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THE

ONTARIO TEACHER:

A

MONTHLY EDUCATIONAL JOURNAL.

VOL. 2, FROM JANUARY TO DECEMBER, 1874.

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ALPHABETICAL INDEX TO VOLUME II.

- Advice to Teachers, 79.
Asking Questions, 87.
A Recollection of Eton, 111.
Amendments to the School Act, 130.
A Teacher's Character, 332.
A Central Board, 353.
Boston Kindergartens, 285.
Contributions, 5, 35, 79, 99, 132, 163, 195, 227, 258, 292, 324, 355.
Choice Miscellany, 29, 60, 122, 155, 189, 255, 313, 348, 375.
Calling and Duties of Teachers, 88.
Chief Superintendent's Report, 97.
Common Sense in the School House, 136.
Causes of Failure in Teaching, 212.
Caring for Pupils, 217.
Class Records, 272.
Composition in our Schools, 330.
Council of Public Instruction and the "Press," 354.
Editorial, 1, 33, 65, 97, 129, 161, 193, 225, 257, 289, 321, 353.
Examination Questions, 21, 50, 247, 275.
Educational Intelligence, 27, 57, 92, 119, 152, 187, 218, 252, 287, 316, 341, 372.
Editor's Drawer, 32, 64, 96, 128, 160, 192, 224, 256, 288, 320, 352, 380.
Examinations, 116.
Elections to the Council of Public Instruction, 129
English History in our Schools, 234.
Fallacies in Public Schools, 225.
Feed my Lambs (poetry) 233.
Glimpses of Paris and Versailles, 135.
Hints on conducting Recitations, 12.
How to Teach Geography, 19.
Hints for beginners in Teaching, 83.
How Dr. Rounder beat his boys, 148.
Hints on Teaching, 171.
How to get an Education, 308.
Johnnie becomes acquainted with Something he can't See, 81.
Johnnie makes Discoveries in Eyes, 115.
Johnnie contiaues his study of Eyes, 183.
Johnnie burns himself without fire, 215.
Keeping Accounts, 134.
Kinds of Punishment, 308.
Learning to Teach, 371
Miscellaneous Contributions, 46, 143, 273.
My Method of Teaching Spelling, 132.
Old and New (poetry) 45.
On Poetry which denotes the Sense by the Sound, 198.
Our New Normal Schools, 257.
Our Duty to Ourselves, 292.
Observations on School Government, 302.
Public School Text Books, 16, 41.
Prize Essay, 67.
Physical Science for the Young, 185.
Reading as an Art, 99, 172, 208, 258, 355.
Recitations, 237.
School Legislation, 1.
Science Teaching, 5, 35.
Selections, 19, 81, 113, 148, 176, 212, 244, 283, 302, 338, 363,
School Government, 86.
Solutions to Questions, 239, 300, 334.
School Incentives, 283.
Self-development of Teachers, 321.
School Discipline, 324.
Spirit of the Teacher, 329.
Sex and Education, 339.
Teachers' Desk, 31, 62, 94, 127, 159, 190, 222, 256, 318, 351, 379.
The New School Bill, 65.
Teaching how to Study, 90.
The mutual claims and duties of the Educator and Educated, 103.
The best practical method of Teaching Young Pupils Spelling and Reading, 113.
The necessity of Special Preparation for the Work of Teaching, 138.
The Recitation — Miscellaneous Suggestions, 150.
The cultivation of a Literary Taste in our Schools, 161.
The Requirements of our Rural Schools, 163.
The Object of Punishment, 176.
The Relation of Psychology to Teaching, 178.
Teach your Pupils how to Study, 193.
Teaching Reading to Infant Classes, 195.
The Tichborne Dole, 201.
The genus Domine, 203
Tired (poetry) 207
The Gloom and the Glory, 227.
Teaching vs. Hearing Lessons, 244.
The Old Man goes to School, (poetry) 246.
The Claims of Teaching to the rank of a Profession, 262.
The Co-Education of the Sexes, 289.
The Royal Arms, 296.
The Seven Laws of Teaching, 305, 365.
The Self-Culture of the Teacher, 310.
The German School System, 311.
The Teacher's Preparation for Oral Lessons, 338.
Thoughts on Teaching, 360.
Unconscious Teaching, 368.
Value of Education, 370.
What a School Inspector is supposed to notice, 33.
With the Tide (poetry) 299.

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JANUARY, 1874.

No. 1.

SCHOOL LEGISLATION.

As the Session of the Legislature of Ontario is now drawing near, during which the School Legislation of the Province is to be revised and consolidated, we would call the attention of those interested in such matters, to some things which we believe the educational interests of Ontario at present require.

