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THE ONTARIO TEACHER:

A MONTHLY EDUCATIONAL JOURNAL.

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ORNAMENTING SCHOOL GROUNDS.

At this season of the year, when tree planting can be most successfully done, we would like to call the attention of School Trustees and Teachers to the desirability of ornamenting their school grounds. There is nothing in which the æsthetic tastes of the people of Canada, seem to be more neglected than in the matter of tree planting and pleasure walks. Many farm-houses have stood for a quarter of a century on some prominent and naturally beautiful situation, without a single tree or shrub to hide the nakedness, or break the monotony of the situation. It is rarely that evergreens are planted out, or gravel walks made, or flowers planted, with any degree of taste, or after any model of neatness. And what is so generally true about farm-houses and country residences applies almost invariably to our public school grounds. We know whole counties in which there are not half a dozen school grounds, with a single tree or shrub to ornament the dreariness of the situation. Not only is there no shrubbery, but firewood and refuse of various kinds, most offensive to good taste, are strewed around, as if the school yard was specially designed to be a model of chaos and disgusting confusion.

Now to remedy these evils we would suggest that School Trustees would provide the ways and means for planting and ornamenting the school grounds, as early in the season as possible. It would require at most but a few dollars to plant out fifty or one hundred of our beautiful Canadian maples and poplars, interspersed with a few horse chestnuts or evergreens, to make our school-grounds much more attractive and interesting. Not only would this make our school-houses much more interesting to the public, but it would contribute very materially to the comfort of the pupils. Every teacher must have felt sorry that during the hot summer months, his pupils had no shelter from the scorching rays of the sun, and he must also have felt that in spite of his extra efforts to rouse the energies of his pupils, that after entering the school-

room, already greatly heated, with perspiration streaming down their faces, anything like close application to study was an utter impossibility.

Should it happen, however, that Trustees would neglect the advice here tendered, we trust the work will be taken up by others equally able to accomplish it, if a little energy was only put forth. We have known teachers to do marvels in many ways. We have seen them combine the willing efforts of willing hands, and completely transform the school-house grounds and bring order out of the greatest confusion. We have no doubt if teachers would call for volunteers in the section or from among their pupils that, on some pleasant Saturday, when May flowers were in bloom, they could perform this work themselves. Ten boys with spades and axes, and one or two teams borrowed from loyal parents, could easily plant out fifty or one hundred trees, and these once planted and properly attended to, would in the course of a few years not only be quite an ornament to the grounds, but also furnish a pleasant shade for many a weary pupil. There can be no difficulty in the way of adopting this course. Some of the larger boys would only be too glad to undertake such a duty, and we trust teachers would be equally willing to give their countenance to such laudable efforts.

We do not propose offering any suggestion as to how school grounds might best be ornamented; we leave this to the judgment of trustees and teachers. But we would strongly urge, that this matter be no longer neglected. It is not creditable to us as a people, that we should neglect the fine arts and the cultivation of what is essentially beautiful, while laboring to provide for the accommodation made necessary by law. The faculties of the human mind should be uniformly expanded. Not only should the memory and judgment be cultivated, but the *ideal* as well. "The life of man consisteth not in bread alone." The enjoyments of life are not all based on that which is indispensable to his existence. The springs of happiness are as varied and as numerous as the means provided by nature for their enjoyment, and he is indeed a person of very base and sordid propensities, who sees no value in anything which does not contribute to his sensuous propensities. We would desire therefore, that our schools should be externally, as well as internally beautiful—that the young mind as it comes in contact with the hard, rough points of instruction, should also receive polish which the cultivation of refining associations alone can give it, and thus developing into one harmonious whole, every faculty occupying its full and legitimate place in the educated man, we should rear a race whose mental symmetry, vigor of thought, and refinement of character, would be the pride of their country and the ornament of their race.

In our efforts thus to ornament our school grounds, we have a few models in Ontario, but many more in the United States. The school grounds of Simcoe town are a model of neatness and taste. The school grounds of the major part of the rural schools, on the other side of the lines, particularly in the older States, are invariably planted with trees and rendered beautiful and inviting with shrubs and walks and flowers. We should in this respect endeavor to emulate our neighbors, and give all the benefit of attractiveness and good taste to our Public Schools, which after all constitute the most important link in the educational institutions of our country.

THE NORMAL SCHOOL.

The Council of Public Instruction at their meeting on the 3rd February, 1875, enacted :

That in future there be one session of the Normal School annually instead of two; the time to be as follows :—

The session to commence on 15th September, and to close on the 15th July, with vacations from the third Wednesday in December, to the second Tuesday in January : and from the Wednesday before Easter to the Tuesday after Easter, inclusive. —*Journal of Education.*

We are pleased to see that the Council of Public Instruction intends changing the present sessions of the Normal School from two sessions annually, to one session. It has long been felt that the amount of work attempted to be overtaken in one session, was much greater than could be well digested. The process heretofore was peculiarly of a cramming character—no student being able to digest fully but a very moderate part of the work which he was required to review. It often happened also, that the first six or eight weeks of the session, were passed in organizing and getting ready for work, and that during the remainder of the term, burdens heavy and grievous to bear were laid upon the students, and work was performed or attempted, which should nearly occupy the whole session. By adopting the system now proposed, greater attention can be paid to every department of the work. Nothing need be hastily done, and while the health of the students need not be overtasked in keeping up their course of studies, they will also profit, in the thorough mastering of the whole curriculum.

There are two things in which Normal School training has been largely deficient. First, the whole course was so hasty and carried through under such a heavy pressure, that unless a student was "well up" before entering, he could derive but little benefit. In other words the Normal school was a mere finishing shop. It was by no means a training school. It could not even be said to afford facilities for forming habits of thought. The whole process was one of memorizing. The teacher, in order to get through the whole course, could give little time to illustration. Even blackboard work had to be practised with great economy of time. And thus, between reading notes and lecturing recalcitrant students, many precious hours were lost, and those mental habits which are so conducive to success in after life were left to be formed, if formed at all, outside the Normal School.

Again, it is one of the primary designs of the Normal School to train teachers in practical teaching. For this purpose students are regularly sent down to the Model School to observe the methods adopted by the teachers there, and by taking charge of classes themselves, to become practically acquainted with duties afterwards to be performed in their own schools. It is well-known to every Normal School student, that the benefit derived from the practical work performed in the Model School is infinitesimally small. Whatever benefits have been derived from attendance upon the Model School arose more from what was *seen* than from what was *done* by the students. The time was too short to do much. It is well-known that during many sessions, when the Normal School was full, that each student was not able to spend more than two or three days altogether in the Model School. On this very limited basis, his teaching capabilities are adjudged, and from these limited facilities for acquiring the art of teaching, he is sent out into the country fully equipped for the duties of his profession. Under the proposed change this very

important branch of Normal School work will receive more attention, and be of much greater benefit to students.

We trust that this new arrangement will receive the support of the profession throughout the Province, and that teachers will not be slow to take advantage of the increased facilities which are being provided for the advancement of education.

LOOKING BACK.

BY MRS. J. C. YULE.

Do the dancing leaves of summer
To the time of buds look back?
Does the river moan regretful,
For the brooklet's mountain track?
Does the ripened sheaf autumnal,
Heavy with precious grain,
Ask for its hour of blossom,
And the breath of spring again?

Does the golden goblet, brimming
With the rich and ruddy wine,
Look back with weary longing
To the damp and dusky mine?—
Is the gleaming coin, that beareth
A monarch's image, fain
To seek the glowing furnace,
Where they purged its dross again?

Would the chiselled marble gather
Its rubbish back once more,
And lie down undistinguished,
In the rough rock as before?—
Does the costly diamond, blazing
On that crowned and queenly one,
Look back with mournful gazing,
To the coarse unpolished stone?

Nor thus let man immortal,
Earth's monarch tho' Earth's Son,
Turn back and court the shadows
Of a being scarce begun;
But with strong hand and helpful
To aid the world's great lack,
Press on, nor pause supinely,
A moment to look back.

Woodstock, Ont.

INCONSISTENCIES IN OUR EDUCATIONAL SYSTEM.

BY INDEX.

At present there are three different sources whence Public School certificates can be obtained, viz : from the Chief Superintendent, the Council of Public Instruction, and the various Local Boards. The first, " on the examination and report of the Central Committee of Examiners," has specially the power of granting those of the 1st and 2nd class "to any person trained in any Normal School or other training institution for teachers, or who has been duly certified or licensed by any recognized body, as a school teacher in any part of the British Dominions."

The second is similarly empowered to grant 1st and 2nd class, " to public school teachers under regulations framed by the Council of Public Instruction," the second class being awarded to those who came up to the standard for second, but have failed for a first, on the same principle that the third body, the Local Board, (which has the privilege of granting 2nd and 3rd class certificates), awards 3rd class, if deserved, to those who fail for a 2nd.

No provision is made for any other description of certificate, and it is explicitly stated in the Consolidated Public School Act, 37 Vic. Cap. 28 Sec. 120, that 1st and 2nd class certificates issued by the first two bodies, shall be Provincial and permanent during good behavior. It would seem by the same section, that the Local Boards *are not empowered* to grant *Provincial* 2nd class certificates, the word "Provincial" being omitted, whether intentional or undesignedly, we know not.

Now it appears that the Chief Superintendent is in the habit of granting *Provincial 3rd class certificates, valid for one year*, to those of the Normal school students who have come up to the standard for a 3rd, but have failed for a 2nd ; the authority for so doing *is said* to be conferred by the " 37 Vic. Cap. 27," but no such authorization can be found in *that* Statute, nor in that of the " 37 Vic. Cap. 28."

It is now proposed to limit the power of granting Provincial 2nd class certificates, to Public School Teachers exclusively to the Council of Public Instruction, for although the Local Boards have been in the habit of granting them since 1871, when they were legally empowered to do so, yet as we have shewn, from the peculiar construction of the Act of 1874, that privilege ceased on its passing It may have been an oversight, and the omission of the word " Province" not intentional, but whether intentional or not, there is the fact, that the Chief Superintendent and the Council of Public Instruction *are* authorized to issue *Provincial* 2nd class certificates, and the Local Boards *are not.*

The Council of Public Instruction has given its opinion by way of resolution, without, we imagine, due consideraton that 1st and 2nd class certificates should only be granted on the recommendation of one examining Board, in order to insure uniformity of results. It is argued that owing to the diverse order of attainments of the several members constituting the various Local Boards, and the different judgments or opinions that necessarily prevail among separate deliberative assemblies, an applicant, who has been successful before one Board, would have failed, had his papers been submitted to the decision of another.

This argument is undoubtedly sound, yet it may be questioned whether any plan can be devised, that will not be open to grave objections. The concentration of power in one Central Board, from whose verdict

no appeal lies, would be fatal to the freedom our educational system.

Let it be granted, that 2nd class certificates have been awarded by some Boards to applicants, whose papers were not of sufficient merit, to warrant such a result. But is not this universally the case? How many have graduated in our Universities and Colleges, in either Medicine, Law, Arts or Divinity, to whom the same remarks would not apply, and who would have been plucked had strict justice been rendered?

Does anyone suppose that all Normal School certificates granted in times past, were obtained by those only who passed the examination ordeal? Had favor nothing to do with the decisions? Or to come to the present arrangements, must it be assumed that all who have obtained 1st and 2nd class certificates, upon the report of the Central Board of Examiners, really deserved them? Did each successful candidate, whose papers have been submitted to the scrutiny of this infallible conclave, positively obtain, as required, two-thirds of the aggregate values of all the papers, if holding Grade A, or one-half, if fortuitously laurelled with a B? and did the fortunate possessor of the trophy similarly pass on the special text subjects of Arithmetic and Grammar? We trow not, and have no hesitation in affirming that an investigation would reveal as many discrepancies of judgment in the award, and as many inconsistencies proportionally, as ever characterized the decisions of the Local Boards.

Only a few weeks since, (January 11th), a letter appeared in the *Globe*, stating among other things, that at the special examination held in 1871, for those desirous of qualification for Inspectors, after the papers had been answered by the candidates, "the examiners reported to Dr. Ryerson, that *none* were going to pass" and were instructed in reply "to push *all* through, as Inspectors must be had." This statement has not as yet been contradicted, and though not giving full credence to it, we think it highly probable, that the examiners did so report, and that they were requested to pass as many as possible, in other words to select the tritons from the minnows. Be this as it may, we are aware of one of these *specials*, who shortly after the said examination was unable to hear pupils demonstrate propositions in Euclid without having the opened text book in his hand, and who failed before his class to solve many of the problems in Quadratics in Colenso's Algebra, postponing the feat till the solutions arrived from Toronto.

