Sapphic stanzas composed on the opening of Lily's school in 1512, Erasmus spoke of it as a tree from which would spring a fruitful forest of other trees to the adornment of "the whole Orb of the English world," little realizing indeed at the moment what in the future would be the wide-reaching significance of such an expression. The words of Erasmus were:

"Ludus hic sylvæ pariet futuræ
Semina; hinc dives nemus undequaque
Densius surgens decorabit Anglum
Latius Orbem."

Though bearing the name of Lily,

the grammar which is first to engage our attention was in fact the production of several hands. The introductory treatise on the Eight Parts of Speech and their Construction—the *Accidence*, as this part of the grammar is usually called—was by Dean Colet, drawn up by him for the use of St. Paul's school in London, founded by him in 1512. The *Syntax*, which followed the *Accidence*, was by Lily, but revised and improved by Erasmus, to whom Colet sent the manual for examination. Hence it began to be reported at the time that Erasmus was its author. But Erasmus himself set the public right on this point in a letter which was prefixed to an edition of the book in 1515, in which he says that the manual in question was written by Lily at the request of Colet: and he takes occasion to speak of Lily as a man of uncommon knowledge of Latin and Greek, and of admirable skill in the instruction of youth (“*vir utriusque literaturæ haud vulgariter peritus, et mirus rectæ instituendæ pubis artifex.*”)

The ever memorable *Propria quæ maribus* and *As in præsentî* were the handiwork of Lily together with the *Carmen de Moribus*, Poem on Manners, of which I shall speak in another connection. But the *Quæ genus*, that is, the rules for irregular or heteroclitic nouns, were by Dr. Robinson, sometime Dean of Durham; called Robert in some editions, but, more correctly I believe, Thomas in others.

Compiled for the most part in the second decade of the sixteenth century, Lily's Grammar was, as we see, no product of mediævalism: it was in truth one of the lesser outcomes of the renaissance of enlightened learning then in progress throughout Europe. Nevertheless the book has about it some strong mediæval characteristics. Its theory is that the Latin language is still to be deemed a living tongue, and to be made all but vernacular

with scholars and teachers. Accordingly after setting forth clearly enough the elements of the language and the construction of its eight parts of speech, in plain English, it repeats the same with amplifications in Latin. At the moment of the appearance of this grammar, the theory that Latin was to be cultivated almost as a vernacular, was beginning to be disregarded; and in the course of a few years it was virtually exploded, in England at least. Nevertheless, the Latin portions of Lily continued to be strongly insisted on in schools. Like Sir Thomas More, their common friend, Lily, Colet and Erasmus were very enlightened men; but in regard to the enforcement or abandonment of the colloquial use of Latin in schools, they were not at liberty. Its enforcement was, as I suppose, held to be absolutely necessary, so long as at the Universities of the time in England and on the Continent, instruction and ceremony were carried on wholly in Latin. and the medium of inter-communication amongst the “learned” everywhere was Latin. Had it been in the power of Lily and the rest to have encouraged the familiar use of English in schools, to the extent that Roger Ascham, soon afterwards did, and Richard Mulcaster, head master of St. Paul's School, it is curious to speculate as to what would have been the effect of their action on the subsequent history of literature in England. It is certain that much needless toil and torment would have been spared to after generations; and would not perhaps the real import of the Greek and Roman literatures have dawned upon innumerable persons in a shorter space of time and with more intelligence and delight, than has been the case under the system usually pursued, until of late, in the great schools and colleges?

I should have observed before that Lily was the first head master of St.

Paul's School, founded, as I have already related, by Colet in 1512; that after taking his degree at Oxford before the close of the fifteenth century, he made a pilgrimage to the East in quest of Greek; that he mastered that language in quite a practical way by studying it in the Island of Rhodes for the space of five years; and lastly, that his name, according to the custom of the period, is spelt in various ways in the early books. It is Lilye and Lilly as well as Lily, so that if we are not content with it in its natural and generally received shape, we can deform it into some other, as uneasy persons from time to time try to persuade us to do on like grounds, with the grand old name of Shakespeare.

I find I have four copies of Lily: one printed at Oxford in the Sheldonian Theatre in 1673; one printed in London in 1713, by Roger Norton, "printer to the Queen's Most Excellent Majesty [Queen Anne], in Latin, Greek and Hebrew;" one printed in London in 1760, by S. Buckley and T. Longman, "printers to the King's Most Excellent Majesty, in Latin, Greek and Hebrew" (now George the Third; but another title page in this volume bears the date 1758, with like appendage to the printers' names; the monarch then requiring typographical help in Latin, Greek and Hebrew, would be George the Second). And the fourth printed in London so late as 1830; by Longman, Rees, Orme, Browne, Green and Hill, "printers in Latin, Greek and Hebrew, to the Sovereign," now George the Fourth. (The last named copy of Lily is one that has been in actual use in the work of education here in what is now Toronto.) All four editions have a general likeness to each other in the antique character of the type adopted, and the crowded condition of the pages. In the Oxford copy, the definitions and rules throughout the

whole of the English portion of the book, are doubtless for supposed greater perspicuity, printed in old English type or black letter. The edition of 1830 is made to be a *fac-simile*, as much as possible, of the 1760 and earlier editions; although improvements have been admitted. The publishers of this edition, in an Advertisement, as it is called, prefixed to the Latin part of the book, inform the reader that "they have purchased from the family of the Nortons, former patentees, the Royal Grant and privilege of printing Lily's Grammar, which from the time it was compiled has, by several kings and queens, successively, been ordered generally to be used in schools; and therefore they thought it their duty, and interest [too, as they frankly add] to get it revised and improved by a skilful hand, as much as the nature of the book would well admit; hoping it will have the approbation and encouragement of those gentlemen who have the care and instruction of youth." But, at the same time, the publishers are careful to subjoin: "they have not the least intention to suppress the Common Lily's Grammar in the form it now stands, and to substitute or impose this improved edition in the room of it; but they will take care," they say, "that the said Common Lily's Grammar now in use, be correctly printed, and will still keep that, as well as this, on sale, leaving it to every gentleman of the profession to make use either of the one or the other, as he shall see fit."

Many among the clergy were, we may be sure, scrupulous as to what Latin grammar they countenanced, when among the inquiries made of them at the periodical Visitations, by Royal authority, was this: whether there be any other grammar taught in any school within this diocese than that which is set forth by the authority of King Henry the Eighth?

Lily's Grammar had, in fact, ac-

quired a semi-sacred character through the royal sanction. It was seen and acknowledged that progress was taking place in all the sciences, that of language included, and that something should be done to make Lily keep pace with the general advance. But it was with fear and trembling, and only after elaborate apology, that any jot or tittle in the received text was altered. In the edition of 1713, as doubtless in previous editions, as also even in that of 1830, the title page is very like that which is to be seen in small quarto Bibles from the press of the Barkers. The central letter-press is surrounded by a wide wood-cut border, divided into square compartments. In the Bible title page each of these divisions would have in it one of the Evangelists or one of the major or minor Prophets. In the Grammar title page, the corresponding spaces are filled with rudely-executed female figures emblematical of the arts included in the Trivium and Quadrivium of the schoolmen: Grammatica, Rhetorica, Arithmetica, Dialectica, Musica, Geometria, Astronomia; conspicuous over all are the Royal arms in very antique style. (The emblematical figures vary in the editions of Lily before us. In the one of 1712, Musica is seen playing on the virginals or very primitive spinnet, while elsewhere she holds a theorbo or guitar. In every case, Geometria has the distinction of a crown on her head.)

All the editions retain the original "Address to the Reader" at the beginning of the book. A few sentences from this will give us some notion of the aims and methods of the old Grammar School master.

"The first and chiefest point," the writer of the address to the reader says, "is, that the diligent master make not the scholar haste too much, but that he in continuance and diligence of teaching make him to re-

hearse, so, that while he hath perfectly that which is behind, he suffer him not to go forward; for this posting haste overthroweth and hurteth a great sort of wits, and casts them into amazedness, when they know not how they shall either go forward or backward, but stick fast as one plunged that cannot tell what to do, or which way to turn him; and then the master thinketh the scholar to be a dullard, and the scholar thinketh the thing to be uneasy and too hard for his wit; and the one hath an evil opinion of the other, when oftentimes it is neither, but in the kind of teaching. It is profitable, therefore," we are told, "not only that he (the scholar) can orderly decline his noun and his verb, but every way, forward, backward, by cases, by persons, that neither case of noun, nor person of verb, can be required, that he cannot without stop or study tell. And until this time I count not the scholar perfect," the old writer says, "nor ready to go any farther till he hath this already learned." To effect this amount of attainment in a lad "will not be" he thinks, "past a quarter of a year's diligence, or very little more, to a painful and diligent man, if the scholar have a mean wit," *i.e.* average ability. Now then the lad "may go on to the Concords, to know the agreement of parts among themselves, with like way and diligence as is afore described. And when these Concords be well known unto them (an easy and pleasant pain the writer thinks), if the fore grounds be well and thoroughly beaten in, let them not continue in learning of the Rules orderly as they lie in the Syntax, but casually as they may be wanted while reading some pretty book, wherein is contained not only the eloquence of the Tongue, but also a good plain lesson of honesty and godliness. And all the time they be at school, the master should never allow his scholars to be idle, but

always occupied in a continual rehearsing and looking back again to those things they have learned, and be more bound to keep well their old than to take forth any new." In this way it is expected that the young scholar, in due time, "shall be brought to a good kind of readiness in Making [*i.e.* Composition], to which if there be adjoined some use of Speaking, he shall be brought past the wearisome bitterness of his Learning. And these Precepts well kept," he finally adds, "will bring a man clean past the use of this Grammar-book and make him as ready as his Book, and so meet to further things, whereof it were out of season to give precepts here."

It is plain that for a certain period of time the perfect master was expected to regard his pupils simply as so many cylinders of yet plastic clay, to be kept turning round and round under his hand, until they should be charactered over with Lily, as fully and indelibly as those curious barrel-shaped bricks from Nineveh are charactered over with records, which no man can now, with accuracy, interpret. In other words, the perfect master was firmly to hold that the chief end of the young boy's existence was the acquisition of a facility in Latin with the ultimate view of securing through it whatever other knowledge was attainable.

In my Oxford Lily, in addition to the address to the reader, there is a preface of the same drift, but more rhetorical in style. Here is a sentence still laudatory of the one subject which seems to weigh upon the writer's brain. "Grammar" he says, "is the Sacrist that bears the key of knowledge, by whom alone admittance can be had into the Temple of the Muses and treasuries of arts, even whatever can enrich the mind, and raise it from the level of a Barbarian

and Idiot to the dignity of an Intelligence." "But this Sacrist," he goes on to say, "is a severe Mistressse, who being once contemned will certainly revenge the injury, it being evident that no person ever yet despised grammar who had not his fault returned upon him." All which, of course, we must undoubtedly acquiesce in, as in the abstract, true. But yet, nevertheless, the experience of later times has again and again proved that the kind of skill in young and old which is here held up to measureless admiration, may be a very one-sided accomplishment, compatible with great ignorance in numerous very important directions; and that the whole system recommended is particularly liable to degenerate into a sort of mechanical routine on the side of teacher and learner. Under these circumstances it must be confessed that the self-complacent vauntings of our old grammarians on the subject of their special art, tends simply to irritate, and not to convince, the modern mind; just as unwise exaggerations of other things, true and good, are apt to do likewise.

Where there are special aptitudes for the study and a powerful proclivity to it, Latin will still be acquired in civilized countries, and its literature explored to its extremest limits. There is no symptom of falling off in an intelligent interest in Latin and Greek and Hebrew, in England. The cultivation, however, of each language and of the wide fields of research thrown open by each, is managed now after a mode and in a spirit undreamed of by the old grammar school masters.

In harmony with the high transcendental views of technical grammar entertained by these last named authorities is a certain emblematical engraving which we shall find at the end of each of the four editions of Lily here before us. This is the ever-memorable whole page representation

of the tree of grammatical knowledge, on which I must not fail to dilate a little.

A large apple-tree is seen in the midst of the picture, with umbrageous foliage and a plentiful intermixture of fruit. On several of the branches are lads in coats and small clothes, of the Tudor period, engaged in throwing down apples to companions below, of tenderer years. One is receiving a great satchelful from a friend in the tree, one is seated on the ground amidst books and pippins, thoughtfully masticating a fine specimen, and one is in the act of throwing a billet up at a richly laden bough, with the expectation of bringing down a prize or two for himself. Below is an inscription intended to sooth and encourage the young beginner :

Radix Doctrinæ amara, Fructus dulcis.
(Bitter is learning's root, but sweet the fruit).

In the Oxford edition of 1673 this allegorical picture appears beautifully engraved on copper, designed afresh by some good artist, in a spirit quite Hogarthian. The tree of knowledge no longer stands alone ; it grows in the midst of a Paradise of lesser trees. The lads engaged in the apple-gathering are more numerous than in the old woodcut ; and their forms and costumes are more carefully drawn. Two sturdy little fellows are helping a companion to mount one of the lower branches, while one up in the tree reaches down to him a helping hand. As a study of school-custom and dress the picture is noticeable ; one lad, for example, carries his satchel suspended on his back by a strap passing round over the front of his hat, after the manner of the coal-heaver. At the bottom of this engraving are four Latin lines, two of which are the following :

Sæpe ulta est raptos crudelis Betula malos :
Nunc ut devites verbera, carpe Puer.

which may be paraphrased :

Birch oft ensues on apples' rape :
By rape of these, boys birch escape,

where we have mention made of an auxiliary on which I fear, school annals would shew that the masters of old relied for the successful inculcation of "grammar," as implicitly as Mahomet and his successors did on the sword for the propagation of the Koran ; and that the secret of a great deal of the dexterity in Lily lay here, rather than in the flattering allurements of allegorical pictures rhetorically or materially presented. The Address to the Reader, as we may have noticed, spake not of this dire implement of instruction, unless there be an allusion to it in what the writer says there about the fore-grounds being "well and thoroughly beaten in." But on the wall at one end of the great school-room at Winchester, the *Betula* or rod was, and is still I presume, visibly depicted, with this standing admonition inscribed under it : *Aut disce, aut discede : manet sors tertia, cædi* ; rendered somewhat facetiously—

Study hard, or else be jogging
Or you'll get a plaguey flogging,

which scarcely does justice to the portentous force of *cædi*. If we receive, as we must, the testimony of Erasmus, of Steele in the "Spectator," of Coleridge and of Lamb, the *sors tertia cædi* of schools in the days of yore, was something not to be jocosely slurred over. Steele makes the strange, perhaps vindictive, observation that "it is wholly to this dreadful practice (flogging) that we may attribute a certain hardness and ferocity which some men, though liberally educated, carry about them in their behaviour. To be bred like a gentleman and punished like a malefactor must as we see it does," Steele says, "produce that illiberal sauciness which we see sometimes in Men of Letters."

Apropos of old editions of Lily, one would like to have seen that copy of the book which Samuel Pepys speaks of in his diary the 9th of March 1665. In his memorandum of that day he mentions a visit paid by him to Mr. Crumlum, as he phonetically writes, meaning Mr. Cromleholme,

his former master at St. Paul's School in London. "Among other discourse," he says "we fell to the old discourse of Paul's Schoole, and he did, on my declaring my value of it, give me one of Lily's Grammars of a very old impression, as it was in the Catho-like times, which I shall much set by."

(To be continued.)

CAMBRIDGE LECTURES ON TEACHING.*

I.—EXAMINING.

OUR first notion was to deal with this volume in the ordinary manner of a review, but upon reading it over we found so much that was superior to the ordinary disquisitions appearing in books of this class, that we deemed it only just to the writer in dealing with the work, to put before our readers some of his ideas in his own words upon one at least of the specific subjects which the author discusses in these Cambridge Lectures. In a recent number of the MONTHLY we had occasion to notice a little tract of the author's on the "Art of Securing Attention," and the favourable opinion we then expressed is more than justified by the work before us. Nothing approaching it in value has appeared since Professor Bain's volume on "Education as a Science," and it is far ahead of that book in its practical bearing on the work of the school room. If we have any fault to find with the work, it is that the style is somewhat loose, and the arrangement of the matter is not always logical. But our readers can best judge

for themselves by having some of the contents placed before them, and we therefore extract for them the substance of one of the most important lectures—that on "Examining."