COUNCIL OF PUBLIC INSTRUCTION.

The draft of a Bill presented by the Hon. Mr. Mowat near the close of last Session contained provisions for a rearrangement of the Council of Public Instruction on a new basis. The long contended for principle of making its members, or at least a part of them, elective, was conceded. We are not sure but a more liberal concession to public opinion than the Bill contained would be better, but we are prepared to accept it as a step in the right direction. The introduction of even three *elected* members into the Board will, we believe, be productive of much good. It will be a recognition, at least, to the governed of their right to a voice in the choice of their gov-

ernors, and must, by the establishment of direct intercourse between the Educational Department and the public, tend to allay any feeling of suspicion that may exist in regard to the exercise of its functions, as well as give a more practical character to its regulations. While not at all endorsing the denunciations so often hurled at those who control and direct the educational interests of the Province, we have no hesitation in advocating any measure that might increase the efficiency of our Public Schools, although by so doing we might appear to question the judicial wisdom of those whose duty it is to superintend such matters. The interests of education are paramount, and as such must not be made subservient to any existing order of things.

We are most anxious to see the effect of this new element in our educational machinery tested. We have no fear as to the result. The different parties to be represented have great interests at stake. These interests not being diverse from the interests of the public, there need be no

fear that the powers conferred on them will be used to gratify any selfish purpose. The confidence reposed in them by their constituents, and the fact that their own reputation is at stake, should guard them against any abuse of power. While the fact that the Legislative Assembly of the Province, by whose fiat they are called into existence, can, at the first appearance of danger, destroy that existence and transfer to other hands the interests they were likely to betray.

HIGH SCHOOLS.

The legislation required in regard to High Schools has perplexed the minds of our public men for many years. The education they are supposed to furnish is of such a nature as only directly to interest the few, consequently but few are really interested in their prosperity. We believe it to be a mistake, however, to allow these schools to be managed by men irresponsible to the people as Trustees. Why not elect High School Trustees, or at least a part of them, as other Trustees are elected? Let the people have something to do with their management directly, and if the County Councils are to contribute to their support, let them have the privilege of nominating two members of the Board to represent their views in the matter. This certainly should satisfy all parties.

From all that we can learn regarding the status of our High Schools and the work which they perform, we are strongly impressed that a reduction of their number, under certain limitations, would be a public benefit. We do not, as we have often very plainly said, take any objection to the existence of a High School, where there is work for it to do. But where the attendance is very small, say fifteen or twenty, and the Public Schools of the town at a low ebb, we do believe that a suspension of High School duties for a time would be a positive advantage. We further believe that in no case should a High School be

established unless the prospects are good for an average attendance of at least fifty scholars. We are informed that in some counties the High Schools do little, if any, more than Public School work. This is an evil which should at once be remedied. To deprive Public School teachers of the advantages incident to the demand in a town for a good English education, by establishing a High School that in no sense of the word is more efficient, is a grievous injustice. And furthermore, as has been fully shown in a previous article, to allow public funds, either Provincial or local, to be absorbed by a *nominal* High School is unjust to every other educational interest of the Province.

We are heartily glad that a uniform system of examination for entrance to High Schools is now established, and we trust no legislation will take place to alter this very excellent Regulation of the Council of Public Instruction.

There is one difficulty in regard to the maintenance of High Schools by local taxation, which is very hard to obviate. It is held by many that, inasmuch as the whole county is equally entitled to the free use of the High School, with the town or municipality in which it is situated, that every part of the county should equally share in the burdens of taxation. It is held, on the other hand, that those living so far removed from a High School that pupils could not return night and morning, would practically be as much benefited by it if it were twenty miles distant. The expense of board and lodging rendered necessary in either case, would be the same. We admit there is some force in this objection. The statistics of High Schools, like those of the Normal Schools, indicate that those who benefit by them must reside within the municipality in which such High Schools are situated. And as the county is obliged to contribute a certain sum by statute, it is held that this is in itself a very fair percen-

tage of outlay as compared with the benefit received. The matter is certainly fraught with many difficulties, no matter from what standpoint we view it, but how to improve upon the present arrangement we fail to see.

TEACHERS' RESIDENCES.