But we have direct evidence to prove that the judgment of the Central Board is equally as defective as that of any of the Local Boards. Let any person inspect the values assigned by the former to the Examination Questions propounded by themselves, and he will discover the most astounding inconsistencies. Perhaps, if values had been assigned proportionate to the relative values of the questions, greater uniformity might have been the sequence of Local Board Examinations.

Sometimes but one value is allotted to a question divided into two parts, instead of giving the value for each, thus leaving, what should not be left, to the multiform decisions of the Local Boards. As an instance take the following question, which will be found in the July 1872 papers, 2nd class. Find y from the simultaneous equations,

$$ax+by=c.$$
$$mx+ny=r$$

What is the meaning of the result when both of the expressions $mc-ar$, and $mb-an$, are equal to zero.

The value assigned for the whole is 18, and there is but little doubt that many of the Locals allowed the full value, or nearly so, to those who found y, paying scarcely any attention to the second and more important portion of the question; others perhaps allowed half the value for each part;

others again in the proportion of 12 for the first and 6 for the second part, &c., &c. Now, any ordinary lad of 12 years of age, could readily find $y=\frac{mc-ar}{mb-an}$, but explaining the meaning of the result, when both numerator and denominator are zero, and the fraction consequently takes the form $\frac{0}{0}$, is a very different affair, and indicative of far greater knowledge. We should be inclined to allow relatively in the proportion of 3 for solving y, and 15 for explaining the rest.

Again, it must be considered what an enormous amount of work such a change would throw on the hands of the Central Board, and at the risk of being deemed heretical, the enquiry is naturally suggested, are *all* the members of the Oligarchy deeply versed in the higher English branches? It is known that three-fourths of the number were till recently, Grammar School Masters, and these as a class, have never been charged with too profound an acquaintance with English subjects, their specialties being generally classics. We are not, therefore, sanguine from the reasons adduced that the proposed change if effected, would prove more satisfactory than the present arrangements.

There are High School Masters, at present holding the Public School Inspector's certificates of eligibility, and therefore qualified to oversee and superintend the working of the public schools in any city, town or county, in Ontario, and thus be the superior officers of the masters in charge of the said schools, and yet they are not qualified to fill teachers' position, in those very schools, in consequence of holding University degrees, and not 1st or 2nd class Provincial Public School certificates. What a strange anomaly! Licensed for the higher position, but ineligible for the lower! Or to put the matter in a still more striking light, three-fourths of the members of the Central Board are not legally qualified to teach any public school in the Province, and yet have the power of rendering candidates competent for the posts. This power being created by the Council of Public Instruction, on the same principle that Municipal Councils, and town and city Boards of Trustees but recently manufactured Local Superintendents. And now, forsooth, it is sought to restrict the licensing of 2nd class certificates to such a Board.

Furthermore, is there any discernment displayed in licensing 3rd class teachers, who form the bulk of our instructors, and yet requiring them to teach, (as per programme) subjects, upon which they were never examined, and of which they know nothing? Is it not inconsistent to empower Local Boards to issue 2nd and 3rd class certificates, while the heads of the said Boards in conjunction with the High School Masters, (the latter possessing the same qualifications as every individual member of the Central Board), cannot pass a child for admission to the High Schools, except provisionally, and subject to the dictum of the infallible Board aforesaid?

Lastly. Was it judicious to place the Public School Inspectors between two fires, the liability of being discharged by the County Council on the one hand, or the Lieutenant-Governor (if so advised), on the other? The *poor exalted pedagogue*, who is supposed to be in possession of "*the prize of the profession*," must either enforce his official instructions or neglect to do so. In the one case he displeases the County Council, in the other, his superior officer the Chief Superintendent. He is thus placed on the horns of a dilemma, and it is no wonder that we occasionally hear of squabbles between him and the Council, or that he receives *gentle* official admonishments, that his schools are not fulfilling the requirements of that law, which *he dares not enforce*. Verily, as of old, it is hard to serve God and mammon. We think it is further recorded as impossible.

ON WRITTEN EXERCISES.

BY J. H. KNIGHT, PUBLIC SCHOOL INSPECTOR, EAST VICTORIA.

(Continued from March No.)

DICTATION, (CONTINUED.)

Exercises.—The junior classes should have most of the dictation from the Reading Books. The intermediate classes may have extracts from the Spelling Book, and single words, besides exercises from the Readers. The advanced classes should have selections from all sources. When single words are given, the meaning should be explained by the teacher, but not written by the pupils. They may be divided into syllables and the accented syllable marked. A line over the accented syllables is a convenient method. These words should be written twice, in the first column without division, in the second column divided and marked, thus:

September. Sep-tem-ber.

Constantinople. Con-stan-ti-no-ple.

A line under a word in the first column denotes an error in spelling; a cross before a word in the second column an incorrect division, a cross after a word, a wrong accent.

GRAMMAR.

Examiners of Public School Teachers and of candidates for admission to High Schools are well aware of the difference in the work of those who have never had practice in written exercises, or have been allowed to do them in a slovenly manner, and of those who have been well trained. In the one case it is very difficult to tell what the writer intended to say, in the other everything is neatly and plainly written, with answers arranged in columns when practicable, so that much time is saved, and the value of the answers more accurately arrived at. The following simple rules should be strictly carried out in all written exercises, and are as important to teachers as pupils. 1 Write plainly. 2 Do not crowd. 3 Use columns when practicable.

We shall now give a few examples of exercises in Grammar. They may be multiplied and varied indefinitely.

Nouns.—The pupils may have a lesson assigned from the Reading Book, and be required to write the nouns on their slates. They should be written under one another. Two or more columns may be used, but no two words put in the same space. For example, take the first six lines from the Third Book, The exercise would be as follows:

farmer.	children.	down.
city.	sort.	father.
peaches.	fruit.	boys.
time.	cheeks.	mother.

If slates are changed the teacher can read out the nouns slowly, numbering each, and allowing time for any word omitted to be written below. The scholars would then place the number before every correct word, a cross before a word that is not a noun, and write below any word that has been omitted. Below we give an example of an exercise in which some words have been omitted, wrong ones inserted, and the whole corrected.

1. farmer.	× seen.	× each.
2. city.	7. fruit.	11. boys.
3. peaches.	8. cheeks.	× fifth.
5. children.	10. father.	12. mother.
4. time.	6. sort.	9. down.

There are 3 words omitted, and 3 words inserted which should have been left out. In assigning values, some examiners would allow three-fourths of the maximum because 9 words out of 12 were given. Others would

allow one-half because there were 6 mistakes out of 12 words. We prefer the latter method because by the former, the more words a pupil put down, the more marks he would be likely to get, and this would encourage guessing which is not desirable.

Number.—The pupils may be required to draw a line making two columns, the first for nouns in the singular number, and the second for nouns in the plural; or they may be required to give the plural of the singular nouns, and the singular of the plural, placing a dash opposite the word where the singular or plural is wanting.

Gender may be treated in a similar manner, three columns being headed respectively masculine, feminine and neuter. It is recommended that nouns of common gender be placed in both the first and second columns as more likely to inculcate a correct idea of the meaning than allowing a fourth column for them.

Adjectives.—A lesson may be set as in the case of nouns. After that a separate column may be drawn for the nouns they qualify or point out. Exercises in Comparison of Adjectives may be given as in Gender of Nouns. The numbers which are placed before the words as they occur in the lesson may be inserted at first, or placed by the examiner. Nouns understood may be enclosed in a parenthesis.

Positive.	Comparative.	Superlative.	Noun.
1. a	——	——	farmer
2. the	——	——	city
3. five	——	——	peaches
4. the	——	——	(peaches)
fine	finer	5. finest	(peaches)
6. the	——	——	time
fore	former	7. first	time
8. his	——	——	children.
9. this	——	——	sort
10. their	——	——	cheeks
11. red	——	——	cheeks
12. soft	softer	softest	down

Pronouns.—In pointing out the Pronouns the pupils should be required to give the nouns for which they are used, thus:

Pronouns.	Nouns.
1. him,	the farmer,
2. he,	the farmer,
3. it,	this time,
4. they,	the children.

Exercises in the classification of pronouns will be readily suggested.

Verb.—In pointing out the Verbs, the subject may be given from the first. As soon as the pupil can distinguish between the transitive and intransitive verbs they may give the object also, thus:

Subject.	Intransitive Verb.	Transitive Verb.	Object.
It,	1. was,		
children,		2. had seen,	sort,
they,		3. admired,	cheeks,
			down.

In distinguishing Regular and Irregular Verbs the principal parts of the verb should be given, thus:

Reg'r Verb.	Irreg'r Verb.	P'sent Tense.	P't Tense.	P't Participle.
	1. brought	bring	brought	brought
	2. could meet	meet	met	met
	3. had seen	see	saw	seen
4. admired		admire	admired	admired
	5. gave	give	gave	given.

A few such exercises will do more to make the pupils understand the difference between regular and irregular, transitive and intransitive verbs, than repeating the definitions daily for months. An endless variety of exercises may be founded on the moods and tenses.

Analysis.—The noun part and verb part of simple sentences, the logical and grammatical subject, logical and grammatical predicate may be taken, and afterwards the more complicated scheme of analysis of which examples are given in the text-books.

Parsing.—There should be at least three columns, one for the word to be parsed, another for the relation, and the third for the parsing. Perhaps a better plan is to have four columns, the second for the word to be parsed, the first and third for the relation, both being used where there is a double relation, as in the case of relative pronouns and prepositions, the first where the related word precedes, as in the indicative mood; and the third where it follows, as in the imperative. Two or more lines may be taken

for one word to avoid crowding. Abbreviations may be employed so long as there is no doubt as to their meaning. It is well to adhere to the same order of parsing each part of speech whether orally or in writing. The rules of Syntax should not be quoted except when notified to do so.

COMPOSITION.

Composition is the converse of Grammar. In studying Grammar we separate or take to pieces the composition of others. In Composition we select material, arrange and put together for ourselves. The two subjects should be taken together. A judicious teacher will select and prepare exercises in Composition corresponding to those in Grammar. Changes of construction so as to alter the meaning slightly, or conveying an entirely different meaning may be introduced at an early stage. Part of a sentence may be given, and the scholars required to complete it. Some teachers make the mistake of expecting beginners to furnish ideas. This is unreasonable. The pupils are driven to their wits' end to produce something original, instead of putting their every day thoughts into appropriate language. In letter writing, note-paper and envelopes might be used in order that the pupils may learn to carry on correspondence in a neat and business like manner. Below we give a lesson on the word "charge" from page 124 of the Spelling Book.

1. care, John has charge of a horse and a cow.
2. command, Jane charged her sister to hurry home.
3. accusation, The man was charged with theft.
4. attack, The soldiers charged the enemy with bayonets.
5. expense, The merchant charges too much for goods.

GEOGRAPHY.

Much that has been said under the head of Grammar applies equally to the subject of Geography. We will therefore proceed to examples.

Definitions.—The words to be defined may be written on the blackboard thus, "Isthmus, Cape, Equator." The word with the proper article attached should be placed in the first column, the definition in the second, thus:

An Isthmus	is a narrow neck or piece of land joining together two larger pieces of land.
A Cape	is a piece of land stretching out into an ocean, a sea, or a lake.
The Equator	is a line running round the Earth at an equal distance from the North and South Poles.

These exercises should not be introduced too early. They are to be regarded rather as a test of knowledge, than a method of teaching. Nothing can be more absurd than to set a scholar to learn the definitions from a text-book, and commit his efforts to paper.

An endless variety of questions may begin thus, "What and where are Calcutta, Ceylon, &c.?" The name should be placed in the first column, what it is in the second, and where it is in the third.

The oceans, zones, and great circles with their positions may be given, countries with their capitals, counties with their county towns, rivers with their courses and destinations, islands in the order of their size, rivers in the order of their length, mountains of their height, countries with their productions and manufactures.

ARITHMETIC.