The art of putting questions is one of the first and most necessary things to be acquired by the teacher. To know how to put a good question is to have gone a long way on the road to becoming a skilful and efficient instructor. The objects in view in putting questions to a child whom we are instructing are:—

1. To find out what he knows, so as to prepare him for some further instruction.
2. To discover his misconceptions and difficulties.
3. To secure the activity of his mind and his co-operation while you are in the act of teaching him.
4. To test the result and outcome of what you have taught,

So that interrogation is not only a means of discovering what is known, it is itself a prime instrument in imparting knowledge. Hence the first object of questioning is to conduct the learner to the boundaries of his previous knowledge, and thus to put his mind into the right attitude to learn something new. The one per-

* "Lectures on Teaching, delivered before the University of Cambridge, 1880," by J. G. Fitch, M.A., Assistant Commissioner to the late Endowed Schools Commission, and one of Her Majesty's Inspectors of Schools. Cambridge: Deighton, Bell & Co.; New York: Macmillan & Co.; and Toronto: Willing & Williamson.

son who is generally reputed to have been the master of this art was Socrates. The chief purpose of his dialogues, which Plato and Xenophon have handed down to us, was to clear men's minds of illusions, and of the impediments to learning, and to put them into the best attitude for receiving knowledge and for making a right use of it, rather than to give them definite dogmas, or authoritative statements of truth. He aimed to shew that there were latent difficulties in many things which seemed very simple; that plausible and well-sounding general propositions admitted of exceptions and qualifications which were often unsuspected; and that, till these things had been recognized, and carefully examined, it was premature to dogmatize about them.

In like manner we shall do wisely as teachers, if we seek, before giving a new lesson, to ascertain by means of questions what previous knowledge exists, and what misconceptions are in the minds of our pupils on the subject we want to explain. Doing this serves two purposes. It reveals to you the measure of the deficiency you have to supply, and it awakens the sympathy and interest of the pupil by shewing him what he has to learn.

The first requisite of a question is that it should be in perfectly clear, simple language, the meaning of which admits of no mistake. It should be expressed in as few words as possible consistent with this. I heard a man questioning a class the other day in physical geography. He said: "Where do you expect to find lakes? For instance, you know the difference between a chain and a group, don't you? Well, you know the water comes down the side of a mountain, and must go somewhere. What is a lake?"

Here are four sentences, and two totally different questions. The questioner knew what he wanted, but while he was speaking it dawned upon him

that he might make it clearer, so he interposed a little explanation, and ended by putting a different question. It was amusing to see the puzzled and bewildered looks of the children, as they listened to this, and to many other of the like clumsy and inartistic questions. In this particular case he should have shewn a drawing or a little model of a chain of mountains, and then have asked them to tell him what became of the streams that rolled down into a plain. Soon he would have elicited a good general notion of the course of rivers as determined by a watershed. Then he should have asked what would happen if the mountains were not in a chain but in a group, so that when the water rolled down one side it could not get away but was stopped by another mountain. "What becomes of the water?" It must stop in the valleys. "And when water remains in a valley, what do we call it?" A lake. "Now tell me what a lake is."

Let me warn you also to avoid the habit of introducing your questions with such expletives as "Can any one tell me?" "Which of you know?" "Will those hold up their hands who can answer?" Strip your question of all such verbiage, and say plainly what you want. Practise yourself in economising your words and reducing all such questions to their simplest forms. Avoid, too, all vague inquiries. I heard a teacher giving a lesson on the atmosphere. He described a man drowning, and brought out that he died for want of air. "Now," said he in triumph, "what is the thought that occurs to our minds?" Well, I am sure I could not have answered that question; a good many occurred to my mind, but as I had no clear knowledge of the particular thought which was in his, I should certainly have been as silent as his class was.

Need I warn you against that style of questions in which the whole of

what has to be said is said by the teacher, and the scholar is simply called on to assent; the tone of voice in many cases indicating what answer is expected.

Here is an extract from a nice little catechism on "good manners" that will serve as a good illustration of what I mean:

Q. Is untruthfulness a very common vice in children?

A. Yes.

Q. Are there instances recorded in Scripture of this sin being instantly visited by the punishment of death?

A. Yes.

Q. Ought any one to respect or esteem a known liar?

A. No.

Q. Would you willingly associate with, or make a companion of, any boy or girl known to be a liar?

A. No.

In a less degree I would have you distrust all answers which consist of single words. Every answer we get to an ordinary question is a fragment of a sentence, but it is only the sentence, and not the single word, which conveys any meaning; and the questioner, who understands his art, turns his question round until he gets from his scholars successively the separate parts of the sentence, and finally, the whole. If the teacher does all the talking, and the pupil only responds with single words, the questioning is bad. The great object should be to draw out with the minimum of your own words the maximum of words and of thought from him. Questions, too, should not be put which you could not answer yourself. All questions ending in the word "What?" and a large number of elliptical questions, in which the teacher makes an assertion, and then stops for the scholar to supply the last word encourage the bad habit of guessing. The practice of suggesting the first syllable of a word in an answer is one which no skilful questioner will ever adopt.

In putting a series of questions, whether for purposes of teaching, recapitulation, or examination, great care should be taken to preserve continuity and order. Each question should grow out of the last answer, or be in some way logically connected with it. As to the answers a word or two must be said. If the answering is bad, either you have been asking for what was not known, or for what had been insufficiently explained, in which case you should go back, and teach the subject again. Or there may be knowledge but no disposition to answer, in which case your discipline is bad, and you must fall back on some way of improving it. All random and foolish answering is rudeness, and should be dealt with as such. Do not leap to the conclusion that because your question is not answered, nothing is known about it. Alter its shape, or put a simpler one. In a lesson on the pressure of the atmosphere you ask, "Why is boiling water not so hot on the top of a mountain as in a valley?" Now there may be no answer to this, simply because it needs a good deal to be said in answering it, and your pupil though knowing something about it, does not know where to begin. Keep it in mind, but for the moment, substitute simpler ones for it. Ask in succession "What happens when water begins to boil; what the bubbling means; what would have prevented the bubbling from beginning so soon; what would have caused the bubbling to begin earlier; whether the water can receive more heat after it begins to bubble; what is the pressure of the air upon a mountain as compared with that in the valley." To all these simpler questions you will probably get answers; now you can safely go back to your first question and give it again. Do not be impatient, and hasten to answer your own questions. Remember that by drawing out the knowledge of scholars and piecing it

together, thus securing activity of thought, you are bringing their intelligence into discipline. You have to shew them that they may find out much for themselves with your help, and you can only do this by variety in the form of your questions, and by practising the art of resolving all complex questions into simpler ones. When a good teacher receives an answer which is partly right and partly wrong, or which is right in substance and wrong in form, he does not reject it; but after obtaining a better answer from another scholar he goes back, and asks the first to amend his answer, or he reserves the point for further examination, and at the end of the lesson, or in beginning a new one, he clears away the difficulty. Never treat an honest dilemma as a fault, but as something in the solution of which you want the pupils' co-operation.

Do not be content to consider the holding up of hands, or other collective act, as satisfactory proof of ability to answer. Every scholar should feel that he is liable to receive a question, and that the more careless or indifferent he seems the more liable he will be to be questioned. Fasten your eye on the worst scholar in the class, and be sure to carry him with you, and measure your progress by what you can do with him. We must avoid mistaking the readiness of a few clever children who are prominent in answering, for the intellectual movement of the whole class. If you find yourself in this danger, put your questions to the scholars in turns now and then, to remove the illusion.

The art of putting a good question is itself a mental exercise of some value, and is a test of some knowledge of the subject in hand. Bear this in mind in its application to the scholars. Let them occasionally change their attitude of mind from that of receivers and answerers, to that of questioners. The best teachers always encourage

their scholars to put questions to the class. The knowledge that they may have to do this makes them listen more carefully, and turn the subject round in their minds.

Teachers should, notwithstanding the opinion of Mr. Bain about the spurious character of the curiosity of children, regard it as one of the principal things to be encouraged in early training—one of the surest allies in the later development of thought. "For curiosity," says Whately, "is the parent of attention, and a teacher has no more right to expect success in teaching those who have no curiosity to learn, than a husbandman has who sows a field without ploughing it."

The use of catechisms is open to the following objections: (1) The language in which the answers are expressed is too often not worth committing to memory; (2) The answers to be learned are generally incomplete sentences, and are therefore of little use; (3) Catechisms assume that every question admits of but one form of answer; which is scarcely true of one question in a hundred. For parents, for clergymen, and for others who are not teachers by profession, catechisms may be useful as a guide to the sort of knowledge which should be imparted to children, and to the order in which it should be arranged. But no teacher who has the most elementary knowledge of his art would ever degrade himself by using a catechism, and causing answers to be learned by heart. I never once found in examining a school, that a subject—be it astronomy, history, geography or heathen mythology—which had been taught by means of a catechism had been properly understood by the learners. A similar objection, though in a less degree, attaches to books cast in a conversational form. In these a boy or girl is made to evince a shrewdness and a thirst for knowledge which are problematical. This

gives them an unreality which children are the first to detect, and which causes them to feel a distrust at the docile little interlocutors in such books as the "Evenings at Home," or "Sandford and Merton."

We have now to consider the use of written examinations. What is it that a judicious written examination does for a pupil? Of course it tests his knowledge. But it is also a valuable educational instrument. It teaches method, promptitude, self-reliance. It demands accuracy and fullness of memory, concentrated attention, and the power to shape and arrange our thoughts. "Moreover," as Mr. Latham well observes, "behind all these qualities lies energy of mind. Of this, so far as it is brought out in dealing with books or ideas, we can judge fairly from a written examination. We see that knowledge has been got, and know that brain work has been given to get it, and we can find out pretty well from a set of papers whether a man knows his own mind or not." The oral examination is good for intellectual stimulus, for bracing up the student to rapid and prompt action; for deftness and brightness. But oral answers are necessarily discontinuous and fragmentary. The pupil receives help at every moment from the teacher's face, and from the answers of his fellows. Until you subject him to a written test, you have no security that he has grasped the subject as a whole, or that he is master of the links that bind one part of the subject to another. Nevertheless there are certain valuable qualities which are not revealed by written examinations, and which the habit of relying on them does not encourage. They do little to test moral qualities or active power. They do not indicate whether the action of the mind is rapid or sluggish, or whether the work is done from a sense of duty or strong interest in it. They

do not help you to gauge those attributes on which success and honour in life so much depend—sympathy, reverence, co-operation, address, flexibility, manner. Let us once for all acknowledge that the best examinations do not test the whole man, but leave some important elements of character to be ascertained by other means; and then proceed to inquire within what limits they are valuable, and how we can get the maximum of good out of them. If they fail it is not because they are in themselves misleading, but because too much is expected of them, to the exclusion of other means of judging.

In dealing with this subject we must beware of being misled by false metaphors. We are sometimes told that the habit of probing children often, either by written or oral examinations, is like digging up a flower to see how it grows; and those who talk thus say much as to the value of stillness and meditation, and the importance of silent growth, and the natural action of the child's own mental powers. But the act of reproducing what we know, is not an act of loosening but of fixing. There would be stagnation and forgetfulness if the child remained unquestioned and untested.

There is another misleading metaphor used in connection with the subject of examinations. They are said to encourage *cram*. If by this term we mean dishonest preparation, hasty and crude study, a contrivance to get credit for more than one really understands, we are all alike interested in denouncing it. But really good examinations are meant to detect not to encourage it. And every good examiner who knows his business can easily discover the difference between knowledge well digested, and that which is superficial and is specially got up to deceive. This ugly term can at least not be applied to reading, writing and arithmetic. A child can

either perform operations in these or he cannot, and his power to do so is ascertainable by a simple test. If he can perform them well he has acquired accomplishments of permanent value. He may have been unskillfully taught, but he cannot have been "crammed." If, however, a scholar is permitted to attempt in two months, work which ought to occupy a year, it is the ten months' slackness, and not the two months' exceptional effort which constitutes the evil. Besides, it is good for us all through life to be able to put special energy into our work, on emergency. We are required to do it in after life when we willingly "scorn delights, and live laborious days," for the achievement of one object of strong desire, or the solution of one practical problem. Nature is very kind to young people, and restores their energies to their proper balance very soon; and she will do it quite as readily with the intellectual as with the physical powers. For one authentic case of permanent injury to the health of a schoolboy or girl from too much mental exercise, there are twenty examples of scholars who suffer from idleness or inaction.

Granted that special pressure of this kind is an evil, it can easily be avoided by taking these two or three precautions:

1. Do not prepare your pupils for more than one external examination.
2. Look the requirements well in the face a good year before-hand, and arrange your work so that a small but distinct portion of it may be prepared every day. Refuse to allow any pupil to present himself unless he has had time and opportunity to do his work well.
3. Do not let any part of the preparation be considered exceptional, but incorporate the whole of it as far as possible into the programme of your school.
4. Do not cut up the organization

of the school, and waste your own teaching power by letting the pupils choose their own alternatives. Select for them such subjects as, having regard to your own tastes and to the qualifications of your teaching staff, you feel to be most appropriate.

5. It is a good plan to hold a fortnightly or monthly examination in writing, extending over the principal subjects of study, and conducted under the same conditions as are observed in public examinations. Besides this, it is well to give much more frequently a single question in each subject, to be answered fully in writing. Some of these answers should be read aloud, defects pointed out, and a model answer given before the class.

These private examinations afford an excellent training in the discipline of self-possession and self-mastery. They habituate the scholars to that fluency and nervousness caused by the silence, the printed paper, the isolation, the utter impossibility of getting a friendly hint, which are liable to prevent them from doing themselves justice in a public examination.

For school purposes it is well often to extend the time for examination, and to allow the use of books. Some of the best efforts in after life are made under these conditions, and the art of using authorities is one which every school ought to teach. This form of exercise is valuable where you do not want to test memory, but the power of using all the resources at one's disposal. So a teacher may wisely say now and then, "Here is a question which wants a little thinking, I will give you two days to answer it, and you may get the answer how and where you like."

If you have to examine a number of persons, not your own pupils, it is always well to give more questions than can be answered, and to require the student to choose a limited num-

ber of those he can answer best. In the Indian Civil Service where the competition is absolutely open, and where it is the business of the examiners to do full justice to men who have different tastes, and have been differently taught, I have been accustomed to set a paper, say of twenty questions, and require that no candidate shall take more than six. At the University of London where the curriculum of instruction is strictly defined, but where the candidates have been taught on very different systems it is usual at Matriculation to set about fifteen questions in most subjects, and to limit the answers to ten. But in a school where the teacher is himself the examiner, and where he knows exactly what has been taught, and what ought to be known, it is not desirable to set more questions than can be answered easily in the time. It is the teacher not the pupil, who should choose what questions shall be answered. As a rule it is not desirable to frame a paper of questions all at once. If the examiner relies on his memory or his general knowledge, his questions will have a family likeness, and so will probably be anticipated. If he prepares a paper by the help of a text book, he is tempted to select such questions as turn on obscure or isolated details, easy to question on, but of little real value. To avoid both these faults he should jot down in his note book from time to time any good form of question his experience in teaching suggests, so as to have a store of such questions when they are wanted.

The first requisite of a good paper is that it shall be clear and unmistakable in its meaning. All obscurity, all pit-falls and all ambiguity should be avoided, as they defeat the purpose of the examination. The next requisite is that the paper should be exactly adapted to the scholar's age and attainments. The object of the paper

should be not to hoodwink parents or the public, nor to exhibit the ignorance of the scholar by a display of your own knowledge, but to draw out his. What moral influence can a master hope to exercise over children whom he has caused to be parties to an imposture upon their parents and the public in a deceptive examination?

A good proportion of the questions in every paper should be on matters of fact and memory, and of a plain straightforward and simple character. Over and above these I should always put two or three which require a little thought to interpret, and which will give a chance to the best scholars to distinguish themselves. Let us bear in mind that a good examination when it has fulfilled its first duty as an honest scrutiny of what the pupils ought to have learned already, has also to fulfil the second purpose of shewing what you think they ought to aim at.

In estimating the answers, the ordinary arithmetical test is the fairest, and least liable to error. You determine on a maximum, say 100, to represent the highest attainable excellence. It is a good plan to distribute about ninety marks to the relative value of the questions, and reserve ten for style, neatness and finish, and general skill in arrangement. I would not tell the scholars which questions carried most marks, it is enough to tell them to select those questions which they can answer best.