As the law now stands it is optional with school Trustees to provide a residence for the teacher. In some cases the powers conferred by statute have been used, and as a consequence additional inducements are held out to the teacher, both as to permanency of situation and comfort. It is certainly one of the drawbacks of the profession, in rural districts particularly, that only with the utmost difficulty can the teacher get a house to live in. Many instances are known where he is obliged to live separate from his family the greater part of the year, for this very reason. The effect of this practically is to cause many to quit the profession who were in all respects some of its most useful members. To remedy this evil, residences for teachers would do a great deal. From a monetary point of view, we believe it would be an advantage to the ratepayers. It certainly could be no loss, inasmuch as teachers requiring such residences would be willing to teach for less than they would when the item of rent had to be included in their outlay. Besides, the feelings of comfort and stability which would exist in the mind of the teacher would make him more faithful and diligent in the discharge of his duties, and consequently more profitable to those who engaged his services.

We are aware that the very few instances in which Trustees have availed themselves of the power conferred upon them by law to provide residences for teachers, might be used to show that there is but little interest taken in this matter throughout the country. Now, while we regret that this is true, yet we do not at all despair of exciting an interest, did the Legislature offer

even moderate inducements for that purpose. And why should it not do so? We have liberal inducements offered to immigrants. Why not also be liberal in the means used for the improvement of those already settled in the country? We have also liberal inducements held out for drainage and other public improvements. Why not use part of our vast surplus as an inducement to school Trustees to comply with a request so reasonable? If the law provided that to those erecting a suitable teacher's residence there would be given a certain *bonus*, or that the money would be loaned on debentures for ten years at five per cent. interest, we venture to predict a great many residences would at once be erected, and a manifest improvement in the permanence of the profession take place. Nor would such provision be at all unreasonable. Indeed, we believe there are other sources of investment profitable to a people besides rail-ways, and an investment in the direction indicated could not fail to benefit the the whole community.

MONITORS AS ASSISTANT TEACHERS.

In the Sept. No. of the *TEACHER* we discussed this subject at considerable length. And now, in reviewing the position then taken, we are even more strongly impressed with its propriety. The law requiring an assistant to be provided when the attendance is over fifty, or say sixty pupils, is a good one. It is just both to the pupils and the teacher. But the difficulties in securing the compliance of Trustees even to a reasonable provision of the law are sometimes not easily overcome. They urge increased taxation consequent upon advanced salaries and improved school-houses. They also allege that although for a few months in the year, particularly the winter months, the attendance is large, yet during a greater part of the year the attendance would not legally require an assistant. Hence this objection to the law. Now, in order to meet this ob-

jection half way, and at the same time provide for the advancement of the schools, let the law be so amended that monitors be allowed to take the place of assistant teachers. For instance, the Inspector might select from the most advanced pupils in the school the best qualified, and license him (or her) to teach as monitor for one year. Such a person's services could be secured at a moderate salary. Their time need only be partially employed, and for some months, perhaps, their services might be entirely dispensed with.

The only objection to such a system is the very weighty one that the youngest classes in the school, over whom the monitor would be placed, are the ones requiring the most thorough knowledge of the art of teaching, and experience on the part of the teacher. Of this, then, there can be no doubt. But we venture to say that even with assistant teachers, under the recent legal arrangement, the young teacher of the lowest grade would be the one entrusted with the junior classes. And while there might be advantage in point of intellectual training on the side of the assistant teacher, yet the law is so indifferently complied with that in point of number the advantage would be on the side of the monitors.

As already pointed out, the great want of the profession is trained teachers. The *monitorial* system, in other words, the *pupil teacher* system, existing in many countries, would do a good deal to supply this deficiency.

NEW NORMAL SCHOOLS.

The promises of past Sessions in regard to additional Normal School facilities are being partially realized. The Eastern Section of the Province being now provided for, the West will, no doubt, in due time receive equal privileges.

The basis on which our Normal Schools are established is of a very wide character, the design being to train teachers for prac-

tical service, and, at the same time, drill them pretty thoroughly in the various subjects which they are expected to teach. We believe both of these objects to be good, but we doubt very much if the practical training which they receive in the Model School really amounts to much. We have little faith in a course of training which seldom amounts to more than ten or twelve lessons. The drill in the subjects taught in our Public Schools, in other words, the intellectual training of the Normal School, we believe to be invaluable. Many young men and women who enter the profession have themselves been indifferently taught, and without additional instruction from some source or other, they are apt to make very indifferent teachers. Their intellects have never been thoroughly aroused, and knowing but comparatively little, they teach less. So that what they really require is *information* and the *quickening into life* of their mental powers. All this they can get, or ought to get at the Normal School.

Besides this, they see in the manner in which they are themselves taught the best method of imparting instruction; the order and discipline under which they are brought, should be a *model* of the order and discipline which they should require in their own schools; and the lectures on the theory and practice of education might fairly supplement what could not be brought out in the daily routine of a Normal School.