It is of the first importance to have the figures well formed, and of such shape that they cannot be mistaken. Flourishes should be avoided. The fewer strokes the better both for legibility and rapidity. From the first all slovenly and careless work should be done over again until satisfactory. The figures in even lines and columns, the lines straight and not longer than necessary. All unnecessary lines should be avoided. Only one line should be allowed in Addition, Subtraction and Multiplication. The scholars should be trained to commence in the right place, so as not to crowd the work in one direction more than another. In Long Division there is no necessity for marking the figures as they are brought down, pro-

vided the corresponding figures are placed under one another. This should be insisted on, and the other practice avoided. A large number of errors in Addition are the result of figures not being placed in their right places, and probably as many more are owing to mistaken identity.

In the year 1870, the Treasurer of the County of Victoria sold for taxes the North East Corner of Lot Number three, in Concession A, of the Township of Anson, containing 72 acres. A Provincial Land Surveyor made a description of the parcel of land, and after the expiration of one year from the date of sale, a deed was duly executed. But when the purchaser undertook to take possession, it was found that the land embraced a large part of the Village of Minden. There was a mistake somewhere. The original return of the Township Clerk was referred to,and found to be satisfactory except that the figure 2 was rather small as compared with the 7. Upon further examination, it became evident that what had been taken for 72 had been intended for ½, the stroke of the fraction being drawn obliquely, as is often done instead of horizontally as in printing, and the pen not lifted between the "one" and the beginning of the stroke. The result was that the township was put in for a large bill of costs, and the purchaser had to relinquish his title. It will probably be supposed that the clerk was a wretched writer. Quite the reverse. A neater page was probably never returned to the County Treasurer's Office, and many examiners would award the highest mark for such writing. The above is quoted to show the importance of making every character, whether figure or letter, so that it cannot be mistaken for any other.

Having said thus much as to the manner of the exercises, we will now proceed to offer a few suggestions as to the matter.

While the teacher draws largely from the labors of others, he should depend to a great extent on his own resources. The scholars will have enough of their own textbook in their ordinary work. For variety, questions may be given from other books, but the teacher should make up the bulk of the questions himself. A large number of them should deal with the fractions. For example, the product of 9, 11, 17 and 19 multiplied by 13, 15, 21 and 23 may be given thus :

	9	11	17	19 multiplied by
13 =	117	143	221	247
15 =	135	165	255	285
21 =	189	231	357	399
23 =	207	253	391	437

Constant practice in such work is better than committing the results to memory. Probably this remark would apply to the ordinary manner of learning the multiplication tables,even with the youngest scholars.

The factors of 48, 60, 90 may be given thus :

the factors of 48, 2, 3, 4, 6, 8, 12, 16, 24
60, 2, 3, 4, 5, 6, 10, 12, 15,20,30
90, 2, 3, 5, 6, 9, 10, 15, 18,30,45

or they may be given in pairs, thus:

the factors of 48,	2,	3,	4,	6	
	24,	16,	12,	8	
60,	2,	3,	4,	5,	6
	30,	20,	15,	12,	10
90,	2,	3,	5,	6,	9
	45,	30,	18,	15,	10

Prime numbers may be given, exercises founded on the Tables of Weights and Measures, squares and cubes. In simplifying Complex Fractions, every step should be shown, and all the work necessary to obtain the answer.

SOLUTIONS TO QUESTIONS.

BY J. C. GLASHAN, ESQ.

NORMAL SCHOOL FOR ONTARIO—EXAMINATION FOR FIRST CLASS CERTIFICATES —DECEMBER, 1874.

Natural Philosophy.

1. STATICS— A uniform straight rod ABC, weighing W lbs., is an equilibrium, in a horizontal position, under the influence of two forces in addition to its own weight, namely, a force of P lbs. acting at C in the direction CE, which makes the angle ACE equal to $\frac{1}{3}$ of a right angle, and a force acting at B in the direction BD, which makes the angle DBC equal to $\frac{2}{3}$ of a right angle, the point E being below, and the point D above the rod. Prove that AB = 2BC; and find the relation between P and W.

2. From CA, the base of an equilateral triangle ABC, cut off a part CD equal to one-third of CA, and draw DE at right angles to AC, and within the triangle ABC, making DE equal to one third of the perpendicular let fall from B on AC. Prove that a particle at E will be kept at rest by three forces acting in the directions EA EB, EC, respectively, and represented in magnitude by EA, 2EB, 3EC, respectively.

3. A straight lever ACB, whose fulcum is C, is acted on by two forces applied at A and B in the directions AE and BF respectively, and represented in magnitude by the lines DA and 3DB respectively; D being the point on which EA and FB produced meet. Prove, that, if AB = 4BC, the lever (supposed to be without weight) is in equilibrium.

4. DYNAMICS.—A finite time T is made up of n periods of time, each equal to t, n being a given whole number. During the first of these equal periods, a body moving from A in the direction AB, has a constant velocity V_1; during the second, a constant velocity V_2; and so on; the velocities,

$$V_1,\ V_2,\ V_3,\ \&c.,$$

being those which a particle would acquire by falling from rest for the times,

$$t,\ 2t,\ 3t,\ \&c.,$$

respetively, under the influence of a uniformmly accelerating force f. At the end of the n^{th} period, that is at the end of the time T, the body has arrived at B. Find the proportion in which AB is greater than the space which the body would have described from rest in the time T under the influence of the uniformly accelerating force f.

5. ABC is a double inclined plane, AC being horizontal. A heavy particle descends from rest along BA from B to A in the same time in which it would descend from rest along BC from B to D. Find the relation that subsists between the lines, BA, BD, and BC.

6. A particle P whose weight is k, begins to fall from B, under the force of gravity at the earth's surface, in the vertical line BD, and at the same instant another particle, Q, whose weight is $9k$, is projected vertically upwards from D with an initial velocity of 32 feet in the second. If BD be 116 feet, enquire at what distance the particles will be from one another when their centre of gravity is at the highest point to which the particle Q shall rise.

7. PNEUMATICS AND HYDROSTATICS. There are two liquids L and M. A certain body is lighter than the former, and heavier than the latter. When it floats in L, the weight of the portion not immersed is exactly equal to the weight of the body when immersed in M. Prove that the specific gravity of the body is a geometrical mean between the specific gravities of the two liquids.

8. The range of the piston in the upper cylinder of a common pump, from A the highest position to B the lowest, is one foot; the depth from B the top of the lower cylinder to C the level of the water in the well. is 18.95 feet; and the depth from B to D, where the water stands in the lower cylinder, is 7.68 feet. In these circumstances, the piston being in its lowest position, suppose it to be raised to A, and let the water in the lower cylinder then rise to E; the

level of the water in the well being supposed to remain unchanged. If DE equals 3 inches, find the relation between the area of the interior section of the lower cylinder and that of the upper.

SOLUTIONS.

1. Bisect AD in G, which since the rod is uniform will be its centre of gravity and the point of application of W. Make BD and CE proportional to the forces at B and C, respectively. Draw DH and EL perpendicular to AC. Draw BK bisecting the angle DBH and meeting DH in K: DH =3KH, (*a*); DK=BK, (*b*); and the triangle BKH is equiangular with CEL, (*c*).

Since the beam is in equilibrium the impressed forces must produce no motion either of translation through or of rotation about, any given point. Taking the point G,

$\therefore$ *CE*; C=(*CL*+*LE*); C
and *BD*; B=(*BH*+*HD*); B
$\therefore$ BH=LC, - - (*d*),
W + *LE* = *DH* - (*e*),
DH. GB=LE. GC - (*f*),
By (*d*) and (*c*) LE=KH (*g*),
and CE=BK=DK, (by *b*,)=DH – KH=DH – LE
$\therefore$ by (*e*) W=P.
By (*a*), (*g*) and (*f*), 3GB=GC=AC
$\therefore$ 4GB=AB and 2GB=BC
$\therefore$ AB=2BC.

2. Bisect AC in F and join BF and FE. BF is perpendicular to AC
$\therefore$ DF=⅓FA and DE=⅓FB
and DE is parallel to FB
$\therefore$ FE=⅓AB $\therefore$ 6FE=2AB (*a*).
(*EA*+2*EB*+3*EC*); E=(3*EA*+2*AE* +2*EB*+3*EC*); E=$\{$ 3(*EA*+*FC*)+2*AB* $\}$; E=(6*EF*+2*AB*); E=0 by (*a*).

(3.) 3*BD*;B=3*BC*;B+3*DC*;B
AD;A=*AC*;A+*DC*,A
$\therefore$ AC=3CB $\therefore$ AB=4CB.

(4). $V_2=2V$; V_3, &c. $V_1=ft$
$\therefore$ $S=(1+2+3+\ldots+n)V_1 t=\frac{n(n+1)}{2}V_1 t=\frac{1}{2}(n+1)V_1 T$.

$S=\frac{1}{2}fT^2=\frac{1}{2}V_1 T$.
$\therefore$ $S-s=\frac{1}{2}V_1 T$.

(5.) Let F be the accelerating force along BA, and *f* that along BC;
$\therefore$ F : *f* :: BC : : BA
BA=½F*t*²
BD=½*ft*²
$\therefore$ BA : BD : : F : *f*
$\therefore$ BA² =BC.BD.

(6). *d*=(100 – ½*gt*²)+(16 – 32*t*²+½*gt*²) equals 116—32*t*
4(100—½*gt*²)=9(16 – 32*t*+½*gt*²)
$\therefore$ *t*=2 and D=52.

(7.) The specific gravity varies directly as the weight and inversely as the volume.

Let *w* be the weight and *v* the volume of the solid. Let *xv* be immersed when it floats in L, $\therefore$ the weighs of the displaced *xv* of L is *w*, (1 – *x*)*v* is not immersed when it floats in L, the weight of this portion is (1—*x*)*w*, therefore the body weight (1—x)*w* when it is wholly *immersed* in M, *i.e.* when it displaces a volume *v* of M, it loses *xw* in weight $\therefore$ *v* of M weighs *xw*;
Hence the specific gravities of the solid, of L and of M are to each other as

$$\frac{w}{v}, \frac{w}{xv}, \frac{xw}{v}$$

But $\frac{w}{xv} : \frac{w}{v} :: \frac{w}{v} : \frac{xw}{v}$.

(8.) Let H be the pressure of the atmosphere in feet of water; P the pressure in the cylinder before raising the piston; *p* the pressure after raising it;
V the volume of air in the cylinder before raising the piston; *v* the volume after raising it.

$\frac{P}{p}=\frac{v}{V}$, 18.95 – 7.68=11.27, 3 ins.=.25ft.

Let S and *s* right-sectional areas.

$$\frac{P}{P}=\frac{H-11.27}{H-11.52}=\frac{v}{V}=\frac{7.43S+s}{7.68S}$$

$\therefore$ S : *s* :: 100H—1152 : 25H—96.

NOTE.—The solution of 2 merely requires the medium line BF to be perpendicular to AC, and this is the case if BC equals BA, thus the proof will do for an isosceles triangle, not merely an equilateral one. Again if the problem has been worded "making DE equal to one-third of the medium line through B and parallel to A,', the construction and proof will apply to any triangle. Perhaps the simplest and neatest proof "is,—Join E to G the intersection of median lines." Then GB=2GF and FC =3, DF=3EG. But $EA=EG+GF+FA$; $2EB=2EG+2GB$; $3EC=3EG=3GF+3FC$ $\therefore$ $EA+2EB+3EC=6EG+2FC=0$. This suggests at once how to generalize the theorem.

ENGLISH WORDS.

READ BEFORE THE TORONTO TEACHERS' ASSOCIATION, BY MR. SAMUEL MACALLISTER.

When the history of our language comes to be completely written a flood of light will be thrown upon the habits of both life and thought of our early forefathers, unequalled by any historical description, were it even from the pen of a Macaulay. Even our school-room exercises, limited and desultory as they necessarily are, reveal to us what a mine of wealth the words of our language contain. In the course of the following remarks I propose to present some of the results of my own gleanings in this vast field, accumulated principally in the course of my daily work as a Teacher.