As you read each answer, you should give it the mark it deserves, and not leave room for the influence of any caprice or hasty impression, if you want to mark the value of a paper as a whole. Add up the marks and see if the total appears to represent the general merits of the paper. It may happen that a scholar with a full mind has wasted his time in needlessly elaborate answers on a few questions; while an inferior scholar

has scored a higher mark by answering, though in an imperfect manner, a greater number of questions. This should be set right at once by the addition of a few marks for general ability.

In mathematics it is not difficult for a student to obtain the full number of marks. But in other subjects this can rarely or ever be attained. In most subjects I should regard as a good paper that which obtained three-quarters, and as a fair or passable paper that which received half of the marks.

Before marking any papers it is well to read over one or two of the good ones and one or two likely to be indifferent, and thus fix a standard with which it will be fair for you to mark the answers one by one. In examining for any prize it is needful to give the papers a second reading, comparing not only paper with paper but answer with answer.

In an examination mere absence of knowledge ought not to be counted as a fault, but pretentious ignorance, which makes blunders and puts them forward as knowledge, which indulges in grand and vague statements carefully constructed to conceal the lack of information, should have marks deducted. So should an inflated style, bad spelling, or the use of words not understood. But blunders that are the result of bewilderment and not of ignorance should not be punished as a fault.

Even in class work the course of oral answering may sometimes be advantageously replaced by an immediate answer in writing from all the students, and its value may be estimated by the plan of mutual correction in a numerical form. But in ordinary oral questioning I would not resort to numbers but use such symbols as *Excellent*, *Good*, *Fair*, *Moderate*, which are better fitted to describe general impressions.

And now the most important thing remains to be said. Be sure that what your scholar studies for the examination is the best for him to learn. Watch how its anticipation tells upon his methods of study, his sense of honour, his love of truth. Determine that whatever happens, you will not pay too heavy a price for success at examinations. Discountenance resolutely all tricks, all special study of past papers, or of idiosyncracies of examiners, and all speculations as to what it will and will not "pay" to learn. In their proper place examinations have done great service to education, and are capable of doing yet more. But, that this may be so, let us make sure that for us, and for our pupils, success in examinations shall not be regarded as an end but as a means towards the higher aim of real culture, self-knowledge and thoughtfulness. And let us keep in mind the old sound maxim: "Take care of everything but the examination, and let the examination take care of itself."

"In order to understand," says Mr. Palmer, in his new translation of the Koran, "the immense influence which the Qur'ân (Koran) has always exercised upon the Arab mind, it is necessary to remember that it consists not merely of the enthusiastic utterances of an individual, but of the popular sayings, choice pieces of eloquence, and favourite legends current among the desert tribes for

ages before Mohammed's time. . . . Judged, then, by the standard which we apply to other creeds, Mohammed's religion stands forth as something strikingly new and original, since it sets before his countrymen, for the first time, the grand conception of one God, which was, as he asserted, the faith of their father Abraham, but which their fetishism had so long obscured."

THOMAS CARLYLE.*

BY THE EDITOR.

THE rugged, gnarled old oak has at length fallen, and the home of his fathers takes back to the dust all that once was mortal of Thomas Carlyle. The news of the death of this great Censor of the age, as he has often been called, was not unexpected, but there are few educated minds of this or of the last generation to whom the passing into the silence of the other world of Thomas Carlyle does not come home with the force of a personal loss. So large a space does he fill in the written and spoken thought of the past fifty years, and so greatly has his influence entered into the mental warp and woof of all enthusiastic students of modern literature, that the hand of death is begrudged its prey, even though it be considerably to remove its victim from the burden of life and reverently to lay his bones in the bosom of kindly Mother Earth.

Heine says, that to ask a man what he thinks of Goethe is to ask him what he thinks of the universe; and though it may sound like hyperbole to say this of either of the men, yet to ask it of Carlyle is to ask something of almost boundless scope and suggestiveness—so much does the question embrace of the wide field of modern English civilization. A criticism upon Carlyle necessarily implies a criticism upon his works, and what these touch upon is well-nigh every topic that has for two generations engaged the British mind, in every

phase of practical or philosophic thought. Much as he has exhorted the world to silence, and ever axiomatically as he has urged that "the tools are only for him who can use them," he stands forth himself as the emphatic spokesman of his generation, and commands that attention to his words which their uncouthness and frequent exaggeration, and the iteration with which they have been presented, would have closed to them the ears of the English-speaking people had they come from any other teacher. What message he had for the race had its power heightened by the moral earnestness and Titanic force of the man, which gave him that hold upon the spirit and intellect of the age, which few who have taken up the rôle of the reformer have hitherto possessed and fewer still have so potently exercised. This force too often carries him away, as we have hinted, into exaggeration, and gives to his wit and imagination a grandiose character which, but for the magnificence of the notes which his pen occasionally strikes on the key-board of thought, would have turned the ears of many possessed of a fine sense of the niceties of literary form away from rather than towards him. Still, despite the ruggedness of his diction, and we had almost said the affectation of his style, were it not that there was no such thing as affectation about him, but ever an abiding horror of anything that smacked of it, Carlyle was a great, if not always a healthy and accurate, thinker. Though he makes sad havoc

* A slight, hastily prepared paper read before the "Toronto Athenæum Club" on the 10th March, 1881.

of the conventional rhetorical laws which are understood to govern good writing, he shakes one up by the vigour and earnestness of his thinking. Much has been said, and probably will continue to be said, of the cynical and despairing character of most of his writings, but the excuse for this must in a great degree be found in the fact that he came as a prophet decrying and lamenting the follies of the time, and hurling at weakness and wickedness the shafts of his wrath and scorn. He saw much that was amiss in the world, and that it abounded in shams and pretence, and he came to raise his voice in protest and to wield his pen in denunciation. The wholesomeness of his diatribes, and the moral force with which they were hurled from the hasty forge of his hot brain, have burned themselves into the mind and bedded themselves into the literature of his age, as few philippics in our language have ever done. No teacher, at the same time, has so vividly shewn us the chasm between truth and falsehood, or been of greater service in manifesting, in the clearest and most impressive light, the consequences of national faithlessness and folly.

How healthful and invigorating, too, have been his encouragements to each individual toiler "to do the work that lies nearest the hand," and to carry about with one, as he himself phrases it, "an abiding sense of the infinite issues of human existence." His life was wrought out in a marvellous degree under this influence, and though he threw theology to the winds, he was ever dominated by the thought that over each life there impended a great Disposing and Ordering Mind which not only moves the universe but directs and influences every event and actor in it. Yet, while this characteristic of his Puritan education is manifested in all his writings, he emphatically calls upon every one "to see God Almighty's

facts for himself." What these are, and what we are to give credence to, as facts in the sphere of religion, he nowhere tells us. Of what we are not to believe, he however leaves us in little doubt. This is his injunction: "What the light of your mind, which is the direct inspiration of the Almighty, pronounces incredible, that, in God's name, leave uncredited; at your peril do not try believing that." But there are positive lessons to be learned from Carlyle which, if they do not come from any professional priesthood, are nevertheless worthy of enthusiastic reception. "The ethical elevation, the earnest and spiritual religion, the impassioned sympathy with valour, devout self-sacrifice, all that is heroic in man, and the resolute determination to recognize nobleness under all disguises," which Peter Bayne, in his review of Carlyle, tells us pervades his *Lectures On Heroes and Hero-worship*, are among the inspiring influences of this great teacher of the age. Beyond and above all his speech about "the abysses" and "the eternities," floats athwart the sky the illumined scroll of his ethical teaching, which commands us "to erect veracity into a universal virtue, and to enshrine in our hearts the old Teutonic hatred of lies and shams." It was this outcome from the severe Presbyterian atmosphere of his youth that gave him his place as a moralist, and imparted fire to his invectives against the social conventionalities of his time. In his moral earnestness lies the secret of his power, and the source and stimulus of all that was best and good in his own work. As a writer has recently remarked, "The age needed some such teacher as he, with the passionate eloquence and moral intensity of a Hebrew prophet, to proclaim the eternal verities of the spiritual life. Carlyle was essentially prophetic. In a time which looks more and more to experience as the source of its know-

ledge, he trusted more and more to his intuitions. He did not reason; he toiled through no long courses of logic to discover the fundamental fact; he simply saw. . . . It was by the constant appeal from the world of fact to the world of ideal truth, from sensation to intuition, from knowledge to faith, that Carlyle best served his generation. He surprised us into greatness by disclosing the significance of the apparent trifles which crowd our lives. Over the most obscure human path, as over the broadest and most frequented highway of humanity, he set the infinite heavens and the everlasting stars. Nothing was commonplace to him, because all had part and work in the perpetual miracle of being. Summer and winter, day and night, the whole regular procession of external events, in which our lives are set, was as marvellous and glorious to him as to the first man into whose thought the mystery and wonder of it all found entrance."

But notwithstanding this eulogium, there were limitations to Carlyle's genius, and in some respects it found its exercise within a narrow circle and a limited horizon. Here is the estimate with which a compiler of fragments from his writings sums up his work: "We think that it is not too early to assign to Thomas Carlyle his true place as a man and an author. In him, indeed, the two are one: the books are not merely the exponents of the man: they are the man himself. We suppose few men were ever more free from positive blame. But he seems to have considered that his sole work in life was to *do nothing save to exhort everybody else to be up and doing something; and latterly to exhort everybody else to stop exhorting anybody to do anything.* His endowments, natural and acquired, were high but not very broad; his being was intensive, but not very extensive. The very concentration of his nature, which

in a manner precluded him for taking a large view of any subject, intensified the perceptions which he did acquire. Stand where one may, the crown of the heavenly dome is right over his head, the centre of the bottomless pit right under his feet. He is always in the centre of the universe. So it is of space; so in time was it to Carlyle. The era which was the present one to him was the great era of the world. The thing of which he at any moment happened to be thinking, was the only thing worth thinking about; and, despite his objurgations to others, he was ever ready, by tongue and pen, to give utterance to the thought of the moment. If, as was often the case, that thought *was* a noble one, no utterances were nobler than his; if, as was not unfrequently the case, that thought was *not* a noble one, few utterances were *less* noble." Another writer aptly says that "Carlyle, while he had emancipated himself from a host of vulgar prejudices, absorbed hundreds of deeper and more serious ones by forming false moral theories and evolving erroneous systems from peculiar and preconceived ideas. He was neither heartless nor depraved, as most of his works would portray him. In truth, he was the reverse; but by the persistent drawing of general conclusions from faulty and insufficiently considered premises, he got inextricably tangled in his ethics, and was compelled, from a mistaken sense of congruity, to surrender all faith in the desirable and all hope of improvement. Could we have Carlyle without his captiousness, his mockery, his hardness and perversity, his majesty and sincerity would be more acceptable; but relieved of these he would not have been Carlyle."

These pictures of our author, as it seems to me, more correctly appraise the man, and give a truer estimate of his worth, than can be gathered from the flood of indiscriminate eulogy

which writers have poured from the press since the subject of it passed into that "still country" whither he has gone, and from which he may now be impatiently looking down upon all foolish babblers and undiscerning critics of his work. It is true that in his writings he exhorts us to reverence, and extols, as a touching and beautiful thing, the honour shewn by a disciple to his master; yet he as emphatically adjures us to be fearless in the right, and has some fierce things to say of him who calls "Ho! every one that wants to be persuaded of the thing that is 'nt true."

Hasty in his own judgment of men, and intolerant as he often was of foibles in those whom he came across, Carlyle had the faculty of gauging a man by the degree of earnestness and candour which he manifested in his manner and bearing, as well as by the weight of the message he had to deliver in the sacred name of truth. A fribble in society earned his scorn, and a dilettante in letters was held in no higher esteem. Thus it was in matters historical that his ideal became "action," and his conviction this, that the world should be ruled by intellect and force. He had no tenderness for individual eccentricities, and, poet as he was, could brook little in nature that was wanting in purpose or given to idleness. When Leigh Hunt, after an evening's altercation with him on many things, pointed, as he was parting with him at the door, to the stars that aloft were hymning an eternal song in their orbit, he was greeted with this ejaculation from Carlyle: "Eh! mon, it's a sad sight!" Whether this rejoinder was meant as a rhetorical anti-climax to what Carlyle may have conceived to be a bit of rhapsody on Leigh Hunt's part, and which, wherever he met with it, he always endeavoured to prick the bag of, or whether it expresses his impatience at being asked to contemplate something

that mutely suggests a realm akin to the spiritual aspirations of mankind, but which was alien to his sombre, dyspeptic mood, it is difficult to say. Life, at any rate, was ever a serious thing with Carlyle, and the immense personality of the man is never more manifest than when the talking function, which was always exceptionally well exercised in his case, led him to descant on the sacredness of work, and the sense of obligation which should rest upon even the humblest life to see, and to fulfil, the mission which each has been given to do. In conversation, we are told, this was often dwelt upon, especially in the case of young literary aspirants who sought counsel with him as to the manner and methods of work, and the paths by which they might reach success. If his correspondence is ever published, a great emphasis, I doubt not, will be found to rest upon this enforcement of duty on the part of those who expressed to him their wish to fit themselves for the battle of life, and would enter upon it with an adequate sense of its responsibilities and trusts. Very impressive, moreover, in his grim, religious way, are his appeals to the moral nature of man for that recognition of a Divine government in the affairs of men and nations, which, however much it may at times be lost sight of, is ever active in fashioning lives and shaping events which shall work out Heaven's purposes and clear the waterways to the ocean of eternity. In his Inaugural Address at Edinburgh, he reminds the students, in a passage of great earnestness, that, "in the tragedies of Sophocles, there is a most distinct recognition of the eternal justice of Heaven, and the unfailling punishment of crime against the laws of God." With much fervour he goes on to say, "that no nation that did not contemplate this wonderful universe with an awe-stricken and reverential feeling that

there was a great unknown, omnipotent, and all-wise, and all-virtuous Being, superintending all men in it, and all interests in it—no nation ever came to very much, nor did any man either, who forgot that. If a man did forget that, he forgot the most important part of his mission in the world."

Yet, notwithstanding this personal obeisance to the ideal he had in his mind of omnipotence and justice which ruled the world, Carlyle's reverence for religion, its creeds and professors, was of the faintest description. His belief was in the divinity of strength and force, and the deity he worshipped was what someone has irreverently phrased, "an incomparable athlete." The Gospel of the New Testament was to him as if it never had come to men, and the Evangel he would have in its place, the thunderings of Sinai. As the French since his death have aptly said of him, "he was a Scot of the Old Testament." Nevertheless, in a sincere and stern way, he was a great preacher of righteousness; and though he early broke from the faith of his fathers, he drew the line sharp between the elect and the reprobate. The world to him was governed upon the obvious plan of "giving strong men sway and of hustling the weak out of sight." Thus did he read and interpret history, and upon this plan only would he make it. Hence have we his work "On Heroes," and, as larger illustrations of his theory, "Cromwell," "Frederick," and the "French Revolution." How dauntlessly he adhered to his convictions is of course known to every reader of his works, though

the "Frederick" almost broke him down in maintaining them. The value of these works, however, as pictures of eventful epochs in the world's history, which seem to come as from an inspired pen, can hardly be overrated. The relentless insight, the caustic wit, the dramatic vigour, the vivid portraiture, and the lofty thought, to be traced throughout their pages, amply attest the genius of the man who wrote them. The unrivalled biography of Sterling and the matchless essay on Burns, with much else that came from his powerful and ever-busy brain, will remain among the most sacred treasures of English literature. With these, and even with some of what Swinburne spoke of as the "Sewerage of Sodom," that defamed his pen and belied the humanity of the man, will be enshrined much that fell conversationally from his lips, and made his talk, as Margaret Fuller used to say, "an amazement and a splendour scarcely to be faced with steady eyes." But the lips are now forever silent, for the old man, much distraught in his later years with grief, and greatly broken with the assaults of life, has passed from among the living. What the coming "Reminiscences" will bring us, and what the talked-of Autobiography will further reveal of him who, beyond most men, has permanently enlarged the field of intellectual vision for the thoughtful, aspiring student of the present and coming time, we shall soon know. For what he has already given us, though there be much that we wish he had withheld, we owe him the sincere and dutiful service of a grateful heart.

TEACHERS AS WRITERS.

BY F. BLAKE CROFTON, TRURO, N.S.