These advantages, we unhesitatingly say, speaking from experience, are infinitely greater than any benefit which a few lessons taught in a Model School can confer.

Now, following out this idea, we would not hesitate for one moment to advocate the *experiment* of a Normal School *without* the usual accompaniment of a Model School. We would entertain not the slightest doubt regarding its success, and should the Legislature see fit to pro-

vide the "way and means" for such an experiment, we would gladly accept it, feeling confident as to the result. We trust, however, not to be considered as hostile to a Model School. We believe the one now existing is a great boon to the city in which it is situated, as well as to the country. The mental training and general discipline are of a very high order, but we believe, at the same time, that it is of far greater benefit to the pupils who attend it than to the students who make their first feeble and nervous attempts to "teach the young idea how to shoot" within its walls.

TEACHERS' INSTITUTES.

Our professional readers can have no doubt regarding the propriety of immediately establishing County Teachers' Institutes.

This has already been pretty fully discussed in a former issue; and if any doubts were entertained as to the benefits to be derived from such institutes, they must

have been entirely set at rest by the great success attending Dr. Sangster's efforts in this direction. The details of the scheme we have already discussed, and we only hope that before many months pass an Inspector of Teachers' Institutes will be appointed, and the scheme fairly set in motion. Its success will depend in a great measure on the tact and ability of the Inspector, and we sincerely trust that no person will be appointed who does not bring to the discharge of such important duties a judgment matured and tested by long practice and experience as a teacher.

In passing the various matters connected with school legislation through the House, we trust due attention will be paid to what is practical, and that nothing of a nature calculated to impair the work already done, or mar its usefulness will be entered on our Provincial Statute Book.

SCIENCE TEACHING.

BY WILLIAM TYTLER, ESQ., HEAD MASTER ST. MARY'S HIGH SCHOOL. READ AT THE PERTH COUNTY TEACHERS' ASSOCIATION, SEPT. 19th, 1873, AND PUBLISHED IN THE "ONTARIO TEACHER" BY REQUEST.

It is quite unnecessary for me to occupy valuable time in enlarging on the manifold advantages of the study of Physical Science. Such a course might have been proper enough in years gone by, when men had not yet shaken themselves free from the trammels of the old, and time-honored system of their fathers, the study of books, and nothing else; when the people had not yet awakened to the fact, that there was, in the material world spread around them, a volume of knowledge, vast and precious, which had hitherto remained a sealed book.

In this age of Science no words of mine are needed to convince any assembly, least of all, a body of Teachers, that Natural

Science has urgent claims on the attention of all thinking men. A knowledge of the physical world, and of the mighty, though it may be silent revolutions which are certainly being accomplished there, is now recognized as an indispensable part in the circle of education. The world of nature touches our life on all sides; wherever we turn, we are brought face to face with problems of vast interest and of the most vital importance to the welfare of the human race. In almost every calling in which man engages, the laws of nature in their operations confront him, and for his soul to be without some knowledge of them is emphatically "not good."

Equally unnecessary it is, I trust, to ad-

vance any arguments in favor of beginning, in our Public Schools, this course of instruction to which, to some extent, and at some period of his life, every man must attend. I address a Teachers' Association, and I am much mistaken if there is a teacher in that, or any other Association, who has given even a very limited amount of serious attention to the subject, who is not thoroughly convinced that the children of our schools should have some scientific instruction. Even the most conservative of Educational Institutions, are following, though sometimes with apparent reluctance, and a lamentable lack of zeal, in the new paths; and are devoting some amount at least of the faculties at their command, to this important end. We in Canada have come to the same conclusion. Our Educational authorities have decided that an elementary course of instruction in Physical Science shall form part of the work of every school, and that no boy or girl shall go forth from our class rooms to take a place in the world of work, in absolute ignorance of the great facts and laws of Nature.

Were I addressing an assembly of parents and guardians, it might not altogether be a work of supererogation to attempt to demonstrate to them the advantages of such a course, and to reconcile them to what many of them are too apt to regard as an unwarrantable and mischievous innovation. There are to-day, I am persuaded, sensible people, occupying comparatively high positions in the communities to which they belong, who consider it as the merest waste of time, that their children should be compelled to study such new-fangled subjects in Physiology and Botany, and who look upon it as of infinitely more practical benefit, that they should be taught the intricacies of ancient history, the multitudinous meanings and shades of meaning of the Greek preposition, or even the endless or contradictory genealogies of the old mythologies, than that they should know anything of the func-

tions of the lungs and heart, or understand the composition of the soil in which, it may be, they are destined all their lives to labor. They would look with more than suspicion on the conduct of the teacher, who was bold enough to take his pupils to the woods to give them a practical lesson in plant life, or to the quarries to explain to them the formation of the crust of the earth. There would be complaints, many and loud in regard to the waste of time, and the unconquerable desire of teachers to escape from the proper fulfilment of their duties.