Many of our most vivid words are imitative, intended to secure the same purpose when addressed to the ear which a picture does when presented to the eye. The simple word *crash* gives a better idea of falling timber than any amount of description would do; the same may be said of the *buzz* of the bee, the *hum* of busy life in a crowded city, the *splash* of the oar, the *boom* of the cannon, the *twitter* of the swallow, the *mew* of the cat, the *rustle* of leaves, the *creak* of the old arm chair, and to quote a word which is perhaps too hard for English ears or too guttural for English throats—the *scugh* of the sea. Need we wonder that such words as these are an unfailing resource for the poets. If any one wants to see how they are turned to account, let him read Tennyson's Brook or Southey's Falls of Lodore. Our words are of varied origin, chiefly owing to the mixture of Saxon and Norman races; these were both from the same stock, but when the Norman came down from his rigorous Norwegian home, to more congenial France, he doffed his Northern garb, and assumed the habits and language of his adopted country. Hence when he crossed to England to repeat the history he had enacted in France, he had little more evidence of his Northern origin about him than the name, the language he brought with him was of Latin origin and quite foreign to that of the Northern nations he had sprung from. When he conquered England he tried with all his might and main to make his own language the language of the country, but the down trodden Saxons loved their language as dearly as their country, and they clung to it with as much tenacity and with greater success. The result has been the fusion of the two dialects into one composite one, our noble and manly English tongue of to day, consisting mainly of Norman and Saxon elements, the latter however predominating. Of course in this process many words were dropped, and others were adopted to supply their place. The Saxon seems to have been the greatest loser by this interchange; for instance who would not prefer the Saxon *moonling* to the Latin *lunatic*,

the Saxon *doomsman* to the Norman *judge! In wit* is but indifferently replaced by *conscience*, and *death's man* is far more significant than *executioner*, a Saxon *scatterling* was changed into a Norman *vagabond*, a *forword* became a *promise*, and the *again rising* of our Saviour became his *resurrection*.

Sir Walter Scott in Ivanhoe directs our attention to a group of words which clearly shows the relations in which the Saxon stood to the Norman. Wamba the Witless is made to remark that while the animals that the poor Saxon herdsmen tended were alive they kept the names they gave them, but when their flesh was brought to the table it got a Norman name, the *cow* became *beef*, the *sheep*, *mutton*, the *deer*, *venison*, the *calf* became *veal*, and the *pig*, *pork*. Many more words indicate the same condition of things. While the Saxon sat down to his *board* to eat his humble *meal*, which consisted chiefly of *oat meal*, *barley meal* or *rye meal*, the Norman sat down to his *table* to a *repast* not only of *venison*, or *beef* or *mutton*, but also of bread made of *flour*. The Saxon was perforce content to *bury* his kindred in a *grave*, while the proud Norman could have all the pomp of a *funeral*, and *inter* his relatives in a *tomb*. A *feather* might find its way into the cap of a Saxon *churl*, but a *plume* waved over the brow of the Norman baron. The Saxon might consider himself fortunate if he could procure a *book*, but the more wealthy Norman could afford to have a *library*. *Darling* would be murmured over many a *cradle* in a Saxon *hut*, but *villain* or *minion* came from the *palace* of the haughty Norman to the *slave*.

It is interesting to trace many of our present Saxon compounds to their primitive elements.

Constance in the course of the torrent of abuse she showers upon the Duke of Austria in Shakespeare's King John says:

"Thou wear a lion's hide!
Doff it for shame, and hang a calf's skin on those recreant limbs.

The little word *doff* here means simply do off, as *don* means do on, to hold *aloof*, is to hold all off, and to be *alone* is to be all-one; and the *atonement* is the at-one-ment. The *hilt* of a sword is that part which is held, and the *haft* of a knife is the part which is haved or held; an *acorn* is an oak-corn; *heaven* is the heaved up place, and *hell* is the covered place. The word *tally* is formed from a verb which meant *to cut*, and was applied to that very common method of keeping accounts in old times by means of notches in sticks, the buyer having one stick and the seller another. Jack Cade in Shakespeare's Henry VI thus complains of an innovation upon this custom. "And whereas before our forefathers had no other books but *score* and *tally*, thou hast caused printing to be used." Twenty tallies made a score, and when the tally was scored it was made up into twenties; from the same root we have *tailor* which originally meant a cutter, "entail," to entail an estate is to cut others off from inheriting it; hence the phrase to cut off with a shilling; also "detail," "retail" and "curtail." I remember discussing the merits of Milton's L'allegro with a friend, and expressing my admiration of that part particularly which gives us such a vivid picture of early morning, ending with the following lines:

While the plough man near at hand
Whistles o'er the furrowed land,
And the milk maid singeth blithe,
And the mower whets his scythe,
And every shepherd tells his tale
Under the hawthorn in the dale.

He took exception to the last two lines arguing that if a shepherd had a tale to tell, whether of love or not, he would select the evening and not the morning for the purpose. We can quite agree with him and still see truth and beauty in the lines, for the shepherd's tale did not go beyond that of counting his sheep to make sure that his flock was safe after the dangers of the night, his tale in fact was similar to that of the bricks of the poor down-trodden Israelites referred to in the Book of Exodus.

The *husband* is the man who is the *band*

of the house, while the *wife* is the one who makes the *woof*, and the unmarried woman is the *spinster*

Kerchief recalls the time when ladies were content to adorn their heads with that simple but tasteful covering; Chaucer so uses the word in describing the wife of Bath:

Hire cover chiefs weren ful fine of ground;
I dorste swere, they weyeden a pound;
That on the Sonday were upon hire hede.

The word "field" carries us back to the remote past when England was not unlike our own back woods; the word literally means the land which is "filled" that is where the trees have been chopped preparatory to cultivation. While in the land of its birth the word has long lost its literal signification, it has resumed it with us, but what a difference between those who first found need for the word and carried it, and our Canadian pioneers! Those were doubtless the serfs of some powerful master, and in a semi-barbarous condition; they are as free as the air they breathe, and it is their own fault and not their misfortune if they are not intelligent and educated men.

While the clerk in the constant employment of another, works for a "salary" the professional man receives "emoluments." The origin of both words is significant. Salt was part of the wages of a Roman soldier, hena a name formed upon that came to signify the whole of his pay. When we speak of a useless fellow we say he is not worth his "salt."

The feudal lord had to collect his rents from his vassals in kind, and his mola or mill was one of the chief sources of his income, which he dignified by the name of emolument.

I am afraid it is not amongst ourselves alone that men seek public employment for selfish purposes. Rome had her harpies, and to avoid the suspicion of being of this class, men seeking office appeared in a white robe to symbolize the purity of their motives; they were hence called "candidates." These men who were whited sepulchres in too many instances have given us another word—"ambition" from their practice of "going round" to solicit votes. The words "suspicious" and "inaugurate" recall a time when the most important events were regulated by the flight of birds; one example will suffice. Plutarch tell us that when the brothers Romulus and Remus had a dispute about the building of a part of Rome, they decided it by angury or the flight of birds. This dispute ended in the death of Remus who is said to have been killed by one Celer. The murderer fled to Tuscany and did it with such promptitude that he left the word "celerity" behind him.

Many of us take our principal meal at "noon," the Romans did so too, but then noon was as the word denotes, the ninth hour, or three o'clock in the afternoon; however when the western nations changed the time of dinner till mid-day, the term noon was still retained.

There is a whole group of words which carry us back to the period when there was as marked a difference between the city and country as between a civilized and semi-barbarous people. The words "civilization," "urbanity," "politeness" and "polish," indicate the benefits resulting from living in a city; while the "savage" was one who dwelt in a wood—the "heathen" a dweller on a heath, and the "pagan" was a villager. The last two terms are now used in a religious sense, inasmuch as the heaths and villages were last reached by the preachers of the gospel.

Some words reveal to us interesting facts about the manners and institutions of those with whom they originated. The word *sycophant* betokens the base fawner, who ignores his own self-respect and dignity to cringe to the man at whose hands he may obtain a favour. In Greece, where it was coined, it signified, what its roots imply, a fig-informer, this was the occupation of those who gave information to the govern

ment against smugglers of figs from Attica, at a time when their export was prohibited. The purpose of these informers was often to secure the favor of the great, and thus the word changes its meaning.

Parasite gives us another scrap of interesting information, regarding the internal affairs of the Athenians. Men were appointed to collect corn (sitos) from the adjacent country for the public sacrifices, but the number of these became so great that their support was a serious burden to the state, and it was at last proposed by some one, who was desirous of increasing his popularity, to quarter them upon the richest land-holders. This was agreed to. These parasites became the hangers on of the rich, and in order to make themselves tolerated were not backward in magnifying the virtues of their hosts. At last the word took its present signification, and is thus employed by Byron in Childe Harold.

He gathered revellers from far and near,
He knew them flatterers of the festal hour;
The heartless *parasite* of present cheer.

The word is appositely applied to those plants and animals that subsist upon others, and they are fit congeners for their human namesake.

I have already referred to one word as showing the way in which our forefathers kept their accounts. The word *calculate* tells us that the Romans used pebbles to reckon their accounts with. The Arabs used the same means, for Chaucer informs us that Augrim (Algorithun) stones, were part of the means of study of hendy Nicholas. The Romans also used their fanigers, as children of various ages do now for the same purpose, and gave us the word *digit* in consequence. Previous to the discovery of the circulation of the blood, there were numerous theories accounting for the sustenance of the body, and because certain vessels were found empty after death, which we know convey the life-blood, they were called *arteries* or air vessels.

The Greeks supposed that depression of spirits was caused by the effusion of black bile in the intestines, hence the the term melancholy; this *chole* or bile, had to answer for another and much more serious misdemeanor, that of causing anger, hence choler.

From the custom of burning incense in worship, we have the word *perfume*. St. Paul has this in his mind when addressing the Philippians, he speaks of their contributions as an "odour of sweet smell, a sacrifice acceptable and well pleasing to God."

It is curious to observe the different fate that awaits words as they are handed down from one generation to another. It was the custom in both Greece and Rome, for actors to wear masks on the stage; from this we have the word *hypocrite* from the Greeks, and *person* from the Romans, but while few would object to the word person applied to themselves, it would be considered anything but complimentary to be called a hypocrite.

An *hostler*, called in some of our old works hosteler, was one who kept an inn, now he is but the attendant on the horses at an inn. *Cunning* meant at first skill, and is used in this sense by the Psalmist, "If I forget thee O Jerusalem, may my right hand forget her *cunning*;" and a king or konig, was one who became leader by reason of his skill in arms. A *rascal* was at first nothing worse than a lean fellow. A *knave* with our Saxon forefathers was simply an attendant, and the knave in cards, was so called from his being supposed to be in the position of attendant to the king and queen.

While some words have degenerated in meaning, others have improved; take for instance the word *mercy*; who at first sight would suppose that mercy, mercenary, and merchant, are all from the same root? Yet the word *mercer* is the source of them all. We have no difficulty in tracing the connection of the last two, but *mercy* needs some explanation. It is a well established fact

that the Saxon, as well as the early Norman kings derived a considerable part of their revenue from fines; all crimes, even murder were atoned for in this way; hence we have the word *finance*, which was first applied to the revenue derived from fines. Hume in speaking of this subject, says: "Fines and *amercements* were another considerable branch of royal power and revenue. It appears that the ancint kings of England put themselves on the footing of the barbarous Eastern princes, whom no man must approach without a present, who sell all their good offices. Even justice was avowedly bought and sold; the king's court itself, though the supreme judicature of the kingdom was open to none, that brought not presents to the king; the bribes given for the expedition, delay, suspension, and doubtless for the perversion of justice, were entered in the public registers of the royal revenue, and remain as perpetual monuments of the iniquity and tyranny of the times. In the reign of Henry III, the city of London paid no less than twenty thousand pounds, that the king would remit his displeasure." In other words, they had to purchase mercy from the king. Yet this is the word that represents that God-like quality Portia so beautifully describes as blessing him that gives, and him that takes

The names of flowers afford a very tempting field, which we might traverse in the delightful company of our best poets, but I must be content to conclude by reference to but one—the *daisy*. When Milton speaks of meadows trim with daisies pied, we are vividly reminded of one of the prettiest features of any English landscape. This,

"Wee modest, crimson-tipped flower,"

gets its name from unfolding its petals in the morning, and closing them in the evening, thus marking the beginning and the close of day; and so Chaucer sings of it,—

Adown full softely I gan to sink,
And leaning on my elbow and my side,
The longe' day I shope me for to abide,
For nothing ellis, and I shall not lie
But for to look upon the daisie,
That well by reason men it calle', may
The daisie or else the *eye of day*.