A PARAGRAPH from an Ontario paper, asserting the incapacity of teachers to make editors, lately went the rounds of the Canadian press. According to its writer, the instructor, heavily handicapped by grammar and the proprieties, cannot possess the gift of ready writing essential to the newspaper man. This fling at the teaching profession was not wholly uncalled for. No one who has been severely drilled in the classics, who has been taught to regard a false quantity as about equal to a felony, can turn to writing without at first feeling hampered by the strict standard he has been forced to attempt in his student days. The imagination of the scholar is curbed by his over-developed critical powers. He thinks too much of avoiding flaws, repetitions, sameness of construction, and too little of compelling attention and producing conviction. He works more to disarm the censure of the few than to attract the interest of the many. These tendencies, which are heavy weights to carry in any kind of writing, are millstones in journalism.

But they do not of necessity last forever. And, besides, only a minority of teachers have had the advantages and disadvantages of a severe training in languages and rhetoric. The bulk of the schoolmasters and schoolmistresses who flood waste-paper baskets with their offerings have never been in any danger of becoming slaves to their high standard of criticism.

It is this profusion of uninteresting contributions offered by the profession, more than anything else, that periodically rouses the ire of some busy editor. It is the vanity and pedantry of too little learning, more than the over-polish or guarded accuracy of too much learning. Intellectual conceit is fed by

habitual contact with undeveloped minds, and this conceit is not lessened in teachers by the fact that the *interest* of their pupils prompts them to affect admiration or mirth at their fancies or anecdotes in the classroom. Certain it is that many editors suffer from the number of unacceptable MSS. received from the scholastic profession. The editor of a quarterly review, once a teacher himself, told me that he was fairly deluged with them.

But, if the teaching fraternity produces a great many bad things, it has produced many good things too. It has probably gathered more laurels than any other profession in the field, if not of journalism, at least of general literature. Plato and Aristotle, the greatest teachers, were also the greatest philosophical writers of Hellas. Tyræus, whose strains revived the martial ardour of the Spartans, was an Athenian schoolmaster; and the fervid Sappho herself was a Lesbian schoolma'am.

In our own literature, however, we have more decisive proof that the atmosphere of a school-room is not fatal to literary inspiration. Among the poets, Milton and Goldsmith taught in academies; so did Samuel Johnson, if he is to be called a poet; so did James Macpherson, the daring fabricator of "Ossian's Poems;" so did Beattie before he became a professor; so did Shakspeare himself, according to a tradition. In his "Hudibras" Butler satirizes the father of his pupil. Campbell was a tutor in a private family. Skelton, the father of English satire, acted in the same capacity to King Henry the Eighth. Thomas Warton, the Laureate, succeeded his father—a poet himself—as Professor of Poetry at Oxford. His brother, Joseph, the third bard of the family, was

headmaster of Winchester. The Oxford chair, once filled by the Wartons, has since been occupied by the lamented Keble and by Matthew Arnold. Bret Harte was a teacher for a short time. Longfellow was appointed a professor at Harvard soon after his graduation.

The three Brontë sisters were governesses. Roger Ascham, Queen Elizabeth's tutor, not only taught the youthful idea to shoot, but also, in his "Toxophilus," instructed the public in the use of the bow. Thomas Carlyle was both a tutor and a school-teacher. Thomas Arnold, the distinguished historian of Rome, is more distinguished as "the great

headmaster." The authors of "Noctes Ambrosianæ" and "Bon Gaultier" occupied professorial chairs. Goldwin Smith, the late James De Mille, and other Canadians by adoption or birth, have a dual celebrity—in literature and education.

It would be too long a task to notice even a quarter of the teachers who have written notable books on philological, scientific, philosophical and religious topics. Naturally a large proportion of learned writers at every time have been university professors, and scores of mitred theologians have begun life as tutors in influential families, and as masters in the public schools of England.

THE SUPERANNUATION FUND.

Circular issued by the Legislative Committee of the Ontario Teachers' Association.

THE Legislative Committee of the Ontario Teachers' Association respectfully request you to bring this circular under the notice of your local Teachers' Association. As the result of several interviews we have had with the Minister of Education on the subject of amendments to the present law respecting Superannuation allowances to teachers he has expressed his willingness to consider and submit for the sanction of the Legislature at its next session such amendments as would fairly represent the views of the great majority of the teachers on the subject, and which the Legislature could reasonably be expected to approve of. If your Association has already held its first semi-annual convention for the present year, please bring the subject before the teachers in your inspectorial division by means of a special meeting, or in any other way which you think best. It is very desirable, in order that the answers to this circular may be carefully considered by the Legislative Committee before the next meeting of the Provincial Association, that the opinions of your Association be sent to the Secretary of

this Committee on or before the first day of July next.

The Minister thinks the following propositions are necessarily involved in the consideration of the basis of any new system, and that it is desirable that the opinions of the Teachers' Associations should be given specifically on each of such propositions.

1. In lieu of the present provisions of the law respecting the Superannuated Teachers' Fund, the "Teachers' Retiring Provident Fund," in this Act termed "the Fund," is hereby established, and such fund shall consist of all sums which may from time to time be appropriated by the Legislature out of the consolidated revenue of the Province, and of all sums hereinafter provided to be paid by all persons entitled to a retiring allowance as hereinafter also provided.

2. The following are entitled to a retiring allowance, namely: every male teacher of a public or separate school holding a first, second or third-class certificate of qualification under the regulations of the Education Department, or a valid county board certifi-

cate of the old standard; also every female teacher of a public or separate school holding any like certificate; also every legally qualified master or assistant master of a high school or collegiate institute, and every public or high school inspector.

3. The conditions on which any such person shall be entitled to the retiring allowance are as follows: each person must have contributed annually to this fund a sum equal to two per cent. of the salary—limited to one thousand dollars as the highest—payable to him during each year of the period of his service.

4. Every male teacher of a public school is required to make such payments annually into the fund during the period or periods in which he is engaged in teaching.

5. It shall be optional with any female teacher, or separate school teacher, to make such annual payments into the fund; but no such person shall be entitled to any of the benefits of the fund unless such annual payments are made by such person in each year during his period of service, within such periods as may be provided by the regulations of the Education Department.

6. Every teacher, master or inspector with whom it is optional to contribute to the fund shall, during each year of his or her service and not otherwise contributing to the fund, pay the sum of two dollars for the purposes thereof, and such payments shall be considered and taken as payments made *pro tanto* to the fund, in case such teacher, master or inspector should at any time during his or her period of service become contributors to the fund under the option aforesaid.

7. The said sum at the rate of two per cent. upon the salary of each person, and the said sum of two dollars also to be annually paid by non-contributors, as hereinbefore provided, shall be made by way of abatement from the annual apportionment of the Legislative Public School grant, and the Minister of Education shall in his certificate to the Provincial Treasurer of such apportionment also state the amount to be deducted from the salary of each person as his or her annual payment to the said retiring fund, and all

sums so deducted shall be paid into and form part of the "Teachers' Retiring and Provident Fund."

8. All moneys from time to time payable to the said fund shall be carried by the Provincial Treasurer to a separate account for this fund distinct from the consolidated revenue fund and also any interest accruing thereon.

9. Every person who complies with the foregoing conditions as to contributions to the fund may retire from the teaching service in his discretion after thirty years of actual teaching, and having reached the age of sixty in the case of male teachers; and after twenty-five years, having reached the age of fifty-five, in the case of female teachers, and shall thereupon be entitled to receive a retiring allowance equal to one-sixtieth of his average salary in respect of each year of his teaching, and if the service had not been continuous, then in respect of the number of years of actual service;

(2) The interest of any person in the fund, or in any retiring allowance when granted, shall not be assignable by such person, or be subject to any execution, attachment or process of any court of law or equity, or judge's order under judgment in the division court.

10. No retiring allowance shall be made for any period of service of less than ten years; and no teacher who retires before he has served the full period of thirty years in the case of males, and of twenty-five years in the case of females, will be entitled to a retiring allowance, unless it has been established by evidence satisfactory to the Education Department that such teacher has become incapacitated by bodily or mental infirmity from performing his duties as a teacher, master or inspector, as the case may be, or unless such male teacher has reached the full age of sixty years, and such female teacher that of fifty-five years; but any such retiring allowance is liable to be withdrawn in any year, unless the incapacity continues; and the recipient is annually to present himself to the public school inspector, in order that he may report thereon to the Education

Department, and any teacher whose disability may cease and resumes the service of teaching will become entitled to the benefits of this fund ;

(2) Any male teacher upon reaching the full age of sixty years, and any female teacher that of fifty-five years, shall be entitled to his or her retiring allowance, notwithstanding the periods hereinbefore provided have not been fully served by such teachers.

11. No person shall be entitled to receive back any sum contributed to the fund ; but in the case of the decease of any person without having been placed on this fund, his or her wife or husband, as the case may be, or other legal representative, shall be entitled to receive back all sums paid by him into the fund in any year other than during the first ten years of his service, with interest at the rate of five per cent. per annum.

12. The period or periods during which any teacher, before the passing of this Act, has been engaged in teaching, shall be allowed for as if served under its provisions, and any payments made by him on account of the former "Superannuated Teachers' Fund" shall be considered and taken as payments made *pro tanto* to the fund hereby established, and any sum which is required to be paid to equal the amount annually payable to the fund under this Act may be made up by payments in five equal annual instalments after the passing of this Act, or as otherwise provided by the regulations of the Education Department.

13. The allowances to teachers who are now on the list of those superannuated, under the provisions of the former law, will continue to be paid to them under and subject to the conditions thereof.

EDUCATION AS DOMINATED BY THEOLOGY.

THEOLOGICAL dicta were, to the thinkers of earlier days, that which the axioms and definitions of Euclid are to the geometers of these. The business of the philosophers of the middle-ages was to deduce, from the data furnished by the theologians, conclusions in accordance with ecclesiastical decrees. They were allowed the high privilege of shewing, by logical process, how and why that which the Church said was true must be true. And, if their demonstrations fell short of or exceeded this limit, the Church was maternally ready to check their aberrations, if need be, by the help of the secular arm.

Between the two, our ancestors were furnished with a compact and complete criticism of life. They were told how the world began and how it would end ; they learned that all material existence was but a base and insignificant blot upon the fair face of the spiritual world, and that nature was, to all

intents and purposes, the playground of the devil ; they learned that the earth is the centre of the visible universe, and that man is the cynosure of things terrestrial ; and more especially was it inculcated that the course of nature had no fixed order, but that it could be, and constantly was altered by the agency of innumerable spiritual beings, good and bad, according as they were moved by the deeds and prayers of men. The sum and substance of the whole doctrine was, to produce the conviction that the only thing really worth knowing in this world was how to secure that place in a better, which under certain conditions the Church promised. Our ancestors had a living belief in this theory of life, and acted upon it in their dealings with education, as in all other matters. Culture meant saintliness—after the fashion of the saints of those days ; the education that led to it was, of necessity, theological ; and the way to theology lay through Latin.—From "Science and Culture," by Prof. Huxley, in *Pop. Science Monthly for Dec.*

ARTS DEPARTMENT.

ARCHIBALD MacMURCHY, M.A., MATHEMATICAL EDITOR, C. E. M.

Our correspondents will please bear in mind, that the arranging of the matter for the printer is greatly facilitated when they kindly write out their contributions, intended for insertion, on one side of the paper ONLY, or so that each distinct answer or subject may admit of an easy separation from other matter without the necessity of having it re-written.

SOLUTIONS

by the proposer, J. H. BALDERSON, B.A.,
Math. Master, High School, Mount Forest.

201. Find the cube roots of unity and the factors of

$$x^3 + x + 1, \quad x^2 \pm xy + y^2, \quad x^3 + y^3 + z^3 - 3xyz.$$

$x^3 = 1$ or $x^3 - 1 = 0$ or $(x - 1)(x^2 + x + 1) = 0$
we see 1 is a root, and by solving $x^2 + x + 1 = 0$

we find the other roots to be $\frac{-1 \pm \sqrt{-3}}{2}$.

Now, if we let w be one root w^2 is the other; hence if 1, w , w^2 , are the cube roots of unity, $w^3 = w^6 = w^9 \dots = 1$, also, $w^2 + w + 1 = 0$ or $1 = -(w + w^2)$.

Factors of $x^2 + x + 1$ are $(x - w)$, $(x - w^2)$.

Factors of $x^2 + xy + y^2$
are $(x - w y)$, $(x - w^2 y)$.

Factors of $(x^3 + y^3 + z^3 - 3xyz)$
are $(x + y + z)$, $(x + wy + w^2 z)$, $(x + w^2 y + wz)$.

202. If $X = ax + cy + bz$, $Y = cx + by + az$,
 $Z = bx + ay + cz$, then will

$$X^3 + Y^3 + Z^3 - 3XYZ \\ = (a^3 + b^3 + c^3 - 3abc)(x^3 + y^3 + z^3 - 3xyz).$$

For $X^3 + Y^3 + Z^3 - 3XYZ$
 $= (X + Y + Z)(X + wY + w^2Z) \\ \times (X + w^2Y + wZ).$

$$a^3 + b^3 + c^3 - 3abc \\ = (a + b + c)(a + wb + w^2c)(a + w^2b + wc).$$

$$x^3 + y^3 + z^3 - 3xyz \\ = (x + y + z)(x + wy + w^2z)(x + w^2y + wz).$$

$$X + Y + Z = (x + y + z)(a + b + c).$$

$$X + wY + w^2Z = x(a + wc + w^2b) \\ + y(c + wb + w^2a) + z(b + wa + w^2c), \\ \therefore x(a + wc + w^2b) + yw^2(wc + w^2b + a) \\ + zw(w^2b + a + wc), \\ = (x + w^2y + wz)(a + wc + w^2b).$$

Similarly

$$X + w^2Y + wZ \\ = (x + wy + w^2z)(a + w^2c + wb), \\ \therefore (X + Y + Z)(X + wY + w^2Z) \\ (X + w^2Y + wZ) = (x + y + z)(x + wy + w^2z) \\ (x + w^2y + wz)(a + b + c)(a + wb + w^2c) \\ (a + w^2b + wc), \\ = (x^3 + y^3 + z^3 - 3xyz)(a^3 + b^3 + c^3 - 3abc).$$

$$203. \text{ Prove that } \frac{(a + b + c)^3 - a^3 - b^3 - c^3}{(a + b + c)^3 - a^3 - b^3 - c^3} \\ = \frac{3}{2}(a^2 + b^2 + c^2 + ab + bc + ca).$$

$$(a + b + c)^3 \\ = a^3 + b^3 + c^3 + 3(a + b)(b + c)(c + a);$$

\therefore denominator becomes $3(a + b)(b + c)(c + a)$;

$$\therefore \text{ the fraction is } \frac{(a + b + c)^3 - a^3 - b^3 - c^3}{3(a + b)(b + c)(c + a)}.$$

By taking the first two terms of the numerator, and the last two, we see that the numerator is divisible by $(b + c)$, and by symmetry it is divisible by $(c + a)(a + b)$; we see also that 5 is a factor by expanding the first term; $\therefore (a + b + c)^3 - a^3 - b^3 - c^3 = 5(a + b)(b + c)(c + a)$ (an expression of two dimensions); if we expand we find the type terms are $\sum a^2b$, $\sum a^2b^2$, $\sum a^2bc$; also those of denominator are $\sum a^2b$, $\sum abc$; from those we see that a^3 is one of the terms of quotient, $\therefore b^3$ and c^3 ; also we see that ab is one term,

and by symmetry bc and ca ; \therefore these being the only terms of second degree the value of

$$(a+b+c)^3 - a^3 - b^3 - c^3 = 3(a+b)(b+c)(c+a) \\ (a^2+b^2+c^2+ab+bc+ca);$$

also $(a+b+c)^3 - a^3 - b^3 - c^3$
 $= 3(a+b)(b+c)(c+a);$

\therefore dividing first by second we have for quotient $\frac{1}{3}(a^2+b^2+c^2+ab+bc+ca)$.

204. As a problem on the last, shew that if $a+b+c=0$,

$$\frac{a^5+b^5+c^5}{5} = \frac{a^3+b^3+c^3}{3} \cdot \frac{a^2+b^2+c^2}{2}$$

we proved $\frac{(a+b+c)^3 - a^3 - b^3 - c^3}{(a+b+c)^3 - a^3 - b^3 - c^3}$
 $= \frac{1}{3}(a^2+b^2+c^2+ab+bc+ca);$

again $a^3+b^3+c^3+ab+bc+ca$

$$= \frac{1}{3} \{ (a+b+c)^2 + a^2 + b^2 + c^2 \},$$

$\therefore \frac{(a+b+c)^3 - a^3 - b^3 - c^3}{(a+b+c)^3 - a^3 - b^3 - c^3}$
 $= \frac{1}{3} \{ (a+b+c)^2 + (a^2 + b^2 + c^2) \},$

put $a+b+c=0$,

$$\therefore \frac{a^5+b^5+c^5}{a^3+b^3+c^3} = \frac{1}{3} \cdot \frac{1}{2} \{ a^2 + b^2 + c^2 \},$$

or $\frac{a^5+b^5+c^5}{5} = \frac{a^3+b^3+c^3}{3} \cdot \frac{a^2+b^2+c^2}{2}$

Similarly prove

$$\frac{a^7+b^7+c^7}{7} = \frac{a^5+b^5+c^5}{5} \cdot \frac{a^2+b^2+c^2}{2} \\ = \frac{a^5+b^5+c^5}{3} \cdot \frac{a^4+b^4+c^4}{2}$$

Solutions by proposer, D. F. H. WILKINS, B.A., Math. Master, High School, Chatham.