If science must form part of the curriculum of studies for their children, they decidedly prefer the system adopted by Mr. Wackford Squeers, at Dotheboys' Hall, and are confident that their boys can acquire sufficient botanical information, by collecting specimens of the subterraneous stems of the potato, or making transverse sections of exogenous trunks with a buck saw.

I had, a short time ago, in my possession, a note written to a teacher by an enraged parent, who protested against his daughter being taught the rudiments of Chemistry and Botany, as he was convinced that a knowledge of the Chinese language would not be more totally and absurdly valueless.

Now, such opinions are by no means so uncommon as might generally be imagined; neither are they, looking at them from a certain point of view, so egregiously absurd, as we are at first induced to regard them. If such departments of Natural Science, are just to add another to the already enormous number of books to be purchased by a poor man for his children; and simply to be learned from the book "as a spelling lesson, or a multiplication table is learned," then, I am much disposed to commend the good sense of a parent who objects to the further increase of his child's studies, provided, always, be it understood, that he objects on the right grounds.

But I speak to teachers, and I take it

for granted that we are fully influenced by a deep sense of the exceeding value to be attached to a true knowledge of even the elements of Physical Science, and that we are anxious to impart in the best way, that instruction which it is our duty to communicate.

The circle of Scientific knowledge has a mighty sweep, and we cannot hope to follow its circumference to its whole extent. The labor of a life time, and the mind of a Newton are not sufficient for this.

What then shall we teach the children in our schools? It is manifest that but a limited corner of the extensive field can be explored. The time at our disposal is but brief; the capacities of our pupils are not highly developed. A selection must be made carefully, and judiciously, of some two or three subjects, which may serve to impart some elementary ideas of the true ends and methods of scientific study.

And this is one of the most important considerations; that rather than endeavor to make the children, who come under our influence, perfect in any one or two branches of science, our efforts ought rather to be directed towards a more general result, that they may have some acquaintance with the general plan of scientific research, that they should thus be introduced to the system, which they will have to employ, in the study of any department of physical science.

It is, I believe, an acknowledged fact, that few, if any, who, after the usual course of Public and High School education, devote themselves to any pursuit, in which a knowledge of what may be called "The Scientific Method" is required, are in the least acquainted with this method. They are thus under the necessity of spending valuable time in learning what they ought to have long before acquired "the learning how to learn."

The methods of scientific study are substantially the same in all the departments

of science, and it is to the acquirement of these methods, that, I believe, the pupils of our schools should be most carefully directed, in order that minds may be early moulded in the proper bend, and that they may be taught to make the best use of the powers and faculties with which they are endowed.

Teachers, however, are not required to select the branches of science which they are to teach to their classes; that selection has already been made for them by the Council of Public Instruction, and it is for us to consider in what way we can best carry into effect the programme prescribed. I regret that, in framing this programme, more attention has not been given to what may be termed a general consideration of natural phenomena, something of the nature of Physical Geography in its most extended sense,—that *Earth Knowledge*, as it has been called, which forms so prominent a feature of Elementary instruction in Germany, and other parts of the Continent of Europe. I can conceive of no subject more fitted, at once to call forth the liveliest interest on the part of the pupil, and at the same time—no unimportant matter—to dispense, almost, if not altogether with textbooks. Any one who has had the slightest experience with young children must be aware that their expanding minds are ever eager for information, about all the various natural objects and appearances that surround them, and are constantly obtruding themselves on their notice. The sun and the stars, the winds and the clouds, the hills and the streams, are all problems that demand solution, and the child's questions betray the intense interest which they awaken. It is true that by the course of training adopted by the great majority of parents, and it is to be feared of teachers too, this interest is speedily checked and weakened, till ere long it is almost totally extinguished, but this is a lack of interest—a stupidity as some call it—which as it

has been well said— "*fit non nascitur.*" "*It is made not born.*" By a steady course of repression, the youthful mind is taught that it is beneath the dignity of humanity to betray or even to feel any interest in such common things; and that the only subjects worthy of consideration are those items of information which are to be found in books. The fatal error gains a lodgment that there is a total and absolute separation—a great gulf fixed between the study of school lessons and matters of every-day life and experience; that school work is something as entirely apart from—shall I say common sense?—as the adventures of Sinbad the sailor are from the records of Captain Cook's voyages.