SELECTIONS.

THE LAW OF THE LEARNING PROCESS.

"The act of learning is that of reproducing in one's own understanding the ideas to be acquired."

We have shown that the teaching process consists essentially in arousing the self-activities by the learner, in reproducing the knowledge which is placed within his reach. The two processes are counterparts of each other. The laws of teaching and of learning may seem at first but the different and reciprocal aspects of the same law. But they are still distinct; the one applying to the work of the instructor, the other to that of the instructed. The law of the *teaching process* involves the means by which the self-activities are to be awakened; the law of the *learning process* determines the manner in which these activities shall be used. Thus the two laws relate to different agents, and describe distinct operations. They only unite in seeking a common result.

As that is not true teaching which simply pours out before the pupil the treasures of the teacher's knowledge, so that is not true learning which merely memorizes and repeats the teacher's words and ideas. Vastly more than is commonly understood or believed, the work of education, of acquiring intelligence, is the work of the pupil, and not that of the teacher. To "read, mark,

learn, and inwardly digest,"—to think it into clear and precise connections with all previous knowledge—to reproduce it in the learner's mind as it exists in the teacher's mind, modified only as the differences of ages, powers, and attainments may require; such is the import of true learning, and such is the real scope and meaning of the law we are discussing.

Philosophy.—The expression, "I know, but can not tell," so often heard on the lips of active but superficial students, is unphilosophical and delusive. They believe that they know, but their knowledge is unripe and imperfect, and can neither serve for guidance nor open the way to other knowledge. What we can not in some way tell, we do not adequately and fully know. A pupil may be deficient in the power of expression, and may hence be slow and infelicitous in speech. But this very deficiency argues a corresponding lack in clearness of conception, and in fullness and completeness of knowledge. What we know well and familiarly we easily tell.

The effort to reduce our knowledge to a clear and competent statement—to fit it with proper expression—is the most direct and natural way to render it thorough and precise. Thoughts exist in the mind in all stages of distinctness, from the first dim notion, seen like some object in the night, without any definiteness of form or color, to the perfect idea distinct in outline and light, like the same object seen in the full blaze of the noonday. The mind has its twilight as well as its darkness and daytime. Words limit, as well as express, ideas. The thought fully clothed with fitting words is perfectly revealed. It stands forth in full proportions and color, with all its lights and shades, its finer as well as its grander features exposed to the sight. Instinctively we struggle to express, in more and more definite and simple terms, our full conceptions. It is the very process of learning. The final step in the acquisition of knowledge is that of reducing our knowledge to plain and fit formulas of words. We thus determine its exact measure and value, and make it ready for use. All this the student accomplishes by the careful reproduction, in his own words, of the lesson he is studying.

The process varies, of course, with the character of the study. In some cases, as in Bible lessons, it is desired to retain the very words of the book, and the reproduction must be perfect in form as well as in substance; but even here it must be an intelligent reproduction, thought out carefully by the pupil's own powers.

Some art and not a little patience are usually required to secure from the learner this reproduction of his knowledge. As it is the essential, so it is the most difficult part of study; and the pupil is always seeking to substitute for it some mere verbal memorizing. It is easy to commit to memory the words of a book, but to master the knowledge it contains, and to exhibit this mastery by a clear restatement of the ideas, this taxes all the self-activities, even when roused to their utmost. Only the teacher who duly estimates its importance will persevere in the effort to gain this restatement. All the difference between fine and coarse scholarship; between sound learning and that which is superficial; between clear and vigorous thinkers and their opposites; between mental twilight and mental daylight, may be explained by this principle.

These rules, which follow from our law, will aid the teacher in this most difficult and most necessary part of his task:

RULES.—1. Remember that it is the pupil's work, and not that of the teacher, which it is sought to secure. Hence be careful not to forestall, by too ready or too much help, the action of the pupil's own mind. Only interfere when the pupil's power refuse the task, or falter under its difficulties. Help too little rather than too much.

2. See to it that the learner masters fully the simple, elementary ideas and terms in the lesson or subject, before advancing to the more complex and difficult thoughts and expressions.

3. Accustom the pupils to use language with strict attention to its meaning, and to strive for the best and clearest expression of their thoughts.

4. In Bible lessons especially, make the Scriptural terms familiar to both mind and tongue, that they may carry their full weight of meaning without obscurity or feebleness.

5. Pause often in the progress of a lesson or subject to secure from pupils a fresh and full restatement of the facts and truths already learned.

6. Call into use the pupil's knowledge in

the explanation of new facts, or in the judgment of new incidents or actions.

7. Encourage pupils to talk about the lessons they have learned familiarly with each other, and with parents and friends. No better exercise can be found than to engage the pupil to explain the subject fully to some younger brother or sister or playmate.

8, Above all, closely question the learner, to ascertain his exact view of the subject. His ignorance may escape all other tests, but he can not well avoid revealing his exact thoughts under a skillful series of questions. And in the effort to answer these questions he will rally his forces and reform his ideas with an interest and activity often wholly wanting without them.

Violations.—The violations of this law of the learning progress are perhaps among the most common and most fatal in the world's school work. Knowledge is placed before the mind of the young in endless profusion, and in most attractive guise. Teachers pour out instruction without stint, and lessons are learned and recited under all the pressure of the most effective discipline and of the strongest appeals. But much of the teaching is fruitless, and the attainments are short-lived and delusive.

1. The pupil is left in the twilight of an imperfect and fragmentary knowledge, by a failure to think it into clearness and expression. The haste to get forward forbids the giving time to this original thinking. 2. The very language of the book is often insisted on to the exclusion of the pupil's own more familiar expression. In Bible lessons this close adherence to the words of the Scripture seems duty; but even here the learner must be allowed and required some time to reproduce the thought of the lesson in his own words.

A steady compliance with this law might diminish somewhat the extent of the ground covered, especially in the first years of education, but it would give a sterling value and solidity to the work, and would in the end enhance the power and increase the progress of the learner beyond all account. —*Dr. Gregory in National Sunday School Teacher.*

EDUCATIONAL INTELLIGENCE.

CANADA.

—The Cornwall *Freeholder* states that the High School in that town is in a very flourishing condition.

—The Picton schools are so crowded that the Board of Trustees find it necessary to procure a room for the purpose of starting a Ward School.

—The Chief Superintendent of New Brunswick recommends an improvement in the system of school inspection, and the St. John papers endorse his views.

—Manitoba College contains thirty-nine students. Professors Bryce and Hart, besides attending to their regular professional duties, do a large amount of Mission work around Winnipeg.

—The Leeds Inspector of Public Schools takes the unusual ground that Teachers' County associations are a failure as regards self improvement, "the time being chiefly occupied in idle discussions, whereas the majority of the members need to be listeners not talkers."

—At the monthly meeting of the Toronto Teachers' Association, some discussion took place upon the proposed revision of our geographical text-books, which concluded by the unanimous adoption of the following resolution:—"While we rejoice at the proposed improvements in our text-books in geography, the defects of those at present in use are so numerous and glaring that we would strongly recommend the substitution of fresh works prepared by a competent and practical man."

—At a Teachers' Institute held recently in Stratford, a resolution was adopted declaring "That it is expedient and necessary, in the interests of education, that the proceedings of the Council of Public Instruction be open to the representatives of the Press." A Committee was appointed to bring before the reeves and deputy-reeves of the different townships in the county the

question of uniform township examinations, with a view to securing their co-operation in providing prizes for the successful pupils. Part of the programme consisted in the delivery of a lecture by Dr. McLellan, Senior Inspector of High Scools.

—The Teachers' Association for East Bruce met at Paisley on the 13th inst. After an opening address by Mr. Clendenning, P. S. Inspector, an essay on "Our Progress" was read by Mr. Miller, Head Master of the Walkerton High School. The Rev. J. Straith, of Paisley, delivered a lecture on "The Importance of the Moral Faculty in Education." The subjects discussed were: "The Teacher's Duty on the Playground," "The extent and value of Written Exercises," "The Art of Questioning," and "The approved Method of Teaching Reading." Arrangements were made to have a two-days' meeting next time, to be held at Walkerton on the first Friday and Saturday in June.

—The P. S. Inspector for West Huron reports that the amount raised in his district, during 1874, for school purposes, was $72,-172.55, of which had been expended in salaries, new buildings, improvements, &c., $62,638.97½, leaving a balance of $9,633,-47½; the amount of indebtedness throughout the district for salaries, repairs, buildings, &c,, was $8,325.76. The value of school property was $66,779, while in 1871 it was $36,820. The whole number of school sections was eighty, and the number of school houses eighty-one, including two separate schools. There are no rented buildings in the district. Each school had at least half an acre of ground, as required by law. Three Teachers' Institutes have been formed at Exeter, Varna, and Dungannon. Two of these are doing excellent work.

—The Inspector of Leeds reports an advance of fifty per cent. in teachers' wages, and says that the schools are in much better shape than formerly. The practice of granting permits is gradually declining. "The principal deficiency in both schools and teachers is the utter want of mathematical knowledge." He adds that there is a general desire in the rural schools, where the attendance is fifty, to employ pupil monitors. All the assistants employed except in Gananoque, are "not qualified." "As a general rule scarcely any pupils are sent from the rural districts to the High Schools, their only extraneous support being derived from a few candidates for third-class certificates desirous of "reviewing." The High School pupils, pursuing the classical course, are limited to an insignificant number.

—The P. S. Inspector for the County of Grenville, in his report for 1873, exhibits a backward condition of education in his district. He reports that only eighty per cent. of the schools are taught by duly certified teachers, and that eighty per cent. of the teachers licensed are females. Reading is not generally well taught—scarcely taught at all—spelling is also generally bad, writing as a rule is indifferent, mental arithmetic is almost ignored, geography is not sufficiently studied, the knowledge of history is not worth mentioning. Merrickvile and Kemptville have shown enlightened liberality by erecting large elegant brick structures at a cost of from $6,000 to $7,000. Handsome double schools have also been completed in Edwardsburg, Spencerville and Burris' Rapids.

—A meeting of the public school teachers of Seaforth and vicinity, for the organization of a Teachers' Institute, took place in the Seaforth school-room on Saturday, March 13. Mr. McFaul, being chosen chairman, the meeting proceeded to elect officers, Mr. S. Hicks being chosen President; Mr. A. G. McFaul, 1st Vice-President; Mrs. Coulter, 2d Vice-President, Miss E. Johnson, Treasurer; and D. Stoddart Secretary. The officers are to be elected annually. Membership fee, 25 cents per annum, payable by male teachers alone. Meeting of Institute to take place once in six weeks, the first meeting to be held in Seaforth school room on Saturday, April 24, at 10 o'clock A. M. After appointing a Committee to arrange a programme, providing subjects for discussion, and the teachers who shall introduce the subjects they selected, the meeting adjourned.

—A correspondent has sent the *Liberal* an account of the recent inspection of the Bowmanville High School by Dr. McLellan, High School Inspector. The examination, which lasted two days, was very thorough and searching. The different forms stood the test well, and showed by their correct answers and independent thought that they had been carefully taught. At the close of

the examination the Doctor addressed the school in the Assembly-room, expressed himself highly pleased with the state and progress of the school, and urged the teachers and pupils to endeavor to achieve still higher results. The school under its present Principal, Mr. Oliver, is doing unusually well, and is obtaining a more than local reputation, as is shown by the pupils drawn to it from a distance. In this connection we would remind the friends of education all over the Province that we shall feel obliged to others who may favor us with similar items of news respecting Public or High Schools, Teachers' Conventions and Institutes, Inspectors' reports, &c.

—An important change in the lecture system at the Normal School has been agreed upon by the Council of Public Instruction. At the last meeting of that body it was enacted that there shall hereafter be only one annual session, instead of two, commencing on the 15th September, and closing on the 15th July, with two short vacations, one from the third Wednesday in December to the second Tuesday in January, the other from the Wednesday before Easter to the Tuesday after Easter, inclusive. The class will be arranged in two divisions, first and second; and the latter will consist of a junior and a senior section. There is so much obscurity in the wording of the enactment respecting the constitution and working of these two sections that we prefer giving the clause verbatim, leaving our readers to conjecture the correct meaning for themselves. It is enacted:—

"That the second division consist of a junior and a senior section, the work of which shall be entirely with a view of second class certificates; that the candidates for this section be those who are able to pass the entrance examination, and these be prepared for II B certificates. That candidates for the senior section who are to be prepared for II A certificates shall be (1) those holding II B Provincial certificates if they can pass an examination in arithmetic, algebra, and natural philosophy within certain limits; and (2) those who can pass the entrance examination."