199. Prove that

$$(a-b)^6 + (b-c)^6 + (c-a)^6 \\ = \frac{\{ (a-b)^2 + (b-c)^2 + (c-a)^2 \}^3}{4} \\ + \frac{\{ (a-b)^2 + (b-c)^2 + (c-a)^2 \}^2}{3}$$

$$x^6 + y^6 + z^6 = -(xy+yz+zx)(x^4+y^4+z^4) \\ + xyz(x^3+y^3+z^3) \\ = \frac{x^2+y^2+z^2}{2} \cdot \frac{(x^3+y^3+z^3)^2}{2} \\ + \frac{(x^3+y^3+z^3)^3}{3} \\ = \frac{(x^3+y^2+z^3)^2}{4} + \frac{(x^3+y^3+z^3)^3}{3}$$

Now if $x = a-b$, $y = b-c$, $z = c-a$, it is manifest that $x+y+z=0$,

$$\therefore (a-b)^6 + (b-c)^6 + (c-a)^6 \\ = \frac{\{ (a-b)^2 + (b-c)^2 + (c-a)^2 \}^3}{4} \\ + \frac{\{ (a-b)^2 + (b-c)^2 + (c-a)^2 \}^2}{3}$$

200. Sum to infinity, x being a proper fraction,

$$3.8 + 6.11x + 9.14x^2 + 12.17x^3 + 15.20x^4 + \dots$$

The n^{th} term of this series is $3n \{ 8 + (n-1)3 \} x^n = 24nx^n + 9n(n-1)x^n$.

Giving n the values 1, 2, 3, ..., we have the series

$$= 24(1+2x+3x^2+4x^3+\dots) \\ + 9(1.2x+2.3x^2+3.4x^3+\dots) \\ = \frac{24}{(1-x)^2} + 9x(1.2+2.3x+3.4x^2+\dots) \\ = \frac{24}{(1-x)^2} + 18x(1+3x+6x^2+10x^3+\dots) \\ = \frac{24}{(1-x)^2} + \frac{18x}{(1-x)^2} \\ = \frac{6(4-x)}{(1-x)^2}; \text{ which is the sum required.}$$

PROBLEMS

for Entrance and Intermediate Examinations, by W. S. ELLIS, B.A., Math. Master, Cobourg C. I.

1. A dealer bought 100 tons of coal, getting 28 lbs. to the quarter, and paying at the rate of \$4 per ton for it. He sold it, giving 25 lbs. to the quarter, and getting \$5 per ton. How much did he make? *Ans.* \$160.

2. A man bought 30 gallons of brandy at \$2.50 per gallon, the duty amounting to \$12 more. At how much per quart must he sell it, so as to gain $\frac{1}{2}$ of the whole cost?

Ans. 87 cts.

3. In the previous question, if he had added 5 gallons of water to the brandy, the other conditions remaining the same, what should the selling price have been?

Ans. 74 $\frac{1}{2}$ cts.

4. In No. 2, how many gallons of water would have to be added to the brandy, so that there would be neither gain nor loss by selling the mixture at 50 cts. per quart?

Ans. 13 $\frac{1}{2}$ gallons.

5. *A* can do a certain amount of work in 20 minutes, *B* can do 4 times as much in an hour, and *C* can do as much in four hours as *B* can do in 5 hours. When the three men work together for a day they can earn \$6, how should the money be divided?

Ans. *A* \$1.50; *B* \$2; and *C* \$2.50.

6. A sovereign is worth \$4.86 $\frac{2}{3}$, a franc is worth 19 cents; how many francs should be received for 57 florins—a florin being worth two shillings? *Ans.* No. of francs is 146.

7. A man paid for insuring his house $\frac{1}{6}$ of the amount for which he insured it, and he insured it for $\frac{1}{3}$ of its value; the amount paid for insurance was \$30, what was the value of the house? *Ans.* \$1800.

8. In the previous question had the house been worth \$2700, how much would the owner have had to pay for insurance, other conditions remaining the same? *Ans.* \$45.

9. A woman bought a certain number of yards of dress goods at one dollar per yard, and half as many yards of lining at half as much per yard. Altogether she paid out

\$12.50 for the goods, how many yards of each kind did she buy?

Ans. 10 yards of dress goods, and 5 yards of lining.

10. If a man receive 75 cents for cutting a cord of wood, each stick into 3 pieces, how much should he receive for cutting another cord, each stick into 4 pieces?

Ans. \$1.12 $\frac{1}{2}$.

11. The interest on a certain sum of money for 2 years is \$240, the true discount is \$214 $\frac{1}{2}$, find the amount and the rate per cent.

Ans. \$2000.

12. A merchant had a stock of goods, of which tea formed 20 per cent. of the total value; he afterwards bought \$600 worth of tea and \$200 worth of sugar; his tea then formed 27 $\frac{1}{2}$ per cent. of his whole stock, find the value of that stock. *Ans.* \$6000.

13. At 6 a.m. (sunrise), on March 21st, two men, *A* and *B*, get on 'express trains at the same place. *A* goes due west, at the rate of $\frac{1}{2}$ degree per hour; *B*, due east at the same rate; find by how many minutes *A*'s day exceeds *B*'s in length. *Ans.* 48 $\frac{8}{9}$ '.

14. A miner took some gold dust to town to sell. The purchaser of it undertook to cheat him by substituting avoirdupois weight for troy weight in weighing the dust. According to this the miner had 1 lb. 7 oz. of dust, and he was paid for it at the rate of \$16 per oz., the market price bring \$16 per oz. troy. Who gained by the use of the wrong weight, and how much?

Ans. Miner gained; \$32 $\frac{1}{2}$.

15. A traveller on a railroad train notices that if he takes 2 $\frac{1}{2}$ times the number of spaces between the telegraph poles which he passes in a minute, he gets the rate of the train in miles per hour; how far apart were the telegraph poles? *Ans.* 66 yards.

HIGH SCHOOL DEPARTMENT.

UPPER CANADA COLLEGE.

IN the course of his General Remarks on the subject of the College in the Special Report to the Legislature, the Minister argues the case in favour of the College, contrasting its condition and advantages with those of the High Schools. As the statements contained therein will enable us to put the matter briefly before our readers, we shall examine them *seriatim*.

I. "While the subjects comprised in the present course of study in the College are, in general, similar to those which prevail in the High Schools, and both have a common test at the matriculation examinations of the Provincial University, yet a much smaller number of pupils in the High Schools take advantage of the subjects of study which include Latin and Greek classics, or the French and German languages. 100 per cent. of the College pupils are in Latin, 40 per cent. in Greek, 100 per cent. in French, and 33 per cent. in German; while the High Schools shew 44 per cent. in Latin, 8½ per cent. in Greek, 34 per cent. in French, and 5 per cent. in German."

The Report goes on to shew that in the other subjects of the programme of study there is a higher percentage in the High Schools than in the College. To this it is replied:—

(a) The Report compares the condition of Upper Canada College with that of *all* the High Schools, not with that of the best, as should in all fairness be the case.

(b) There are two courses of study in the High Schools—the English and the Classical—in the former of which no other language than English is obligatory. Besides, almost all the Public School Masters are now educated in the High Schools, and they take no modern language. The state of matters was very different before the adoption of the present programme of studies.

(c) Although there are two courses of

study in Upper Canada College, Latin and a modern language are obligatory even in the Commercial course.

No argument can, therefore, hold in this respect in favour of the College: Indeed, the fact that in the higher optional subjects in Mathematics and English the proportion in the High Schools is greater than in the College and is in favour of the superior efficiency of the former. If Mr. Crooks's design is to shew that, as there is more Classics in the College than in the High Schools, the culture is better in the College, he must go further and shew that the study of this subject is carried far enough to be real culture. It naturally follows, also, that what is good for the Collegian is good for the High School pupil, and that Latin and a modern language should be obligatory in the latter as well.

II. "As the entrance examination upon elementary English subjects is the test of admission to the High School, the pupil, if well grounded, should be in a favourable position for obtaining all the benefits of secondary instruction, in the different classes of the High School course; but there is a marked disproportion between the average attendance in the classes of the Lower School, and those of the Upper School; the percentage of average attendance in the Lower School in the four years from 1876 to 1879 inclusive, was 50 per cent., and in the Upper School 6½ per cent., while in the College the attendance in the upper forms from 4 (a) to the sixth represents 33 per cent."

Here, again, Mr. Crooks compares the state of matters in Upper Canada College with that of *all* the High Schools, including those which to all intents and purposes are Public Schools. The only fair comparison would be with the best of our Institutes and High Schools, which alone profess to compete with the College. Were there nothing else objectionable, it is evidently unfair to put on a par with country or village schools a

school in a large city, supported by wealthy parents who can afford to allow their children to remain for four or five years. It is, moreover, an unwarrantable assumption that the pupils of 4 (a) are the equivalents of our Upper School pupils. There is not a High School Master who doesn't know that there is many a boy able to take up Honour University work in some departments who would be unable to pass the Intermediate with its rigid tests; and it is almost certain that the College fifth and sixth forms alone approximately correspond to a High School Upper School. No doubt there is more higher work done in Upper Canada College than in most of our High Schools, but there is far less than in the best High Schools and Institutes; and, if reports do not belie the real state of matters, our Lower Schools are far in advance of the College lower forms.

III. "At the University Matriculation Examinations, a larger percentage of scholarships has been obtained by the College pupils than by those from the High Schools."

The compiler of Mr. Crooks's Report arrives at this conclusion (1) by taking the results from 1867 to 1879, inclusive, and (2) by counting in the scholarships taken by ex-Upper Canada College pupils, and omitting this class in the case of the High Schools, as was clearly shewn in the debate in the House. Now, it is only since 1876 that the High Schools and Collegiate Institutes have been in a position to do really good work, and since then the College has cut a very poor figure. Last year it took only one scholarship, the Institutes taking the others. In 1879 it took only the second general proficiency scholarship, and in 1878 only one. In 1881 it will, probably, be in a similar position.

In other words, even on the basis of the junior matriculation results of *one* University, Upper Canada College is *not so good* as some of our Institutes, with all the disadvantages under which they labour, from the distracting influence of the Intermediate, want of funds, and, in some cases, the interference of parsimonious and ignorant trustees. It should be remembered also that our Provincial second-

ary schools prepare for *all* the Universities, and maintain courses of study for classes of students whose wants are not provided for in the College. In estimating the value to the country of the College and the High Schools it is only fair to remember that the Kingston and Cobourg Institutes, in particular, prepare for the Universities with which they are connected, and seldom send a candidate to matriculate at Toronto University, whereas Upper Canada College seldom prepares for any other University. It must not be forgotten, too, that the High Schools have of late years established an additional claim on the public by educating most of the Public School Masters of the Province.

IV. "The College is a Provincial school; the High Schools are local schools."

This is the main argument in favour of Upper Canada College, and it is based on the statement that in 1880, of the total attendance, 139 were from Toronto and 148 from other parts of the Province. To this it may be justly answered that, as a matter of fact, the Institutes have even stronger claims to be regarded as Provincial than the College.

To take the case of one school with the condition of which we are acquainted, the total attendance, at present, is over 400, of which number 230 are non-residents, from almost every county in Ontario. If Upper Canada College has claims as a Provincial school to the magnificent endowment it possesses, is such a school as this not entitled to more than the small amount of legislative aid it receives? It is no answer that the Institutes and High Schools were intended to be merely local schools. The High School Act provides for the admission of non-residents; and if the Province prefers to regard three or four High Schools as Provincial schools to accepting Upper Canada College, the Legislature should bow to the public will, especially in view of the remarkable difference in the cost per pupil.

Nor is it an argument that there are boarding-houses kept by masters in connection with a few of these schools. It is more than doubtful that the boarding-school plan is a good one; and at any rate the High Schools

have hitherto supplied, with efficiency, the demands made upon them. Several of our schools consist mainly of non-resident pupils and boarding arrangements of a satisfactory kind are made for such. We are convinced, also, that the closing up of Upper Canada College would be followed by the development of its special features in schools in different parts of the Province. It is surely better to have, in different parts of Ontario, four or five schools of the character of our best High Schools and Institutes than a single (comparatively speaking) inefficient and expensive one in Toronto. Our educational system is for the benefit of Ontario, not for that of Toronto alone.

V. "The College and the High Schools differ, educationally, in the longer period of study occupied by the course in the College, and in the earlier ages when Latin has been begun."

(a) As the general educational results of the High School system are, as some think, better than those of the College, or, as all admit, at least as good, it follows that the former is more efficient, for by Mr. Crooks's own shewing the High Schools and Collegiate Institutes produce their results in less time than the College, unless, indeed, Mr. Crooks refers to the advantages to be gained by prolonged association with the children of the aristocrats and plutocrats, who form the bulk of the attendance at the latter. It is a fact that in the old country, where influence is often paramount, the friendships formed at school are useful in after life, and that there is an education of no small importance in a boy's surroundings and associates; but, as Prof. Goldwin Smith has remarked, Upper Canada College is not an Eton or a Westminster, and it is futile to attempt to copy the system here. Such educative influences as are referred to above may be, and, we are glad to say, are, developed in many of our Provincial schools. There is some weight in this argument, and we submit to our High School Masters the following, clipped from a Toronto paper which has had the courage to state one of the strongest arguments in favour of the College:—

"Upper Canada College is doing a good work, though perhaps at a somewhat greater expense than the Collegiate Institutes. We venture to say from a personal knowledge of both the College and the Institutes, and of the students of the two in their University course, that the boys from Upper Canada have received the better training and have more finish to their work than the boys from the average High School. The system of discipline and method of study are different. The system is such that the masters and students are banded together as a community, and the spirit of the community pervades more or less each of its members. Such a spirit is to be observed in a still greater degree in the great public schools of England, but we venture to say that it is almost wanting in our Grammar Schools. Some there are who affect to despise such an argument; to these we can only say that if their inappreciation of it applies to the case of Upper Canada College it must also apply to the great centres of learning of Europe and America, half the reputation of which is based on their educatory influences other than mere facilities of teaching. Education does not consist in the mere acquirement of book knowledge; and Upper Canada College, we contend, is richer than its rivals in those influences—whether social or moral—which go a great way as supplementing book-work in forming an education."

To what extent this view of matters is correct the Masters can judge.

(b) If it is an advantage to begin Latin at an early age, at which the College pupils begin it, the Minister of Education has adopted for the High Schools a system which he admits is injurious to classical culture. Under the circumstances, it is his manifest duty not to bolster up the College, but to remedy the state of matters in the Schools for which he is primarily responsible. As a matter of fact, however, for years past Upper Canada College has done little or nothing in classics. The Institutes and High Schools have, invariably, carried off the scholarships. As for mathematics, a low first-class now and then is all it gets. Modern languages seem to be its specialty, and even in this department its record has, of late, been inferior to that of several Institutes. The College boy of nine or ten would be just as well, for a few years, we imagine, at a Toronto Ward School, were it not, indeed, that the offspring

of some horny-handed son of toil might "come between the wind and his nobility."

But Mr. Crooks is not so far blinded by partisan and class zeal as not to see that the College has defects. His remedy is the following one:—"A reduction in the number of forms in the College, so as not to exceed five; pupils to be admitted only on an examination in elementary English subjects equal at least to the High School entrance; inspection as to its educational condition from time to time by the Education Department; diminution in the cost of board and tuition fees for pupils from the Province generally; the improvement of boarding-house accommodation, and residences of the masters made available for the like purpose; the number of admissions for pupils residing in or near Toronto to be limited; and an extension made of the Exhibition Regulations so as to be more generally beneficial to pupils from all parts of the Province; and, further, that the duties and salaries of the Principal and masters, and the principles upon which they should be paid, be revised, with the view especially of inciting personal interest on the part of each master in the success of all the pupils."