Now I am persuaded that there is no teacher, however inexperienced, who could not, with even the youngest children in our Public Schools, make this interest in common things a basis for a real scientific education, and that without the aid of a single text book. The experiment has in other lands been eminently successful, and this very work is to-day being accomplished in thousands of elementary schools.

Object lessons are, I believe, intended to supply something of this elementary training, but I would like to know in how many schools in this county these are efficiently conducted. It is true, they are in some sort prescribed for the junior classes, but I fear they, to a great extent, remain conspicuous by their absence.

The present programme of school studies has now been for a considerable time in operation, and I have no hesitation in saying that the great majority of our teachers have earnestly and faithfully endeavored to carry it out. The difficulties in the way of doing so are, as you well know, numerous. I am not, at present, going to enter upon the question of whether it is or is not too extensive. I hold very decided opinions in regard to this point, and I have already expressed them in this Association. We

have at present to deal with only one department—that of Natural Science, and the question which naturally arises, seeing that the Programme has now been a considerable time in force, is, "Has science teaching in our schools been a success?" I am afraid the answer must be "No." From what I have personally observed, as well as from what I have heard of the experience of others, I have no hesitation in giving this reply.

The introduction of Natural Science into the Programme of Common School studies two years ago was hailed with general delight, and the highest anticipations were entertained as to the beneficial effects it was destined to produce. Where are these glorious results? To me, at least, they are invisible. I utterly fail to see in any school with which I am acquainted, personally or otherwise, any practical acquaintance with the objects of the natural world, any original and actual research, in a word—any teaching of science properly so called. In all, or nearly all the schools of which I have any knowledge, I find lessons going on in Chemistry and Botany, Physiology and Zoology, plenty of catechism on these subjects—questions propounded from a book, and answered from a book—second-hand information. But I need not tell you that if you call that teaching science, you make a great mistake.

It is not, I think, on hasty or insufficient grounds that we are led to the conclusion that this department of Public School work has been a failure. My own experience it is true has not been very extensive, but I have taken considerable pains to elicit information on this head from the teachers of my acquaintance. I appeal, moreover, to the (as far as they have mentioned the subject,) universal verdict of Inspectors. Further, I appeal to the Council of Public Instruction itself.

You are, doubtless, well aware that the

subjects prescribed for the examination of candidates for admission to High Schools and Collegiate Institutes, are those of the first four classes of the Public School Programme, and that in the third and fourth classes are found, under the heading of Natural Science, the "elements of Chemistry and Botany," and a "general view of the Animal Kingdom." Now, so thoroughly convinced are the educational authorities at Toronto of the melancholy fact that these subjects have not been taught to any advantage, that, in the lately issued regulations in regard to the admission of pupils to High Schools, they have thought it right and fair to dispense with that part of the list of subjects which relates to Natural Science. This, I take it, is a sufficiently plain acknowledgement that the pupils in our Public Schools are not in a position to pass an examination in these subjects. And that this is the true state of matters, no one conversant with the subject will, I believe, be disposed to deny.

We are naturally led to inquire, "Why this failure?" It is a pertinent question, and deserves the earnest attention of every one who considers it important that more elementary instruction in Physical Science the great characteristic of the present century—should form part of the training of children in our schools. The teachers, as I have already said, have, I am sure, done their best, and the blame cannot with any justice be laid on their shoulders. But the fact is, and it is more than useless to keep it out of sight, that there has been and is very little science teaching in our schools, for the simple reason that the teachers have not themselves been taught in the right way, and have no real, living knowledge of these subjects. Now, it would be as unfair to blame the teachers for this as to blame them for not being familiar with Sanscrit. They have had no opportunities of learning how to teach. It seems to be taken for granted that because the books

which treat of Botany and Physiology are written in English, that, therefore, any one who can read can acquire a competent knowledge of these and similar subjects by a perusal of the text books. Other branches of knowledge a man may learn, many of them he must learn from books; Natural Science never. It is true that there is no more difficulty in memorizing a series of facts connected with Zoology or Chemistry than there is in committing to memory the names of the sovereigns of England, with the dates of their accession. But a million of such facts thus learned from text books do not increase the man's actual knowledge of the world in which he lives, at least not in a way to do him any good. What he knows of things in the natural world, must in order to have any abiding effect on his mind be taken on no man's authority, but must be learned at first hand. Nature herself must be his instructress, and her penetrating vital power must make itself felt in his inmost soul, ere he can really be said to know anything. What preparation have the vast majority of our teachers had in this department for the work of instruction? How many of them—rather how few—have ever had any opportunity of studying science practically? In how many of the schools in which these teachers received their own instruction did the real study of nature form part of the curriculum?