The first division is to contain graduates from the second division, and those holding second class A certificates from the County Boards, provided they can pass in certain specified subjects. The aboye change will take effect after the close of the present Normal School session, so that instead of the students re-assembling in August, as usual, they will not do so tillSeptembe r. In more ways than one the alteration is likely to be beneficial.

—The P. S. Inspector for South Huron, reports that the schools in his district are in a very satisfactory condition. He complains of the trouble created for the teachers by irregularity of attendance on the part of the pupils. The teachers were changed in forty-four schools during the year. Fourteen new school houses took the place of old ones, and two were erected where there were previously none. Meetings were held in the various school sections in Tuckersmith, to determine whether the legal majority, giving the township council the power to establish a township board of school trustrees, could be secured. The necessary majority was obtained, and the election of the board took place at Brucefield on the sixth of February. The council purposes to convert the surplus money coming to it into a school fund.

—From the report of G. D. Platt, Esq., Inspector Prince Edward, we glean a few interesting particulars, He is unable to report any marked progress for the past year. He classifies the schools as follows: excel lent 10, good 25, middling 27, poor 18. 4 teachers had a salary of $400; 4 more from $450 to $500; 22 from $300 to $400; 38 from $200 to $300; and 7 less than $200. School was kept open on an average 11 months and 7 days. In the matter of school visits, 331 are credited to trustees, 78 to clergymen, 40 to Municipal Councillors, and 158 were made by the Inspector, averaging in length nearly three hours each. In addition to a thorough examination of the schools open during each half year, a memorandum of the improvements required was left for the trustees of nearly every section. The great discouragement seems to be the lack of experienced teachers.

—We condense from the Brantford *Expositor* the proceedings of the Brant County Teachers' Association: This Association held its twelfth quarterly meeting in the Central School, on Saturday, 20th inst. and was one of the most successful yet held, nearly seventy teachers from all parts of the

county and neighboring counties being present. The following are the names: Misses Tutt, Morgan, Hawn, Young, Hawn, Purves, Whitehead, Judson, Stevenson, Zimmerman, Halligan, Hagerman, Dodds, Osborne, Clark, Hagerman Ballantyne Coulter, Mullin, Chatterton, Middlemiss, Mullin, Woodyatt, Smith, Sinclair, Duncan, Ashmore, Howell, Gillen, Lee, Gibson, Armington, Mrs. Mills, and Messrs. Stenebaugh, Burt, Dudson, Lee, Hall, Dickson, Dickenson, McIntosh, Howell, Nasbit, Boyle, Kerr, Dr. Kelly, Shaver, Passmore, Murphy, Butler, Goodbow, McGregor, McKay, Lee, Jenkins, Sage, Campbell, Smith, Benedict, Wickens, Benedict, McLim, Watson, McNeil, Wickinson, Mills and Rothwell.

The proceedings being opened in the usual manner, Mr. McNeil gave the continuation of his lessons upon the Mechanical Powers—choosing the inclined plane for the day's lesson. Mr. Wickens followed with a lesson upon Geography. A paper entitled "The relation between High and Public Schools" was read by Mr. Dickenson, in which the writer showed some of the anomalous features of the present School Law. Considerable discussion took place upon this essay. Mr. Mills, although agreeing with the essayist in many of the positions he had taken, yet failed to find a satisfactory remedy in the suggestions of the writer. Mr. Butler objected to the statement that the training in High Schools was not superior to that of the Public Schools. Mr. Wilkinson did not believe in having the High and Public Schools' programme overlap each other.

The lesson to an advanced reading class (Trial Scene, Merchant of Venice) by Dr. Kelly was highly appreciated, comprising not only reading proper, but including observations upon the different figures used in the extract, scansion, historical groundwork of the play, with critical remarks upon various words.

Mr. Boyle read a short essay upon Experiences in teaching—having reference more particularly to means of discipline—advocated moral suasion, and the *birch* only as a *dernier ressort*. His remarks were received with applause.

Miss Ashmore then gave a reading, in excellent style, after which Mr. Wilkinson gave an object lesson on sugar, to a young class.

The teaching of an infant class by Miss Stevenson was highly instructive.

Owing to the lateness of the hour it was found impossible to carry out the order of business in its entirety. Several subjects therefore remain until the June session.

The meeting was a decided success not only in point of numbers, but in the interest manifested, and the eagerness on the part of many to participate in the discussions.

UNITED STATES.

—A resolution forbidding religious singing in the public schools has been introduced in the San Francisco Board of Education.

—The medical students of Michigan University have petitioned the Legislature to provide some means by which their anatomical studies may be prosecuted without offending the public sensibility.

—It has been proposed in Virginia that each County School Board be allowed to select books for its public schools, provided that the State Board shall have the right to exclude any objectionable book which any County Board may adopt.

—The Boston Normal School Regulations provide that the staff shall consist of a headmaster, who must be a graduate of some college in good standing, a head assistant, and as many assistants as may be found necessary, provided the number shall not exceed one in every thirty pupils.

—There are in Delaware twenty-eight schools wherein between 1,100 and 1,200 coloured children are instructed. These schools receive no funds from the State, and yet are said to be conducted with admirable discipline and a uniform system such as is not possessed by the public schools wherein the white children are educated. All of them are under the management of colored teachers, some of whom are even accomplished.

—Sewing-schools were established in Providence, R. I., seven years ago. Within that period 1,120 girls gathered from the streets have attended it, 700 of whom are now employed as seamstresses at from $3 to $12 per week. Four or five hundred of the girls were so poorly clad when taken in hand they could not attend the day-school, and they were provided with garments. The pupils have made 3,360 garments,

which have been distributed among the poor.

—The report of the (Boston) Women's Education Association says that the elementary education is entirely in the hands of women. In Boston there are 175 male teachers and 1,066 female, and such a thing as a man teaching in a primary school is almost unknown throughout New England. The teaching in these elementary schools is the only school-teaching that the vast majority of children receive, for less than one-fortieth of them go beyond the grammar schools. This statement, without argument, is enough to show that the women who teach in the lower schools should have the best possible education, for the demand on them is so great that no enthusiasm or faithfulness or good-will can meet it without the help of thorough and systematic training.

—Last year the State Medical Society of Rhode Island referred to a committee the subject of "School Hygiene," with instructions to investigate and report thereon. The report has recently been presented to the Society which, after earnest consideration, unanimously passed the following resolutions: *Resolved*, That physical culture is of primary importance in our public schools, and that gymnastic exercise should be made a part of our school system; that the "Kindergarten system" should be engrafted into our public school system; that the school buildings should not exceed two stories in height, that 300 cubic feet of space and 25 square feet of floor space should be the minimum for each child in a school-room in connection with good legislation, that proper warmth and pure air are of the first importance, and should always be considered before ornamentation; that scholars should not maintain the same position for more than half an hour at a time; that two short sessions, daily, is better than one long one; that no child should be admitted into our public schools, as now conducted, under seven years of age; that under twelve years of age, three hours a day, and for twelve years and over, four hours a day, is sufficiently long confinement to mental culture; that study out of school should not usually be permitted, that all incentives to emulation should be used cautiously, especially with girls; that the "half-time system" should be introduced into our public schools.

CHOICE MISCELLANY.

—Suppose you are a teacher; what kind of a teacher are you? Have you studied all the methods and intelligently selected your own? Have you a method suggested by a careful and loving study of the young minds placed in your care, and by such experience as you have been able to secure? Have you idealized your calling, and seen in it the angelic work of training and building the human mind, and leading it to its highest and finest issues? Does the work absorb you, fill you with the conscious crown of a great responsibility, and call forth from you the most skillful, the most conscientious and careful, and most self-forgetful exercise of all your powers? Or is your work drudgery, which you dislike, and which you are content to do poorly, provided you can get your pay and keep your place?—*Dr. Holland.*

—The faith in lesson-books and readings is one of the superstitions of the age. Even as appliances to intellectual culture, books are greatly over-estimated. Something gathered from printed pages is supposed to enter into a course of education; but, if gathered by observation of life and nature, is supposed not thus to enter. Reading is seeing by proxy-is learning indirectly through one's own faculties, and such is the prevailing bias that the indirect learning is thought preferable to the direct learning, and usurps the name of cultivation.—*Herbert Spencer.*

SCHOOL DISCIPLINE: 1. See that the school-room is well warmed, ventilated, cleansed and lighted, and adorned with pictures, mottoes and flowers. 2. Give pupils plenty to do. 3. Approve work when well done. 4. Carefully inspect pupils'

work. 5. Keep up an interest in work. 6. Few rules, uniformly executed. 7. Frequent changes of exercise. 8. Control by kindness. 9. Make the school and all its exercises popular. 10. Pile on motives.

—Some men will follow Christ on certain conditions—if he will not lead them through rough roads—if he will not enjoin them any painful tasks—if the sun and wind do not annoy them—if he will remit a part of his plan and order. But the true Christain who has the spirit of Jesus, will say, as Ruth said to Naomi, "Whither thou goest I will go!" whatever difficulties and dangers may be in the way.—*Cecil.*

A SCHOOLMASTEB AROUND LOOSE.

Four or five days ago a man about forty years of age, looking as if he had been drawn over a dusty floor for an hour or two, called upon one the members of the Board of Education and introduced himself as Wm. Cannon Harrison, of Saginaw County. He was politely received, and he commenced business promptly by saying:—

"I'm a-looking for a situation as a school-teacher."

"Ah, ha!" replied the member, wondering why the man wasn't looking for a wood-pile.

"I could have brought a pile of recommends so high," continued the man, measuring with his hand, "but recommends don't amount to nothing."

"And have you any school in view?" asked the member.

"I want to get in here, in Detroit," replied the man. "What wages do you pay?"

"I'm afraid———" began the member, when the schoolmaster interrupted:

"Oh! well, I s'pose you pay going wages, and that's all I can ask for. I don't want to put on style and live high, as I'm getting a leetle old and ought to save money."

"As I was going to remark—" said the member, when the school-master suddenly enquired:

"Do they allow licking in the school here? If you do, I'm the man you want to dress the boys! I've had 'em come to me by the dozen, and it would do your heart good to see the way I laid 'em! Why when I had that school in Bay county I thought nothing of licking thirty scholars a day, besides hearing twelve classes recite! I'm an old screamer, I tell you, and there's fun in me when you get me worked up!"

"I hardly think—" commenced the member again, when the school-master jumped up and said:—

"Of course, you won't take me unless I pass examination, but I hain't afraid of not passing. I'd like to see a word I could'nt spell! For instance: 'C-a t-a-r-r-h, catarrh.' 'Dandelion:' 'D-a-n-d-e-l-i-o-n,' or try me on words of four syllables. 'Lugubrious:' 'L-u-g-u-b-r-i-o-u-s, lugubrious.' Oh! I can knock the socks right off'n these swell-headed teachers, and not half try!"

"I should like to help you," put in the member, "but—"

"Oh! you needn't think I'm behind on geography," interrupted the teacher. "For instance: What is an isthmus? An isthmus is a narrow strip of land connecting two larger bodies. Is the world round or flat? Round. Why is it round? Because it is. Which is the largest river in the world? The Amazon. Which is the highest mountain? The Andes. I might go on for seventy-five days this way, and then not tell you half I know!"

"You seem to be pretty well posted in geography, but I want to tell——"

"And on grammar, too," exclaimed the teacher, jumping up again. "What is a noun? A noun is the name of any person, place, or thing. Give us an example: Man, dog, cat, coon, goat, jack-knife, fish-hook, gate-post. What are the principal conjunctions? And, as, both, because, for, if, that, or, nor, neither, either, and so forth and so forth. Oh! I'm right on the roof of the meeting-house when you sling grammar at me?"