In other words, the Minister of Education deliberately proposes to constitute Upper Canada College another Collegiate Institute for Toronto, with an endowment more than seven times as great as the Government grant to the best of our Collegiate Institutes; to relieve it from the vexatious examinations which do so much to impede higher education in our High Schools, and to place it in such a position that, with an energetic staff, it would be a standing menace to every High

School in Ontario. If our schools were not doing their work efficiently, and if they did not possess the public confidence, there might be some justification for this course; but to maintain at Toronto an institution that is admittedly a huge barnacle on our educational system is little short of an outrage. How the Minister of Education can recommend such a course passes our comprehension. The High Schools and Collegiate Institutes are doing, at a moderate cost, Provincial work in a way that Upper Canada College cannot possibly excel. The University of Toronto has been burdened with a debt of, we believe, about \$70,000, and it is the evident duty of the Government to transfer the College endowment to the Provincial University, to which it originally belonged, and thus confer a boon on higher education which cannot fail to improve every department of our system of public instruction. The sentimental regard for a time-honoured institution that, no doubt, prompts many of its defenders, is, from a sentimental point of view, creditable to those who feel it; but this is a purely business matter, and the abolition of the College means an annual increase of our University funds of about \$27,000, and a greater development of our present unsurpassed secondary schools. That the College is doomed no reasonable man doubts. Mr. Crooks's recommendations are in part an admission that the system is not in keeping with the progressive spirit of educational changes, and the College and its friends may as well make up their minds to submit to the inevitable. Go it must; and, so far as the general interests are concerned, the sooner the better.

PROBABLY more than one American president has tried his hand at schoolmastering. It is said that Andrew Jackson kept a "field school" a year or two in North Carolina. But James A. Garfield is the first president of the United States who has been conspicuous as a teacher of youth. He will be all the better as president from having been the successful president of a western college twenty-five years ago.—*Ex.*

A COUNTRYMAN saw, for the first time, a school-girl going through some of her gymnastic exercises for the amusement of the little ones at home. After gazing at her with looks of interest and commiseration for a while, he asked a boy near by "if she had fits." "No," replied the lad, contemptuously, "that's gymnastics." "Oh, 'tis, hey?" said the verdant; "how long has she had 'em?" —*Ex.*

PUBLIC SCHOOL DEPARTMENT.

{Contributed to, and under the management of, Mr. S. McAllister, Headmaster of Ryerson School, Toronto.}

THE TEACHER AND THE VICE OF
UNTRUTHFULNESS.

TEACHERS, to be successful in the management of their classes, must combine the administrative ability of the statesman with the self-denying efforts of the philanthropist; they must be "as wise as serpents and harmless as doves." Their duty is not so much to control as to direct the minds and morals of those entrusted to their care. Their aim ever must be not to dwarf by repressive measures the characteristics of their scholars, but rather to aid by all the power they are possessed of to develop them in the right direction. It is only thus they can hope to fulfil the great end of all school training—the production of self-governing and intelligent men and women. One of the common faults the teacher has to deal with is that of lying, and the methods of checking, if not eradicating it, must be as varied as are the characteristics of those who indulge in it. There are some boys and girls who would feel the detection and exposure of their untruthfulness like a wound. What the teacher must do principally with these is to keep them out of more temptation than they can bear, until their love of truth is strong enough to enable them to shun the fault. There are others with a moral sense so dull that they are less affected by being caught in a lie than a dog is in the act of stealing a bone. Then there are others whose absence of moral courage tasks severely their love of truth. When they do a wrong act they have not the bravery to acknowledge it, but too often resort to a lie to screen it. These require very careful management to prevent them from becoming habitual liars. They should not be allowed to think for a moment that they can

hide their fault from the teacher. He, while wisely appearing to place implicit trust in their word so that they may be induced to deserve that trust, should be ever on the watch to prevent them from thinking that the confidence so frankly given can easily and with impunity be abused. It may assist our young teachers, who, with the best intentions to do right, very often go wrong from lack of experience, if we give one or two examples of the way of dealing with this fault in a well organized school.

A boy in the third class brought a note to his teacher one afternoon for leave to go home at three o'clock. The teacher seeing that the note was written in a school-boy's hand, questioned him about it. He avowed that his elder brother wrote it by his mother's order. Still having doubts about the matter, she submitted the note to the head master, who at once shared her opinion. He questioned the boy, who stoutly adhered to his explanation about the note, without flinching either in look or gesture. As the matter had gone so far it would not do to let it drop. The boy must be either cleared of the suspicion, or convicted of the fault. He ought to have the proud satisfaction of knowing that the distrust in his word was unfounded, or be made aware that the fault could not be committed with impunity. Certainty of detection has as wholesome an effect in deterring wrong-doing in a school as it has in preventing crime in a community. A messenger was despatched to his home, who brought word back that the boy had asked his mother for a note to get leave at three o'clock; she refused; he then said he would write it himself. On this information he was put aside until the next morning, when he was told to report to the

head master. He then presented a note from his mother in which she expressed great regret at his improper conduct. She had punished him by not allowing him to go to the party which he wished to leave school early the previous day to attend. The master conferred with the boy's teacher, and found that he had been hitherto a very truthful, well-behaved boy, but that since this incident had arisen he had shewn some bravado which she thought it desirable should be checked when associated with such a fault. The master called the boy before him, pointed out to him the folly of trying to deceive his teacher, the wickedness of setting at naught his mother's word, the severe way in which the law treated those who forged another person's name, the harm he did himself by the unblushing way he told the lies, and the loss of pleasure the whole transaction had caused himself. He was then asked who wrote the note; he said he had done it himself. As he had been given every opportunity to do right and still adhered to the wrong, he was punished with several "handers."

Take a different case. On one occasion a number of boys in a class failed to form line with promptitude preparatory to marching into school. The master told them to fall out, that they might march in by themselves. On their way in some of them made unnecessary noise with their feet, accompanying it with a double step. Those who did this were asked afterwards to stand up, but not one did so. They were all told to stay at noon, when they were drilled in marching in and out until they satisfied their teacher. This answered all purposes so far as the noise was concerned, but it did not touch the more serious fault of untruthfulness. They were reminded of this, and were told that this part of their misconduct would still have to be dealt with. The school-boy's imagination is not a well regulated one, for he is inclined to anticipate more serious consequences to his faults than his teacher may intend, provided that teacher has just the wisdom not to "wear his heart on his sleeve." It is wise

to preserve a mystery about your future intentions in dealing with the faults of scholars, for then they are in most cases sure to expect the worst; and this feeling of painful expectation is more likely to prevent the repetition of the fault than any punishment that may follow. At the recess the next day, when the classes were about to be marched into school, the master told the boys, who were concerned in the noise the day before, to fall out in front of the others, and to face them. He then addressed the school. He said that however faulty they might be in other respects they bore a character for truthfulness, and this was very high praise; but that the boys before them, or some of them, had proved yesterday that they did not deserve to be thus spoken of. The circumstances of their fault in not standing up to acknowledge their misconduct were then detailed, and the master told the classes that he thought it but right to let them know that there was one class among them that contained boys who were afraid to acknowledge a fault. The culprits were then told to fall into line again. On two or three occasions afterwards the success of this method of dealing with the class was tested, and always with favourable results, the culprits at once standing up when asked about any fault they had committed. It may be objected to this plan that it deals unjustly with those who may be innocent. But the teacher does not know who is innocent and who is guilty, and unless they can agree among themselves to reveal the culprits they place themselves all on the same footing. The truth is, you make the *esprit de corps* that prevails among them your instrument to prevent the repetition of the fault; for no generous-minded boy would like his companion, who at the risk of blame prefers to remain true to him, to suffer for his fault, and those who are indifferent to this are pretty sure to be regarded in the proper light by their schoolfellows. The feeling of loyalty to each other among schoolboys, as among men, is a good feeling, and one that every teacher should respect.

SCHOOL-ROOM WORK.

NORTH WELLINGTON PROMOTION
EXAMINATIONS, APRIL, 1881.

HINTS TO TEACHERS.

I. Those pupils only who are supposed by the teacher likely to pass should be examined. In large schools it will be advisable to allow all others to remain at home on examination days.

II. Sufficient notice should be given the pupils to be provided with paper, etc., where Trustees do not supply it.

III. Candidates should be seated as far apart as possible, no two in the same class, in any case, occupying the same desk.

IV. The first and second questions in each subject are to be written by the teacher on the blackboard after the candidates have taken their places, but before the hour mentioned in the time-table for commencing the examination. The other questions may be written from time to time, as needed, during the progress of the examination.

V. Only one side of each sheet of paper is to be written on, and a margin of at least $1\frac{1}{2}$ inches wide to be left on the left hand side of each sheet. The name of the candidate is to be written on each sheet, and when done the papers are to be folded once across, and the candidate's name, the date, subject, township, and school section to which the candidate belongs, to be written on the outside sheet.

VI. Candidates in the same class should be seated five feet (or two desks) apart, and where the space will admit, no two candidates of any classes should be seated together. Teachers are requested to take every possible precaution to prevent and detect "copying;" any candidate attempting to copy, or assist others unfairly, shall forfeit his right to promotion.

VII. The value of each answer, as estimated by the teacher, is to be marked on the margin (with coloured pencil if possible), and the total value of answers on the outside. In the papers on Geography, Grammar and Composition, the number of errors in spelling is also to be marked on the outside. All answers of candidates are to be

preserved for examination by the Inspector at his next visit; and a schedule shewing the total marks obtained by each pupil in each subject, is to be made out by the Teacher on a sheet of foolscap, and submitted to the Inspector at the same time. *No pupil should be promoted whose marks amount to less than 50 per cent. of the aggregate, or 33 per cent. of the maximum in any one subject. In the better schools 60 and 40 per cent. would not be too high.*

VIII. Maps should be rolled up or removed from the walls, and text books from the desks, on the evening before the examination. The Teacher should endeavour to have at least one Trustee present during the examination.

The Teacher shall preside in his own school at this examination unless he sees fit to exchange with some neighbouring Teacher. If the Teacher finds it necessary to dismiss the pupils who are not undergoing examination, he should enter on the register the attendance of the pupils dismissed.

IX. Suggestions with regard to any alterations in the mode of conducting the examinations, which might add to their usefulness, are solicited by the Inspector.

TIME-TABLE.

Tuesday, 5th April, 1881.

Directions to Candidates.	8.45 to 9.00
Arithmetic.....	9.00 to 11.45
Writing	11.45 to 12.00
Composition (Reading) ..	1.05 to 2.20
Spelling	2.20 to 3.50
Reading	4.00 to 4.30

Wednesday, 6th April, 1881.

Grammar.....	8.45 to 11.00
Literature.....	11.00 to 12.15
History.....	1.15 to 2.45
Geography.....	3.00 to 4.30

FIRST CLASS—PROMOTION TO SECOND.

DICTATION.

Pupils will take separate seats with slates, and write neatly:—

"They paid visits to the woods, and the fields, the ducks, geese, fowls, oxen, sheep, and cows to bid them good-bye." "All must hate a lying tongue." "If thieves or rogues come near, he growls and looks fierce."

Seize, breast, captive, pleased, straight, sleigh, watch, friend, light-house.

ARITHMETIC.

With slates.

1. Write figures for one thousand, nine hundred and ninety, six hundred and one, five hundred and forty, six hundred and ten; and express in Roman numerals the following: eighteen, twenty-nine, and forty-four.

2. Write words for 406, 581, 698, 734, 683, 101, 395, L., XLIX., XC.

3. Express in figures with proper signs, one hundred and one dollars and one cent.

Find the sum of $8954634 + 31246 + 4598637 + 2103 + 4956321 + 9 + 17$.

4. From 9612380163204 take 5738679284-205.

5. Find the sum of \$483.19, \$651.84, \$510.40, \$731.21, and \$323.54.

6. A man sold a house and lot for \$3765, a horse and carriage for \$639, and seven tons of hay for \$107. How much did he receive for the whole?

7. How many pounds of butter in five tubs each weighing 107 pounds? In three tubs, each weighing 75 pounds?

8. 1203 apples are worth 957 cents, 530 oranges are worth 1895 cents; how much are both worth?

9. Find the difference between 5865137267 and 5766248378.

10. Easy problems in Addition and Subtraction.

$2+6+8+7+5+9$ are how many?

$6+1+7+8+10+12+7+3$ are how many?

Etc., etc.

The first nine are to be answered on slates, and the last should be taken orally.

LITERATURE.

Open First Books Part II., and answer orally from page 34.

(1) What was the name of the ship?

(2) What is meant by "their bark"?

(3) What is meant by "furling the sails"?

(4) What is used in steering a ship?

(5) What is meant by "would curb the storm"?

(6) What is a "gale"?

(7) What is an "orb of fire"?

(8) What is meant by "surf"?

SECOND CLASS—PROMOTION TO THIRD.

WRITING.

On Paper.

Name of pupil in full, his age, residence and P. O. address; and a specimen containing all the capitals and small letters and the ten digits.

DICTATION.

On Paper.

Second Reader, page 170 from "Next morning" to "banks of the stream." Pupils are to be told where a sentence ends; capitals to be counted.

ARITHMETIC.

On paper—full work required—no marks unless correct and without changes.

1. Add the following numbers: Three hundred and forty thousand and fifty, five millions nine hundred and twenty-two thousand and nine, seven hundred and four thousand three hundred and four, twenty thousand and five, sixty-five thousand six hundred; subtract from the sum three hundred and ninety-seven thousand eight hundred and ninety-seven, and write out the answer in words.

2. Give Roman numerals for 555, 499, 1881, and 603.

3. Give figures for XCIV, CXVI, XIX, CDIX, DCCCXXXIII.

4. Find the product of $2793 \times 812358 \times 857$.

5. Divide 31415926536 by 648.

6. A tea merchant had 1654 pounds of tea; in one week he sold 407 pounds, next week 309 pounds, next 189 pounds, and the next 59 pounds; how many pounds remained of the stock?

7. 10,000,000 pounds of flour have to be placed in sacks, each holding 280 pounds; how many will be required?

8. Bought 456 loads of wheat, each load containing 60 bushels, at 2 dollars a bushel; what did the wheat cost?

9. Write down 4617, multiply it by 12, divide the product by 9, add 365 to the quo-

tient and from the sum subtract 5521; what is the final result?

10. A man has a barn worth \$475, a house worth 5 times as much as the barn, and land worth 3 times as much as the house and barn together; what are they all worth?

GEOGRAPHY.

Answers to be written on paper.

1. Bound the Township of Peel.
2. Draw a map of the County of Wellington; divide it into townships, and mark where Guelph, Fergus, Arthur, Elora, Drayton, Mount Forest, and Harriston are.
3. What railroads run through the County of Wellington?
4. What is the earth?
5. What is geography?
6. What is a map?
7. How do you know where the north is?

8. What is a sea?
9. What is a gulf or bay?
10. What is a volcano?

LITERATURE.

Open Second Book, and answer orally at page 187.

Explain the meaning of

1. "A soldier belonging to the Life Guards."
2. "An empty cab."
3. "Regardless of the passers-by."
4. "The guardsman foraged in his pocket."
5. "A corn-chandler's near."
6. "So hearty a picture."
7. "His pocket lightened of his last coin."
8. "Undo the head-gear."
9. "Affected at meeting."
10. "The cabman was touched at the scene."

MODERN LANGUAGES.

[Embracing Practical School Work in English, French and German subjects.]

NOTES ON CHRISTOPHE COLOMB.

(Continued from page 88.)

CHAPTER IX.

La patrie...pensées—The home of his thoughts. (Note difference in meaning between *pays, contrée, campagne* and *patrie*.)

Le colon portugais—(See De Fivas' Gram., 435 rem. for proper adjectives).

Une route...directe—A freer and more direct route.

Assez...chimères—Sufficiently deprived of a foundation to consign it to the class of chimeras.

Chargeat...conseil—Commissioned a council. (For Subj., see De Fivas' Gram., 623.)

La physique—Nature.

Auquel...appeler—To which Columbus appealed from the decision of the other.

CHAPTER X.

Beaucoup d'années—Many years. (See De Fivas, 402).

Son âge...s'avançait—His mature age was coming on apace. (Note difference in *mur* without circumflex accent).

Il s'évada...Lisbonne—He stole away from Lisbon by night.

Il avait cru devoir—He had concluded that it was his duty.