In regard to the minority of our teachers who have received their training at the Normal School, I am disposed to speak with great diffidence. Having had no practical experience of that institution, I cannot speak with any certainty as to the nature and extent of the instruction imparted in scientific subjects. From what I have learned from students trained within its walls, I should, however, be inclined to believe that, there too, the text book method is that chiefly employed. Certainly, judging from the results as manifested in the

Public Schools under the tuition of Normal School teachers which I have had any opportunity of observing, it does not appear that any other method has, to any great extent, been adopted. However this may be, I think all will agree with me that it is in our Public Schools, and in our lower classes that this work must commence, if we are to have in future years, I will not say every man and woman of the land trained in scientific thought, and scientific methods of study, but even that comparatively small number so trained, who are to act as instructors of the next generation.

In the meantime, book-work is the fashion, and who can blame the teacher if he continues to perpetuate the system under which he himself was trained.

The plague of text-books I do most sincerely believe is heavily oppressing our schools, and to a great extent impairing their usefulness, not only in the department now immediately under consideration, but in all departments. Daily do we see children of tender age proceeding slowly school-wards, bending beneath the dreadful burden of books. Let any curious individual take the trouble to count the volumes in the satchel of some child of the 4th or 5th class in one of our schools, and if the pupil faithfully brings home his whole stock for home preparation, it will be found not unfrequently that his books are more in number than his years. It is to be feared that, with all our immense educational advantages, with all the boasted means and appliances of this 19th century, the thoroughness of teaching is not so infinitely superior to that of our fathers as we complacently imagine. There is too much book; that is, second-hand information, and too little mind, put into all our work. Book teaching is easy for the teachers, and I confess the temptation to do easy things is often too hard to conquer. This style of teaching requires no special faculty, or even effort. It is not a task of any diffi-

culty to apportion so many pages of text-book for a lesson, and to listen next day, book in hand, while the class recites it, but who does not know that this is not teaching. It may be "keeping school."

This kind of work is bad enough in any department, leading as it inevitably does to what has been called the great evil of the present day—want of thoroughness. Even when the knowledge of the subject can be derived only from books, such a course is attended with evil results, but when we come to matters of science, its injurious effects can hardly be adequately expressed. The pupil, after a wearisome grind on the dry and sapless pages of the text-book, learns along with the miscellaneous collection of dead facts, which is dignified with the name of science, an utter distaste and hatred of the whole system, which do credit to his instincts. His aim, in which he is generally exceedingly successful, is to forget it all as soon as possible.

I shall now, as briefly as the subject will allow, refer to the various branches of scientific study prescribed for the instruction of pupils in our High and Public Schools.

The first subject on the Programme is *The Animal Kingdom, Zoology*, which is prescribed for the fourth class in the Public Schools. As I have already said, I think it would have been wise had some more general subject been chosen, as an introduction to scientific study. This introduction has to be given previous to the instruction of the class in any branch of physical science, and although it might be commenced in the lower divisions, I am of opinion that, not at least till a boy has been promoted to the fifth class, should he be required to engage in the study of systematic Zoology or Botany. But this matter is decided for us; and what we have to do is to endeavor in the best way to carry out our part of the work.

It must be evident, I think, to every practical teacher that it is quite out of the ques-

tion to go over, in a way even approaching to completeness, the whole area of the Animal Kingdom, not even in the comparatively general way in which it is traversed in the authorized text-book.

If, as I believe it is pretty generally done, the teacher faithfully pursues the classification and sequence, as given in the book, and labors to impress it all on the mind of his pupils, the result will be, either that they will get down to the *Protozoa* without knowing anything of the subject, or that they will never get past the *Vertebrata*. It all depends on the conscience of the teacher.

There must be some general plan formed at first by which the teacher will be enabled to embrace the whole subject in a connected view. As soon as the pupil thoroughly comprehends the distinction between *organized* and *unorganized*, he must be brought to separate as far as possible the *Animal* and *Vegetable* Kingdoms. As the distinguishing features in the higher types, with which alone it can be expected that he is familiar, are broad and strongly marked, this should be no difficult task; but it must ever be kept in mind that this elementary work is to be actual learning—the result of the pupils' own observation, and not a mere getting it up from the text-book. Let the teacher himself clearly understand his subject, study it out carefully, under the guidance of a book if necessary, from actual inspection of typical forms, and he will have little difficulty in communicating a clear idea to his class. This may be done to much greater advantage and with much greater facility by means of specimens, and when these are not obtainable, by black-board illustrations.