The member was getting desperate, and as soon as he could get in a word he said:

"I will take your name, and as soon as a vacancy—"

"And I know arithmetic from cover to cover!" exclaimed the man, standing up again. "I can go through the tables like lightning through a hay-stack, and when you get to cube root I'm awful; I weigh a ton and a half, and still growing! 'Rithmetic's my favorite study, and I'll give you $100 to find a man who'll saw sums in two and plane 'em down as quickly as I can!"

His speech took the wind out of him, and the member managed to say that there was no vacancy at present, but he would take

his name and consider his case as soon as one occurred.

"I'd like to commence right off," replied the man, "but I'm willing to wait. Here's my name, and the minit I get your letter I'll come down-a-flying. If you get me you don't get much style, but you get solid old common sense and genuine education. You won't see scholars playing hide-and-coop around the wood-box or playing marbles on the floor—no, you wo-'t !"

And he went down stairs.—DETROIT FREE PRESS.

LONDON SCHOOL BOARD COMMITTEE.

A late number of the *Leisure Hour* gives an interessing account of the work done by the different Committees into which the London (Eng.) School Board is divided. These Committees are six, viz :—(1) Statistical, (2) Works, (3) By-laws, (4) School Management; (5) Finance, and (6) Industrial Schools.

With the first of these Committees all business is initiated. It is held responsible for every recommendation of fresh school accommodation. All London is blocked out into minute squares. The population of each of these is carefully detailed, the names of all children of school age recorded, and the deficiency in school accommodation marked. When the deficiency in any case is recognized as sufficient to warrant another school, then there are calculations about the exact spot on which to put down said school, so as to meet the convenience of the poor, to avoid trenching upon other schools, and to have the fees graduated according to the ability of the inhabitants. This Committee, then, is responsible for the adoption of existing schools, and the authorization of the purchase of freehold ground for new ones.

When a site has been fixed upon, the Works Committee comes into the field. This is responsible for the purchase and erection of school rooms, which is a very difficult and harrassing work; yet since the Act passed places have been provided by this Committee for 89,000 children. After the school-rooms are built, the Committee on By-laws takes charge of filling them with children. Of course there is the power of compelling attendance, but it is found that this power to be efficient must be very carefully and wisely exercised. The power is not left by any means as a dead letter. In one half year 40,000 notices were issued, and 5,480 parents served with summonses. In 2,000 of these cases fines were inflicted, while the rest of the parents sent their children to school. The operations of the By-law Committe cost, for one thing and another, £20,000.

The School Managing Committee has the entire control of all the schools—appointing teachers, arranging the programme, &c., &c. The Industrial School Committee looks after the "strays and waifs;" while the Finance Commirtee conducts all the monetary work of the Board. Every item to be paid must first come before this Committee, and be recommended by the Board before it can be paid. The accounts are audited every half year, and it is said the audit takes up two months' time.

All this involves an enormous amount of work, Committees and sub-committees are meeting every day, and sitting from one to six hours. Then the Board meets every Wednesday, and generally has a long sederunt. Since even this Board was instituted, a prayer-meeting has been voluntarily held among the members before each Board meeting. It is very noticeable that all this work is done cheerfully and freely by men of position and character, to whom every minute of the business day is valuable. Benevolent effort on this extensive scale must in due time tell for good upon the rising generation.—GLOBE.

THE TEACHER MUST STEADILY AND CONSTANTLY IMPROVE.

There is no temptation so great to the hard working teacher as to remain on the very spot where he has earned his certificate. That attests his ability to instruct. He has toiled to obtain it, and now holds it as a key to a position. His efforts have been not for the knowledge, the strength, the enlarged views, but for the certificate that he is qualified as an instructor. There is many a man who looks back to a day when he was admitted as a member of our noble profession and grounds his fitness wholly upon the successful examination he then passed.

It is not to press any more labor on these tried shoulders that we beg to say a few earnest words against contentment with past achievements. It is for encouragement and relief. It is to show you that if your bur-

dens may not be made lighter, you may be made stronger and more able to bear them.

The ignorant man cannot possess self-respect. He may cover his defects by one pretense or another, he may conceal them from his classes very easily, he may require more tact to hide them from his associates, but they become at last powerful reasons that will impel him to seek other employment. The daily tasks of the school-room are of an irksome nature. There is a constant demand for patience, "that divinest quality," and he who would walk among the preplexities and reiterations of the school-room without growing narrow and soured, must daily find in the work of genius, that halo, which renders common things in its light transparently beautiful. There is an artificial constraint in the school room; from that the teacher must purge himself by conversation with minds that ever treat him with dignity and respect. He will be able, by communing with the best thoughts, to stand on his platform every day, a stronger and a better man.

There should be a steady attempt to be something better than teachers, even true men and women. Like all monotonous occupations, there is a tendency to deterioration in teaching. The wearisomeness of school-room work gradually undermines even a noble nature. Against this, early and constant opposition must be made. The entire life must not be spent on things already known; there must be a pressing on to things that are before. It is the possession of ideas above and beyond the work done that makes a great soul. Men in the drudgery of camps, of counting-rooms, of courts, and of the pulpit, too, have cherished thought that keep their lives fresh and green. It is this that imparts character to men and women. Daily attrition with the rough things in life's pathway has a tendency to utterly destroy it. It is the light and atmosphere that is above us that causes it to expand into strength and beauty.

The steady attempt of the teacher to improve himself becomes therefore apparent, for character is too subtle a force to remain hidden. It animates his pupils, they know not how.

A teacher teaches only what lives on his lips, it is not what he has stored in memory as his stock in trade. By such a teacher the direst lesson may be embellished.

But among his own profession such a man becomes a power of good almost immeasurable. Such a soul performs his part so well that he lifts everyone of his craft along with him; they all receive the honor such a man gradually draws toward himself. A few men and women who will not be satisfied with themselves as they were yesterday, what landmarks they become! Others look at them as sailors to distant beacons to guide their way, and to pattern out their lives.—N. Y. S. JOURNAL.

LITERARY NOTICES.

The Quarterly, a periodical connected with the Hamilton Collegiate Institute, is on our table. Its initial No. makes a very creditable appearance, and includes two well written essays read before the Literary Society of the Institute.—*Sigma Epsilon* published monthly by the Sigma Epsilon Society, Sewanee, Tenn., has reached us. It has several able articles.—*The Academy* is the organ of the St. Catharines Collegiate Institute, and has made a creditable appearance. It will be issued monthly.—*The Capitol*, the official organ of the Detroit High School, is beautifully printed on fine paper, and has good literary selections. It is published monthly.

We have also received the last monthly

issues of a number of excellent Educational Journals to which we can only give a passing notice. Among these are:

Home and School, a journal of popular education; monthly; 48 pp. 12 mo.; John P. Morton & Co., Louisville, Ky., publishers; $1.50 a year.

National Teachers' Monthly; J. Mahony editor; A. S. Barnes & Co., publishers, Chicago; 32 pp. 12 mo.; $1 per year.

New York School Journal; weekly; 16 pp. quarto; Kellogg & Merrill editors and publishers, New York City; $2.50 a year.

Quebec Journal of Education; issued monthly, under the direction of the Minister of Public Instruction.

Michigan Teacher; monthly; about 40 pp. 12 mo.: H. A. Ford, Niles, Michigan, editor and publisher; $1.50 a year.

Chicago Teacher; monthly; 16 pp. quarto; J. W. Brown, editor and publisher, Chicago; $1.50 a year.

Maryland School Journal; 48 pp. 12 m.; Kelly, Piet & Co., publishers, Baltimore, Maryland, M. A. Newell and Wm. R. Creery, editors; monthly, (ten numbers in a year); $1.25 a year.

National Teacher; monthly; about 40 pp. 12 m.; E. E. White, Columbus, Ohio, editor and publisher; $1.50 a year.

New York State Educational Journal; monthly; O. K. Burchard, M. A., editor and publisher, Fredonia, N. Y.; 48 pp. 12 mo.; $1.50 a year.

Journal of Education, Halifax, Nova Scotia, official organ of the Education Department.

Journal of Education, Toronto, Ont., official organ of the Educational Department.

BOOK REVIEWS.

BOOK-KEEPING AT ONE VIEW, FOR ACCOUNTANTS, STUDENTS AND TEACHERS OF BOOK-KEEPING. A COMPLETE CHART OF A BUSINESS LEDGER, ANN ARBOR, MICHIGAN, C. E. POND.

This is, as its name implies, an exhibition, at *one view*, of the fundamental principles of Book-Keeping. The author claims for it that it "explains the nature and purpose of every account; shows the relation it sustains to the business; gives clear, concise rules for debiting and crediting each individual account, and full directions for opening, conducting and closing the books of any Business House; saves time for the student and labor for the teacher; in short, this Chart is to the study of book-keeping what a map or a globe is to the study of geography, and one of these New Charts should be in the possession of every student and book-keeper."

SILVER THREADS OF SONG FOR SCHOOL AND FOR HOME, BY H. MILLARD. NEW YORK, S. T. GORDON & SON.

This is a compact volume of 208 pages, and seems to be very well adapted to the purpose for which it is intended. Besides a varied collection of original and selected pieces suitable for every variety of School exercise, it contains 25 Duetts, Trio's and Quartetts, a Fairy Operatta suitable for childen, on the familiar subject of "Little Red Riding Hood," and a Musical Charade for School Exhibitions entitled "Excellent." The publishers offer to mail a specimen copy on receipt of 60 cents. It will be a very useful book not only for Public Schools, but also for High Schools and Seminaries.

TEACHERS' DESK.

J. C. GLASHAN, ESQ., EDITOR.

Contributors to the 'Desk' will oblige by observing the following rules :

1. To send questions for insertion on separate sheets from those containing answers to questions already proposed.

2. To write on one side of the paper.

3. To write their names on every sheet.

CORRECT ANSWERS RECEIVED.

DAVID BELL, Rockton, 90.
DONALD MCLEAY, Guelph, 90.
LEVI PALMER, Bothwell, 90.
WM. JOHNSTON, Aberarder, 89.
A. NASMITH, Hibbert, 85, 86.
ALEX'R MCINTOSH, Pinkerton, 89.
H. J. JAMESON, Glenmoris, 86, 87.
CON O'GORMAN, White Lake, 88, 90.
OSCAR DODGE, Mt. Brydges, 89, 90.
M. FERGUSON, Florence, 89, 90.
JOHN E. TOM, Canfield, 88, 89, 90.
R. SHEPHERD, Strathroy, 85, 86, 87, 89, 90,
W. S. HOWELL, Trenton, 85, 86, 88, 89, 90.

ANSWERS TO CORRESPONDENTS.

ROBERT DRINNAN, Elmvale. Currie's Common School Education. Yes, but a working knowledge of Euclid would be better.

ALEX'R MCINTOSH, Pinkerton. Received too late for this number.

J. DUNHAM, Cainsville. Your question would lead to a discussion of the theories of Evolution and Natural Selection. Such a discussion cannot be permitted in these pages. You also must have overlooked the force of the word "seems" in the sentence. If you read the first chapter of Darwin's Origin of Species, you will see there that in his opinion "the barrier" is not always, or perhaps ever "insurmountable," but merely that the result would not be worth the time and trouble of surmounting it.

ANSWERS.

(85.) Out of every \$1 worth sold, the agent kept 3 cents commission for selling, and then out of every \$1.02 of the *remainder* he kept 2 cents and invested \$1. Applying this to \$102 worth sold, \$102=102×\$1 ∴ selling commission equals 102 ×3 cents=\$3.06. Remainder equals \$102−\$3.06 =\$98.94=97×\$1.02 ∴ investing commission equals 97×2 cents=\$1.94, and the sum invested is \$97. Total commission equals \$3.06+\$1.94 equals \$5. Hence out of every \$102 worth sold, the agent keeps \$5 as commission and invests \$97. But \$265=53×\$5 ∴ sum invested is 53×\$97=\$5141.

CON O'GORMAN condenses the solution thus, \$265÷(.03+.02) × (1−.03)=\$5141. From this the *form* of solution is apparent.

(86.) Let the rectangle ABCD, represent the board. Join AC. Suppose EF the line of bisection of ABC, then area of ABC : area of AEF : : $AB^2 : AE^2$. But area of ABC : area of AEF : : 2 : 1 and AB=12 ∴ AE=$6\sqrt{2}$. *Construction.*—From B along BA mark BG equal to 1 foot. Join CG. From A along AB mark off AE equal to GC. A line through E parallel to BC will bisect the triangle ABC.