Comme...Génois—As an Italian and a Genoese. (See De Fivas', 435 rem.)

CHAPTER XI.

Qu'il...profession—Than was usual for a man of his position. (See De Fivas' Gram., 609, for use of *ne*.)

Uniquement...marine—Solely given up to sea-affairs.

Qui...les esprits—Which were engrossing the attention of thinkers.

Il vit...de Dieu—He saw in him one of those sent by God.

Une révélation...fidèles—A revelation which, as the other, desires to have its disciples.

Marquées... unique—Distinguished by a thousand perfections of that divine seal which forbids forgetfulness and causes us to admire a conspicuous man.

CHAPTER XII.

Juan Perès... asile—Juan Perès prevailed upon Columbus to accept of an asylum for a few days.

Sentirent... dessillés—Were conscious that their eyes were opened.

Ces premiers... convictions—Those first friends gained over to his convictions.

Quand... prévisions—When success had hallowed his visions of the unknown.

Sur la foi... paroles—On the strength of his word.

CHAPTER XIII.

Se passiona... hôte—Conceived with them a warm admiration for his guest.

Il l'avait... longtemps—He had dwelt there for a long time.

Il avait... d'amitié—He had kept up friendly intercourse.

Homme... vertu—A man of worth, influence and virtue.

Il lui... l'équipage—He furnished him with an outfit.

Sequins—Sequin, a gold coin of Italy and Turkey. Value, 9s. 5d. sterling, or about \$2.20.

Il le... Dieu—He recommended him and his plan to God. (*lui* used to emphasize *le*.)

DIE KRANICHE DES IBYCUS.

STANZA I.

Zum... Gesänge—to the contest of chariots and poetry. The Isthmian games are referred to in ll. 1-3.

Zög—journeyed; from ziehen, zog, gezogen. Ihm... Apoll—Apollo had given him the gift of poetry (and) the sweet voice of song. Apollo was the god of the sun, archery, soothsaying, medicine, *poetry* and *music*.

Aus Rhegium—from Rhegium, a city in the extreme south of Italy.

des Gottes voll—filled with the spirit of the god.

STANZA II.

Schon... Blicken—Already the citadel of Corinth on the lofty mountain-ridge beckons to the wanderer's gaze.

in Poseidons Fichtenhain—into Poseidon's grove of fir trees. Notice that the preposition *in* after a verb of motion governs the accusative case, when no motion is implied it governs the dative.

Poseidons—(Neptune). Proper nouns, names of persons, take a termination in the genitive when used without the definite article.

Nichts... her—nothing moves round about him.

Geschwader—squadron; nouns commencing with prefix *ge* are neuter gender.

STANZA III.

zur See—to the sea; *die* See, the sea; *der* See, the lake.

Mein Loos... gleich—my lot is like your own. Notice *es* pleonastic.

ein wirtlich Dach—a hospitable roof. In prose we would have *wirtliches*.

STANZA IV.

Und... Schritte—and joyously he quickens his pace.

zum Kampfe—for the struggle. Notice that *Kampfe* has a termination here. In Stanza I. it has no termination for sake of metre.

STANZA V.

Es ruft... Götter—he calls upon men and gods. *der Mensch*, the generic word for man (*cf.* Latin *homo*).

dringt... Retter—reaches the ear of no deliverer.

nichts... erblickt—no living being is seen here; wird erblickt—present indicative, passive, 3rd singular.

so muss... erscheint—thus must I perish, here upon a foreign soil, abandoned, unlamented, destroyed by the hand of heartless villains, where no avenger appears for me.

STANZA VI.

furchtbar krähn—cry fearfully.

spricht—from sprechen; notice change of radical vowel in 2nd and 3rd singular, present indicative.

sein Auge bricht—his eyes close in death; Auge belongs to 1st declension in singular and 2nd in plural.

STANZA VII.

wird erfunden—is found; what difference if it read *ist* erfunden?

der Gastfreund—his host. Gastfreund is a compound substantive from Gast a guest, and Freund a friend. It sometimes means *guest*, but the meaning here is evidently *host*.

der Fichte Kranz—the crown of laurels.

Schläfe—brows; *der* Schlaf, the brow, the temples; *das* Schlaf, sleep.

STANZA VIII.

Feste—feast; dative of *das* Fest; die Feste, fortress, stronghold.

Schmerz and Herz are both irregular in declension.

zum Prytanen—to the Prytanis; a public building in some Greek cities where the prytares or chief magistrates assembled, and where noted men were often maintained at public expense.

zu rächen... Blut—to avenge the manes (departed spirit) of the slain; to atone for his death with the blood of the murderer.

STANZA IX.

Doch wo... macht—yet where is the evidence which will unmistakably point out the criminal from among the mul-

titude, the surging crowd of people attracted (thither) by the magnificence of the games.

Helios—the Greek word used for the German Sonne.

STANZA X.

Er—refers to Thäter above.

Jetzt—now; more definite in pointing out present time than *nun*.

Genießt—enjoys; from Geniessen, genoss, genossen.

Menschenwelle—crowd of men. Compound nouns take the gender of the last component.

STANZA XI.

Gedrängt; crowded, qualifies Völker, the subject of sitzen.

Es... Stützen—the pillars of the gallery almost break.

wächst... Bogen—the building grows into an ever-increasing arch. Notice how poetically the filling up of the theatre is expressed.

STANZA XII.

Theseus' Stadt—Athens. Theseus was one of the early kings of that city. A magnificent temple was erected therein to his memory.

Aulis—a seaport in Bœotia, whence the Greek fleet sailed to Troy.

von... Küste—from the distant coast of Asia, *i.e.* the west coast of Asia Minor.

von... Inseln—from all the islands, chiefly the Cyclades and Sporades in the Ægean Sea.

SCIENCE DEPARTMENT.

[A series of Examination Questions upon Botany and Human Anatomy and Physiology, prepared for THE MONTHLY by Henry Montgomery, M.A., B.Sc., Lecturer on Zoology and Botany in Toronto School of Medicine.]

BOTANY.

(Continued from page 129.)

51. EXPLAIN the terms alburnum, duramen, bast, liber, connate, acrogenous and perfoliate, as used botanically.

52. Enumerate and describe the various kinds of parallel-veined leaves with regard to the arrangement of the vessels.

53. What are impari-pinnate and interruptedly pinnate leaves? Mention some examples.

54. When is a leaf said to be *fugacious*? and when *deciduous*?

55. Name the reproductive organs in a phanerogamic plant:

56. What is the botanical name for the staminal whorl? what for the pistilline whorl?

57. Explain the terms gamopetalous, apopetalous, dialysepalous, synsepalous and eleutheropetalous.

58. Distinguish a symmetrical from a regular flower.

59. What are staminodes?

60. Define phyllodium and pulvinus.

61. Explain the force of the terms retuse, aristate, repand, crenate, cuspidate and sinuate.

62. What fractions express the *angular* divergence of the house-leek and oak, respectively?

63. Name the parts (1) of a *complete* stamen, and (2) of a *complete* pistil.

64. Describe a grain of pollen.

65. Distinguish between pollination and fertilization.

66. Shew by diagrams the principal modes of attachment of the anther to the filament; give the names by which these different modes are designated, and state which sort is of common occurrence in grasses and which in sedges.

67. What is fovilla?

68. Define syngenesious and monadelphous, giving an example of each.

69. What are the *essential* parts of the pistil?

70. Mention and describe the chief forms of the irregular gamopetalous corolla.

PHYSIOLOGY AND ANATOMY.

(Continued from page 130.)

40. Name two sets of absorbent vessels in the intestine, and shew the difference in function between them.

41. Contrast the blood of the hepatic vein with that of the portal vein.

42. State the average temperature of human blood in a healthy individual.

43. What is the "buffy" or "buffe coat?" and what is the cause of its formation?

44. What percentage of solid matters does the blood usually contain?

45. Give an account of the spleen and its functions.

46. Write a description of the larynx and trachea, giving their relations.

47. Prove that carbon dioxide gas is given off from the lungs.

48. How would you determine the quantity of carbon dioxide gas present in expired air?

49. What is the average amount of carbon expelled from the lungs every twenty-four hours?

50. Give an account of tidal, residual, complemental and supplemental air.

51. Describe the lungs and give their relations.

52. Give a description of the process of respiration.

53. State the average number of respirations to the minute in an ordinary adult.

54. What are the chemical and physical differences between inspired and expired air?

55. About how much pure air is required per hour for a healthy person?

56. Tell exactly what is meant by "vital capacity."

57. What is the minimum proportion of oxygen requisite for the support of human respiration?

58. Describe the respiratory movements in hiccoughing, sighing and sneezing.

59. Give a sketch of the sudoriparous glands and their functions.

60. What is meant by asphyxia?

61. Where are the Meibomian glands situated? What is their function?

62. State position and use of the ceruminous glands.

63. From which division of the integument, and in what way are hairs developed?

64. Describe the structure of the nails.

65. In what parts of the body-surface are the sebaceous glands completely wanting?

CONTEMPORARY LITERATURE.

REPORT OF THE MINISTER OF EDUCATION OF THE PROVINCE OF ONTARIO FOR THE YEAR 1879 (printed by order of the Legislative Assembly). Toronto: C. Blackett Robinson, 1881.

(Continued from page 138.)

THE returns given of the salaries of teachers are not in the most satisfactory shape. We are left to find out for ourselves, for instance, the average salary paid to teachers throughout the Province, also that paid to male teachers. The average salary paid to teachers for the Province was \$314; in 1878 it was \$311—increase, \$3.

AVERAGE SALARIES IN 1879.

	Males.	Females.
Counties	\$383	\$249
Cities	662	296
Towns	616	270

We fear that these figures, which we extract from the Report, are not thoroughly reliable, for if we multiply them by the number of teachers in each case we get:—

Total am't of salaries for counties	\$1,725,788
“ “ “ cities ..	217,618
“ “ “ towns..	220,000

Total

While the Report shews:—

Total am't of salaries for counties	\$1,660,072
“ “ “ cities...	203,238
“ “ “ towns..	209,512

Total

So that the statement of the average salaries shews an excess of \$90,584 over the actual numbers given in the Report. Now we are very desirous of seeing the salaries of teachers increased, but let the increase be real, and not one cooked in the calculations of the Education Department. If such blunders as we have pointed out mar the

pages of Mr. Crooks's Report, we may ask of what use is the book, and the country may seriously consider whether it is not paying too dear for its whistle to give a fat salary to a Minister who allows such mistakes to mar his official utterances. The return of the religious denomination of teachers has no place in the present Report, and its loss will not be felt, for in a country whose school system has the broad basis of Christianity for its foundation, to the ignoring of denominationalism, it is no matter what religious sect the teacher belongs to so long as he performs his duties in a Christian spirit. The total number of teachers with first-class Provincial certificates was 253—increase, 43; second class, 1,601—increase, 192; third class, 3,836—increase, 68. There is an odd fluctuation from year to year in the numbers who hold these various grades. In 1878 there was a decrease of 40 in the first class, an increase of 105 in the second, and a decrease of 22 in the third.

Why should there be a decrease of 40 in the number of first class in 1878, and an increase of 43 in 1879? We can only account for it by the blundering that has so often characterized the examination work of the Central Committee, in the failure to gauge accurately either the store of knowledge or the power of using it of those to be examined. Let us hope the change the Minister proposes to make in the composition of that Committee will alter all this for the better.

While the information is ample regarding the granting of certificates even to the extent of giving the names of those who received certificates of the first and second class, that about the granting of interim certificates is very meagre and unsatisfactory. All that we are told is that 353 were granted in counties, 2 in cities, and 19 in towns—total, 474, a

decrease of 6, while the previous year shewed an increase of 8.

Now, as Mr. Crooks admits that the existence of interim certificates is an evil that cannot now be justified by necessity, it would assist him if he is sincere in desiring to decrease the number if he published the names of all who receive such licenses to teach, with the inspectoral district they belong to, and the names of those who recommend them to his favour. The light that would thus be let in upon this matter would have the wholesome effect of purifying it from the odour of jobbery that surrounds it.

We find there are no less than 4,897 School Boards, and if we reckon three trustees to each, we have the enormous number of 14,671 trustees to manage the 5,147 schools in the country, or nearly three to each. Can anything shew more clearly the necessity of doing away with school sections with their cumbrous and expensive machinery, and introducing the Township Board system for the management of our schools? Possibly when we get a Minister of Education who has the courage of his opinions, we may hope for this change. The four Township Boards in 1878 increased to six in 1879. The names of these are worthy of being given:—Enniskillen, Tuckersmith, Macaulay, Morrison, McKellar and Christie. The total number of school days in the year was 221, and it is remarkable to find rural schools have the smallest number. The numbers are: counties, 204 days; cities, 208 days; and towns, 211 days. It will be interesting to see to what extent Mr. Crooks's tampering with the duration of holidays in rural schools will affect these returns. Of course, other things being equal, the number of teaching days in the counties should shew an increase. We find by a little reckoning that the average number of visits to schools paid by each inspector was 171 for the year, this is considerably below one for each teaching day. The trustees and teachers shew their good sense by the decrease in the number of public examinations to the extent of 286. There was also a decrease in the previous year. Hence we hope to find them get fewer every year, not-

withstanding the psæm that is sung in their favour in one of the paragraphs of the Report. The word "examination" in this connection is a misnomer, exhibition is the proper word to denote the show days Mr. Crooks is so anxious to have more generally patronized.

There were 104 High Schools in 1879, with an attendance of 12,136 pupils—increase, 1,562. These schools were taught by 320 masters and teachers—increase 22. The expenditure was \$400,788, including a Legislative grant of \$76,834. The average attendance for the whole year was 6,992, this gives a percentage of 58 scholars who attended every day in the year—an increase of one per cent. on the previous year. The cost for each pupil in average attendance was \$57.32—decrease \$9. The expenditure on salaries was \$241,097, average per teacher \$753—increase, \$6. The total number of pupils to each teacher in average attendance was 22—increase, 2. There were 72 schools free—decrease, 4; the rest charged a fee ranging from 25 cents to \$5 per term.

We may expect to find the number of free High Schools decrease, since there is a growing opinion in the public mind that free education should be limited to that given in the public schools, where all that is necessary for good citizenship is expected to be taught. 248 pupils, or 8 per cent. of the whole number registered, matriculated; 565, or 18 per cent., entered mercantile life; 535, or 16 per cent., adopted agriculture as a pursuit; 693, or 21 per cent., joined the learned professions; while 1,200, or 37 per cent., went to other occupations.

Though the number matriculated is much smaller than that of any other class, far more importance is attached to it on account of the standing matriculants give to the school they go from. The above statistics should direct the attention of High School authorities—trustees as well as teachers—to the fact that these schools are not used by those who attend them chiefly to prepare for entering the University, but mainly to prepare for agricultural and commercial pursuits. The training in them should, of course, be largely

influenced by this fact. That it is not so we have not to go far to prove. One of the High School Inspectors in his Report says: "Intelligent and expressive reading is in danger of becoming a 'lost art' among us; English composition is often 'crowded out' of the school programmes altogether. Orthoepy—English, French, Latin, or German—holds a very secondary place in popular estimation, while writing and drawing are generally pushed to the wall." Another says: "In many High Schools neither reading nor writing is taught, though there are pupils requiring instruction in these subjects." The statistics shew that while there were above 11,000 in Algebra and in Geometry, and above 5,000 in Latin, there were but 4,500 in Book-keeping and Commercial Transactions, and only 2,871 in Chemistry and Agriculture.

In our review of Mr. Crooks's Report, last year, we pointed out the utterly valueless nature of the statistics of the Normal Schools. Who cares to know from what counties the students have come, or their religious persuasion? If the Minister wishes to give us statistics of this kind let him direct his attention to the visitors to the Museum; some people might like to know their number, and their nationality, and possibly their religious persuasion might interest one or two! But to encumber his Report with half a dozen pages of utterly useless rubbish about these schools is chronicling very small beer indeed. No information is given as to their cost, nor any statement of the average attendance at them. We are, therefore, unable to give any figures to shew, as we have done in the case of Public and High School scholars, the cost per pupil. We have no reliable figures to shew how many students in training were successful in passing their final examination. The Report is silent as to the average length of time each student is allowed to devote to acquiring experience in school-room work by practice in the Model School. For his sins of omission and commission, in the Report of these schools, we trust that Mr. Crooks, who is a good English Churchman, will utter

from his heart that part of the General Confession, "We have left undone that which we ought to have done, and we have done that which we ought not to have done." What information of importance there is we give, and supplement it by extracts from the Estimates of the Province.

NORMAL SCHOOLS.

	Toronto.	Ottawa.
Number of male students admitted in 1879.....	134	106
Number of female students admitted in 1879.....	113	76
Total.....	247	182

SALARIES.

Principal.....	\$2,000	2,000
Science Master.....	1,800	1,500
Mathematical Master.....	1,500
Drawing Master.....	700	700
Teacher of Writing and Book-keeping.....	1,000	500
Teacher of Music.....	600	600
Teacher of Reading and Elocution.....	500	500
Gymnastic Master.....	300

From the table devoted to Teachers' Associations we gather that there were 60 in existence in 1879, with a membership of 4,185. That their total receipts amounted to \$7,632.24, including \$2,750 from the Government. The expenditure was \$4,772.30, leaving a balance of \$2,859.94. These Associations are, therefore, financially in a fairly prosperous condition. Long before any pecuniary aid was given to them by the Government, Dr. Ryerson proposed to employ an experienced man to assist at their meetings, and by his extensive knowledge and varied experience as an educationist to give practical value to their deliberations. If Mr. Crooks were to devote another \$2,750 to the employment of such a man, who might also have the general supervision of Model Schools, he would find it money well spent, and he could justify it by shewing he was only carrying out the plan of his predecessor.

With a considerable amount of labour on our part, we have thus put before our readers the most important features of this Report.

While we have no very brilliant results to record we have no great disasters to bemoan. We have long ceased to look for the former under Mr. Crooks's Administration of the Department, and have learned to rest content if his discretion guides him to avoid the latter.

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THE SPIRIT OF EDUCATION, by M. l'Abbé Amable Bésau, Curé de Saint-Louis-Des-Français, à Moscou, Précédemment Chapelain de L'Ambassade de France, à Saint-Petersburg, Camérier d'Honneur de S. S. Pie IX. Translated by Mrs. E. M. McCarthy. Syracuse, N.Y.: C. W. Bardeau, 1881.

A GLANCE at the table of contents will give a good idea of the scope of the work. Chap. I. What Education is; II. What Infancy is; III. Early years; IV. Youth; V. The Intelligence; VI. Education of the Heart; VII. Education of the Will; VIII. Physiology of Education; IX. Education of the Manners; X. Conversation; XI. The art of Speaking Well; XII. Exterior Graces; XIII. The Character; XIV. Work. On the whole this is a very readable little book, and, from an abbé's stand-point quite liberal in its tendency. It is highly commended by their Eminences the Bishops of Metz and Beauvais, and thus, the work is, of course, strictly orthodox. That the abbé is no mere pedant, although for many years an instructor, we gather from p. 257, where with reference to conversation he says, "One must not assume the air of attaching too high a price to his words, and never leaving any to escape without parsimony, and only at rare intervals. The same may be said of the affected moderation that certain persons have who desire to use care in the formation of their phrase. It is much better to speak incorrectly and speak a little faster, in following the natural species (bent?) of talent, temper of mind,

and character. A style too exact is not at all adapted to conversation, where a certain *abandon* should always reign, without too much negligence, but accompanied with just thoughts, and great propriety." It would have been well had the translator allowed herself a little more latitude in her choice of words, corresponding to the original. Her desire to follow M. l'Abbé as closely as possible has compelled her more than once to make a literary *faux pas*. Take, for example, this sentence from Fénelon, as quoted by M. Bésau, and rendered into English by Mrs. McCarthy: "The result is that those so celebrated at the age of five years fall into obscurity and when arrived at *antiquity* are despised."

We have noticed but one typographical error in the volume. On p. 135 we read of an "Angelic clergyman." Perhaps some might say that the insertion of an *e* in such a place is neither here nor there.

"The Spirit of Education" deserves a wide circulation, and may be read with much pleasure by all, but more especially by our Roman Catholic parents, teachers and trustees. Mrs. McCarthy deserves the thanks of her American co-religionists, for placing this little treatise within easy reach.

NOTES ON RELATIVE MOTION, by Professor Loudon, University College, Toronto.

THESE notes were first published in the *American Journal of Mathematics* and now are reprinted in pamphlet form for convenience of reference. For the consideration of many propositions in Rigid Dynamics, it is necessary to refer the motion to axes not fixed in space but in the body. The principal results in relative motion are in these notes collected and proved in a manner well adapted for beginners, the proofs being simple, uniform and satisfactory.

EDITORIAL NOTES.

MECHANICS' INSTITUTE
LIBRARIES.

THE Minister of Education, having recently taken under his care the Mechanics' Institutes of Ontario, has issued a Special Report upon their condition and management which we trust will arouse renewed interest in these valuable auxiliaries of the Public Schools of the Province. The establishment of Mechanics' Institutes in Upper Canada, we believe, dates back to the year 1835, and in many centres of the Province they have furnished almost the sole intellectual nutriment, within the means of a large section of the reading public, from that period to the present. For many years the Institutes were under the control of the Board of Arts and Manufactures of the Province; but, in 1868, they came under the direction of the Mechanics' Institutes Association of Ontario, Mr. Wm. Edwards, of the Public Works Department, Toronto, being the indefatigable Secretary; and now they have passed within the jurisdiction of the Minister of Education. Mr. Crooks, in assuming responsibility for the proper management of these Institutions, has done well first to look into their affairs. For a number of years, about sixty of them have been in receipt of an aggregate annual sum of \$18,000, or, on an average, \$300 each. In 1879, the number of Institutes having increased to seventy-four, they received a total Legislative grant of close upon \$23,000—over forty of them obtaining the maximum sum allowed by the Government, viz., \$400 each. This large amount of aid from the Provincial purse, we regret to say, has not hitherto been very carefully disbursed. Like a good deal that is voted by the Legislature for, no doubt, beneficent purposes, the appropriation in this case has not always

gone into the hands of those legally entitled to it, nor has it been put religiously to the uses intended by the Act. This is a state of things we have long thought would one day be disclosed, and the Report before us attests that what we apprehended is a fact. The conditions of the grant, it should be stated, are that the Legislature will appropriate to each Institute two dollars for each one locally raised, up to the sum of \$400—the amount to be expended on a Library and Reading Room, or on a Library and in Evening Class instruction in technical education. The evasion or disregard of these conditions, on the part of the authorities of the Institutes, is a curious commentary on the dealings of Government with associate bodies who look to it for aid on the paternal system. This would not be so serious a matter, in view, at least, of the ambiguity of the Act setting forth the conditions on which the grant is made, were all the Institutes in a flourishing state, and maintained their organizations in a fairly healthy and efficient condition. This, unfortunately, is far from being the case, as a reference to the Report before us shews. Though the Government has expended on these Institutes \$150,000 in the past ten years, subsidizing about 125 institutions, less than 60 per cent. of them are now in existence, with assets, in the main, greatly disproportionate to even the amounts received from Government, and a membership alarmingly diminished and fast diminishing. The following Institutes, for instance, have become utterly demoralized, and most of them have closed their doors, though they have all been aided by liberal grants from the public purse: Aurora, Brampton, Kincardine, Merrickville, Oshawa, Owen Sound, St. Thomas, Paisley, and Pembroke. The latter, we find, though it received \$400 in 1877, and a like sum

again in 1878, disappeared from the scene within three months of its receiving the second \$400, the whole effects of the Institute being sold by auction without the authorities knowing of the circumstance, or being able to ascertain the reason of the unaccountable disappearance of the Institute and its effects. Again, other Institutes continue to draw their \$400 a year from the Government, on the pledge that at least half of that sum would be raised by local effort, but which never becomes a reality. Berlin is an instance in point; claiming and receiving annually the full amount of the grant, while its membership fees for the last year were only \$29. This is not only dishonest, but manifestly unfair to other Institutes which not only raise the amount the law requires, but in many instances treble the sum by a local levy. The case of Woodstock makes this apparent by contrast. While this Institute draws from the Provincial Treasury the same sum as Berlin, it raises \$440 from members' fees, and has a membership of 256. In like case to Berlin, Alliston draws \$400 from the public chest, with but \$27 derived from members' fees. Similarly, Alexandria drew \$200, with a membership represented by \$15 from fees. These, and other violations of the law we could mention, call for a more rigorous inspection than seems hitherto to have been undertaken. The Minister of Education will, no doubt, see to this, and it would be well if he could devise some other plan than the existing one upon which the grant is based and apportioned. The system familiar to the Department, in connection with the School grants—payment by results—would here seem appropriate, and some rule should be laid down as to the proportionate expenditure by the Institutes on the Library, the Reading Room, and the Evening Classes, before the grant can be drawn. A rigorous audit by the Public School Inspectors should also be enforced, that the public money may not be squandered or diverted to purposes inconsistent with the objects of the Act. In the Institute accounts for reading-room expenditure we note what seems either curious book-keeping, or in-

stances of glaringly false returns. Penetanguishene, for instance, returns \$100 as having been spent upon the reading room, while all it is supplied with are 3 newspapers and 8 magazines. Peterboro', on the other hand, for less money had 19 newspapers and 17 magazines. Instances occur, also, of irregularities in connection with the library disbursements and of what looks like general juggling in the preparation of the accounts. There is evidence in the Report, also, that the Government grants, in some instances, are not expended in the year for which the money has been appropriated and drawn. The character of the books purchased, moreover, is not always in accordance with the conditions on which the grant is given. Other facts come to light in the Report which are not assuring to those who wish well to the institutions, and desire the continuance of the Government appropriations. If municipal honesty were in better repute, we would rather see the Institutes drop their inappropriate title and become Public Libraries, supported by municipal assessment, and free to the people. Some day, when the public mind sickens of party politics, we may see this realized. Meantime, let us profit by the disclosures of this "Special Report," and incite the Institutes to more active and honest work.

THE SCHOOL MAP TRADE.

AT intervals within the last twenty years we have contended that, once the doors of the Education Depository were closed, and Government relinquished its amateur trading operations, an impetus would be given to legitimate business enterprise in catering for the wants of the schools, that would not only convince the sceptical but astonish those who shared the opinion. With what correctness we premised what would follow the abolition of the Depository, now a *fait accompli*, a reference to our advertising pages, in the matter of Educational Map Manufacture, will indicate. The practical embargo upon manufacture being removed, and the trade thrown open to competition, we already see

three houses actively entering the lists to bid for the business of the schools. The result of this rivalry will undoubtedly be to create an industry in this department of trade which will have a most stimulating effect upon the schools themselves. Already, we understand, it is producing beneficial results, for orders are coming in rapidly for supplies of wall maps in advance as yet of the facilities of manufacture. This fact is a gratifying one to those who take interest in school equipment and who would like to see a general refurbishing of the weapons in the geographical armoury of the schools and large drafts made upon the arsenals of supply. Another and positive advantage the schools now have, in the trade being thrown open to competition, appears in this, that the maps are all being constructed afresh, with the latest additions and the most modern mechanical and artistic improvements; and the competition that exists may be trusted to secure the continuance of this advantage. What we have seen of the issues of two of the houses engaged in the trade, those of Messrs. James Campbell & Son, and the Canada Publishing Co., warrant us in saying that the schools are to be congratulated in having such enterprise enlisted in their behalf. The announcement of the third house competing for the trade, that of Messrs. Copp, Clark & Co., also promises well for the advantage of the schools. Already five of the series announced by the Canada Publishing Co. have appeared, and for boldness of design and excellence in execution, with the advantage of being on a mammoth scale, they are worthy of high commendation and do credit to their well-known draughtsman, Mr. Bartholomew. The series offered by Messrs. Campbell are those of W. & A. K. Johnston, of Edinburgh, whose reputation for original geographical research, or painstaking accuracy, and for admirable workmanship, is of the most enviable and assuring character. All of these firms are bringing out newly-constructed maps of the Dominion and the several Provinces, which, we believe, have been drafted by able and competent hands. In connection with the Johnston series, the Messrs. Campbell have

designed and constructed an admirable map-stand (see model in advertisement) which can be used as a portable blackboard and, by the use of an ingenious but simple device, made to do duty in the display of four double-sided maps, with every facility of handling. Teachers and trustees coming to Toronto should not fail to see what the activities of these publishing firms are producing for the benefit of the schools. The Canada Publishing Co., we may add, have a series of globes, of a portable and inexpensive character, now under way, which will further emphasize the gain to education, in having the school-supply trade left in the hands of competent business houses.

THE "SCHOOL JOURNAL" AND MR. ADAM.

In the "Publisher's Department" of the *Canada School Journal* for April, the owners of that publication hold themselves up to public odium by inserting a gross personal attack upon the editor of this magazine, the proper treatment of which, but for the possibility of being misunderstood, would be the contempt of silence.

It is to be regretted that people who have broken with truth, and whose ill-conditioned minds set no ideal before them in conducting a controversy than what journalistic ruffianism dictates, will assume a position and make use of weapons against which no fair or clean-minded man will care to throw himself. To those who know the present writer and his work in this magazine it will not, at any rate, be expected of him that he should travel in parallel lines with the journal referred to, nor bandy words with its owners in a matter which they shirk the public bearing of in favour of that conventional resort of a weak cause—personal abuse of one's opponent. We will, therefore, only say, that the immediate occasion of the Journal's attack was our criticism in the February number of *THE MONTHLY*, of the circular issued by Gage & Co., on behalf of a trade publication which the firm, in defiance of the School law, wished the Public School Inspectors of the Province

to promote the sale of among the teachers within their jurisdiction. This circular, as our readers know, it became our duty to comment upon, as it had been sent us, as we stated, by an indignant Inspector who was incensed at being called upon, not only to violate the Regulations of the Department, but to lend himself, for the consideration of 100 per cent. profit, to further its introduction among the teachers over whom he had influence. To be caught red-handed in the work of prostituting the educational machinery of the Province to the purposes of the pocket was enough, of course, to make the house concerned in the affair thoroughly ashamed of itself. The shame, however, that ought to have suffused the countenance of its chief representative, if it is capable of taking on an honest, manly blush at all, was speedily exchanged for that of rankling passion, which soon found voice, not at the frailties and shortcomings of its owner, but at the writer who had, with imprudent hardihood, convicted the firm of its wrong-doing. Thus is it that we have been aspersed and been made the victim of the firm's vituperation. Of course, when a publishing firm whom you convict of questionable practices has no defence but to get angry, and when the volume of anger in some degree corresponds to the force and deftness of the blow which it sustains and *feels*, the retort is rarely likely to be a tribute of the firm's fidelity to facts. In the present case this is apparent, for the firm endeavours to pose, and to take credit for posing, in the light of an aggrieved and long-suffering creditor of a house in which the present writer was a partner, but which owed nothing to the firm of Gage & Co. but what that house, with questionable honesty and characteristic sharpness, by despoiling others, devised a way for it to pay. With this circumstance recalled to the recollection of the firm in question, it might be well for it to abstain in the future from any effusive manifestation of concern for its "business integrity," and in its assaults upon the editor of this magazine to keep some measure with truth until that murrain falls upon him which the firm, no doubt, considerably prays may

be the condign fate of all critics and censors of the house. Until then, let us assure it that no cowardly traducing and threatening, nor any unclean and untruthful vituperation, will divert us from the faithful performance of the duty which our readers and the profession at large, in a journal such as this, expect at the hands of the owners and conductors of the CANADA EDUCATIONAL MONTHLY.

WE have received notification of conventions to be held of the following County Teachers' Associations during the month of May, viz.: Wentworth, at Hamilton, on the 6th and 7th; North Wellington, at Drayton, on the 19th and 20th; and Durham, at Port Hope, on the 27th and 28th. The semi-annual meeting of the Frontenac association is announced to meet at Kingston, on the 28th and 29th April.

WE would call attention to the announcement in our advertising pages of a Teacher's Class in Book-keeping, Penmanship and Phonography, to be held during the summer vacation at the Canada Business College, Hamilton. Mr. R. E. Gallagher is the Principal, to whom applications should be made.

TEACHERS who are interested in the Kindergarten system of education will be pleased to get hold of an instructive and entertaining geographical puzzle, consisting of dissected maps of the Dominion and the Province of Ontario, which have been prepared for school and nursery use by the editor of this magazine. See advertisement elsewhere.

THE Canada Publishing Co., Toronto, have just issued editions of Cicero pro Archia, with notes and a vocabulary, by A. L. Parker, B.A., of Collingwood, and of Schiller's Select Ballads, with notes, by A. Mueller, Berlin, two handy Canadian texts for students of the Latin and German languages, which we hope to notice critically in our next.