(87.) Let P be the pressure on the peg, then the resistance of the wall is $P\sqrt{2}$, and is normal to the ladder. The weight produces a force $60\sqrt{2}$ normal to the ladder ∴ taking moments about the foot of the ladder $\frac{4}{6} P\sqrt{2}=\frac{1}{3}$ of $60\sqrt{2}$ ∴ P=25. Hence all the forces are 25 against peg, 95 against plane, 120 weight and $25\sqrt{2}$ against the wall.

(This is a particular case of what may be called the Second Problem of Balances, the Lever being the First. These particular cases have furnished an endless variety of stock-problems in our elementary books, while the general case has time and again served to illustrate "principles." We re-propose the problem in general terms.)

(89.) "Note I.—A noun in the objective case follows an Intransitive verb when the two are kindred in signification; as, 'to *live* a *life* of virtue'; 'To *die* the *death* of the righteous.'

On the same principle, some transitive verbs take a second objective; as, "He struck him a severe blow.'" (See the whole Note).

Fowler's English Grammar, p. 527.

"The Object is either external to the action by which it is affected: *I strike the slave*,—or internal, i.e. already contained in the action itself: *I strike fifty blows*, - - - - - The Internal

Object is expressed by the Accusative not only with transitive, but also with intransitive and passive verbs. The internal Object is a word of cognate *origin* with the verb ; a word *akin* to the verb in *meaning* ; a substantive *defining* the verb ; or the *result* of the action expressed by the verb."

Curtius' Greek Grammar.

So much for the Grammarians' rules—add that the older writers called this the *figura etymologica** Let us look a little further into the matter. We still feel that where we have a verb and noun cognate we can add the noun to the verb to tell the *result* of the action expressed by the verb as, *He dreamt a dream, He slept a sleep, He sang a song, He laughed a laugh, He told a tale.* In fact it is playing upon a tendency to use these forms that leads to such quips as, *He smiled a smole.* Now when, as in the early stages of language probably was the case, every verb had its cognate noun, there would be plenty of opportunities to indulge any such tendency and *habit grows.* The objective seems to have been chosen as the case (unconsciously chosen), because after transitive verbs the result or effect would exist in the affected or proper object, the *external object* of Curtius. Has the language gained anything by acquiring this power of using a cognate object ? As yet nothing, for the simple cognate is tautological, *e.g. He slept a sleep, He laughed a laugh.* The tautology will not last long. The verb and the noun are at first co-extensive, but in the progress of language, the verb may vary in one direction and the noun in another, *e,g.*, the verb may widen in meaning while the noun becomes more specific as in *He sang a song.* But this would be too uncertain and too slowly gained an advantage to maintain the practice till it became so general, as it must have been from earliest times, as proved by the existence of these cognate objects in all, or nearly all of the European languages. But the tendency to implication, that tendency which through emphasis makes five sentences out of *He did not see me*, seizing upon the cognate object raises it at once to an important position in word-saving. Let us explain through an example. Suppose the verb and noun to be both generic, and I wish to express a specific action of this genus, say *He struck a stroke* (*blow* in its widest meaning not the specific *stroke,*) and I wish to specify *severe stroke.* I can make a single word of severe-stroke and form a verb therefrom, but now I shall have as many new verbs as there are adjective combinations with stroke. Implication says use the adjecttve with the cognate object, and let this imply that the verb is to be similarly compounded. But nothing gained yet, except avoiding incessant coining of compounds. Many of these compounds can however, be expressed by single nouns specific names compared with the general cognate of the verb. These specific names assuming the powers of the equivalent compounds can by implication make the verb specific ; *He struck a slight blow* equals *He struck a rap.* A decided saving in verb making. Again, it will often occur that the action viewed *per se* does not vary. *He sang a song* ; I wish to specify *war-song* without reference to the kind of singing ; *He sang a war-song* ; *holy song, hymn, He sang a hymn,* I am saved inventing the verb *to hymn*, which would not express any other action than *sing* except so far as the thing sung, and which might be misunderstood, being new. Each verb of a genus may be joined to each noun of the genus akin to it in meaning ;—sing. chant, hum, &c. ; song, hymn, psalm, ballad, ditty, &c. IMMENSE saving in verb-making ; a simplifying of thinking in separating the doing from the result ; and a suggestion to put the result in the objective, as hardly distinguishable from the material or external object. Soon this form of speech takes its proper place as an object repeating more specifically, (defining) the notion of the verb, doing this in the several ways pointed out above by Curtius. Thus the form wins for itself an important position in language, which is no sooner done than Rhetoric seizes upon it and we have *She wept a flood of tears ; She looked daggers at him ; He sleeps his last sleep; He has fought his last battle ; And on their hinges grate harsh thunder.* Thus our definitive object sinks to a mere adverbal or else, throwing its tropical meaning back on its verb, gives that a secondary meaning it otherwise would not have. Thus interplay the changes of language.

Returning to our text, *rap* is the definitive object of *hit.*

PROBLEMS.

(92.) A beam AB leans against a smooth vertical prop CD, the end A being prevented from sliding along the horizontal plane AD by a string AD fastened at D, to find the tension of the string.

WALTON, 1842,

(93.) The hour-hand of a watch is 3-5th inch long; the minute-hand ¾ inch, and the second-hand 3-10th inch ; compare the rates at which their extremities move.

(Selected) Wm. JOHNSTON, Aberarder,

* The *figura etymologica* played a very important part in Greek as it still does, though not to quite the same extent, in German and Lowland Scotch. We cannot in English say, 'He struck him a wound," but in Auld Maitland we have :

" He clankit Piercy ower the head
A deep wound and a sair."

(94.) A table whose top is in the form of a right angled isosceles triangle whose equal sides are each 3 feet in length, is supported horizontally by 3 vertical legs placed at the corners; a weight of 30 lbs. is placed on the table at a point 15 inches distant from each of the equal sides; find the pressure of the weight on each leg.

JNO. E. TOM, Canfield.

(See Todhunter's Mechanics for Beginners, page 90, problem 20,)

(95). Pigs are worth $5 per head; a drove of 100 pigs and sheep are worth $360, but if the number of pigs and sheep were interchanged the drove would be worth $440. Find the price of a sheep and the number of pigs and sheep.

J. S. CARSON, Strathroy.

(96.) A man paid $165 to 55 laborers consisting of men, women, and boys, men at $5, women at $1, boys at $½ each. How many of each?

DITTO.

(97.) Define an acid. Classify alumina.

EDITOR.

(98.) What does the −20 mean in the algebraic solution of problem 90.

M. FERGUSON, Florence.

RECENT SCHOOL BOOKS.

The Doctrine of Energy, by D. D. Heath, M.A.; Longmans, Green & Co., (pp. 129), $1.35. The idea seems to have been good, the execution is bad. Mr. Heath lacks the gift of elementary exposition, and it is at such exposition the book aims.

Lessons on Elementary Mechanics. Philip Magnus. B.A., Longmans, Green & Co. (pp. 306.) The author keeping the old nomenclature, seems to have followed the route of exposition adopted by Thompson and Tait, placing dynamics (?) before Statics. We cannot speak as to the educational value of the book.

An Elementary Treatise on Steam. John Perry, B. E., McMillan & Co., $1.35. May be considered as taking the position in practical training, that Acoustics and Optics take in intellectual training.

A Course in Descriptive Geometry. William Watson, Boston; Osgood & Co.; London: Longmans, $5.40. Perhaps the best work we have on the subject in English. 'Tis a pity Monge's great work has become so scarce, for no student who aspires to aught like thoroughness on this subject can do without what may be called the *Principia* of Descriptive Geometry.

Introduction to Experimental Physics. Adolf F. Weinhold. Translated (with the Author's sanction) by B. Loewy, Longmans & Co. $9.15. Such a treatise was much needed by teachers who had to teach the rudiments of science, yet had neither the time nor means to spare, to attend such laboratories as those of the Royal School of Mines. The book is the work of a master-hand.

EDITOR'S DRAWER.

—Subscribers in arrears are earnestly requested to remit the amount due us without delay.

—We always re-mail numbers of the "TEACHER" which have gone astray, when notified promptly.

—In a few copies of this No. of the "TEACHER," an error occurs on the 110th page. In the 2nd and 8th lines, from the top of the 1st column, for "medium" read "median."

—Any teacher to whom the "TEACHER" is sent after the time paid for has expired, and who does not wish it continued, will oblige by returning promptly, stating name and Post Office.

—We have a number of valuable contributions from esteemed friends, for which we return our cordial thanks, and which will be published as soon as we can find space.

—If that teacher who sent us orders to send the "TEACHER" to a new Post Office, without stating at what Post Office he had been receiving it, had only heard the anathemas of our mailing clerk, he would promise never to do it again.

—We have received the circular of the Owen Sound Academy, a Preparatory School for Teachers, Matriculants in Arts, Law, Medicine, &c. The Academy has an excellent staff of Teachers, with

Mr. A. D. Campbell, as Principal, and an address recently presented to the Principal shows the high esteem in which the School is held by the students.

—Mr. John Lovell has issued a circular calling on teachers and others to send in any suggestions they may have to make for the improvement of his "General Geography," and "Easy Lessons in General Geography," as he is about issuing revised editions of these works.

—*We are pleased to learn that Professor Goldwin* Smith, M.A., the Public School Teachers' representative in the Council of Public Instruction, proposes visiting as many of his constituents as he possibly can, in May and the early part of June. He has frequently been asked to be present at meetings of the Teachers' Associations, but in consequence of other demands on his time has been compelled to decline. It gives us much pleasure to know that a gentleman of Mr. Smith's high character and standing is about to give the teachers whose representative he is, the benefit of his ripe scholarship, and great ability, while at the same time he will be in a position to become better acquainted with their wants and interests, and the practical working of our educational system, and thus be better able to fill wisely and well the important position which he occupies. As Mr. Smith can spend only a limited time, those wanting his presence at their Associations should communicate without delay with himself, or with Mr. Samuel McAllister, Toronto.

—The following from the *Independence Belge*, will be of interest to our readers: "One of the best managed countries in Europe is Belgium. The teachers in the primary schools, according to a law passed in 1842, receive their salary from the municipal council, under the approval of a permanent committee. They may, however, appeal to the Government when claiming larger amounts. Their average pay in 1843 amounted to 447.49 francs, in 1853, to 551.59 francs; in 1860, to 744.49 francs; in 1866, to 1,097 francs; in 1872, to 1,201.50 francs. The increase since 1853 equals 168.40 per cent. The teachers receiving above 1,000 francs per year in 1843 amounted to 4.89 per cent.; in 1853, to 9.89 per cent.; in 1872, to 72.28 per cent. The ladies in 1843 had 442 francs on the average; in 1860, as much as 702,20 francs, and in 1872 the amount of 1,162 francs. The increase since 1843 is 162,88 per cent. Two features in this are of interest: the rapid increase in the salaries of the primary teachers, and the substantial equality of the amounts received by both sexes."

PERSEVERANCE.

(*The following from Whyte Medville's story* "Uncle John" has been sent to us by a correspondent, and will be found worthy of the attention of every teacher.)

"Have you never seen a fellow climb a greased pole for a leg of mutton? He always fails within six feet of the top, and then down he comes with a run. It's the same with the prizes of life. There's a slippery place to be passed somewhere. Hold on by your teeth and eyelids when you get to it; harden your heart; make one more effort and you win!

Never believe in happy thoughts, inspirations, flashes of genius—what I call the romance of intellect. Nothing good was ever yet accomplished but by plodding. Native talent stands a poor chance against hard work. When you come to a difficulty off with your coat, and hammer at it like a blacksmith at a horse-shoe. Even if it beats you, look at the strength and practice you have attained in the very defeat. Work by the clock! Don't be afraid of leaving off in the middle of a difficult passage or a happy vein of thought. Train your mind as you would your muscles. To-morrow it will serve you as well as to-day - perhaps better. Leave off fresh, but never let twenty-four hours elapse without making some progress, if it be only an inch or two towards the top of the pole.

When you have won the leg of mutton, don't be disappointed to find it Leicester instead of Southdown. The Victoria cross is only a bit of bronze after all; but honor lies in success, not in reward; and whether gold, or mutton, or parsley, depend upon it the struggle is of more value than the prize."