Before proceeding to consider the great divisions of the Animal Kingdom, it will be necessary to give the class some idea of the general nature of scientific classification. No better opportunity can be found for introducing this most important part of

scientific work. It will not be difficult to point out by familiar examples the common tendency of superficial observers to classify animals from external characters and outside appearance. As for example the almost universal custom of calling the great majority of animals living in the water fish. As the Newfoundlanders indeed maintain, seal ought to be understood by the Washington Treaty.

The true basis of classification must be carefully explained to the pupil; that it is the general plan of structure, that must decide the student to arrange in classes the infinite variety to be found in the animal world. In explaining the points of agreement and difference of the various sub-kingdoms, the teacher must be careful to notice that the pupil's attention is called repeatedly and pointedly to some actual and familiar animals. It would not in any school be very difficult to preserve specimens of some typical forms of at least the four principal sub-kingdoms. The more actual contact there is with specimens, the more thorough will be the knowledge acquired:

A skeleton of a bird or fish is not very difficult to obtain, and this would at once impress on the minds of a class the essential characteristic of vertebrate animals. In the same way a common crawfish, or a caterpillar, or a beetle, would serve to give a more definite notion of articulated structure, than could be obtained from pages of instruction; or even from the most finished and highly colored drawings. Molluscos types are as easily procurable, and the general plan of their structure may be accurately and speedily taught from the inspection of the actual specimens, assisted by black-board illustrations.

As far as the lower sub-kingdoms are concerned, the difficulty of procuring examples for exhibition in the class-room, is in country districts especially, much greater than in those which we have already

considered. There are, however, I believe, few teachers who cannot in some way procure a specimen of *Star fish* or *Echinus*, in order to enable their pupils to understand the peculiar arrangement of parts which gives its name to the *Radiata*. If such specimens are beyond the reach of any teacher, drawings will have to suffice, and the interest of the class might be greatly increased if some of the lively accounts of these and kindred types by such writers as Forbes or Agassiz were read to them.

The animals not embraced in these four sub-kingdoms may, I think, in our Public Schools be dismissed with a very few words. In ninety-nine cases out of a hundred it is impossible that they should be studied in the right way, and their classification is in such a confused state that it would probably be better not to burden the minds of children with anything further than the merest outline of the relations of Protozoic forms.

(To be continued.)

HINTS ON CONDUCTING RECITATIONS.

READ BY J. MILLAR, B. A., HEAD MASTER OF ST. THOMAS HIGH SCHOOL, BEFORE THE ELGIN TEACHERS' ASSOCIATION, NOV. 8TH, 1873.

The public are not slow in forming their opinion of the teacher's worth. An estimate is sometimes formed of the ability of the teacher when no satisfactory test has been applied to show whether blame or praise is due. There is one position in which every teacher is placed that furnishes a fair means of determining his value to the profession. This position is assumed in conducting a recitation. It is here that the information possessed by the teacher is called into requisition. It is here that the deficiencies of the pupils prove his patience, and demand all the tact that he can employ to keep up the necessary interest in their duties. Should he fail here, there will be little prospect of his succeeding in his calling. Important as it is to secure good order in a school, it should never be forgotten that the end to be attained is secondary to that of securing good recitations.

There may possibly be found a rare instance of a good disciplinarian failing to make good scholars, while possessing sufficient education himself. It would be a difficult task to find a person unskilful in

managing recitations, at the same time successful in raising a school to a high state of efficiency.

As the first essential in conducting a recitation it is evident that the teacher must make himself sufficiently acquainted with the subject to be taught. No one can teach another what he does not understand himself. The better educated person will, other things being equal, become the better teacher.

It is not enough that the matter of the text book should be the limit of the teacher's knowledge. This, and more, he expects to communicate to his pupils, and should as a consequence have more extensive information himself. To ask questions from the book, or to depend on the book in determining whether answers are correct or not, is far from teaching. The subject should be made known to the pupils, and not the books alone. The teacher should have the subject divided and subdivided in his mind in a logical manner, and be able, in fact, to write a text book for himself. Each lesson should be arranged as to matter in the manner in which it is to be taken up. A definite idea

should be formed of the questions to be asked and information given. It would be unwise, and especially in the case of the young teacher, to trust to the inspiration of the time of recitation. Much time may be lost in giving clumsy questions, or confusing explanations of unimportant points. Each question and each explanation should have a definite aim. The great Dr. Arnold confessed he never taught a lesson to his own satisfaction unless he had given the subject special preparation for the occasion. The skillful physician, the shrewd lawyer, and the wise clergyman never forget to make sufficient preparation for the duties of each day. In like manner the teacher who is awake to the interests of his pupils will not neglect employing every means within his reach, in order the better to discharge the duties of the school.

When seats are arranged in a separate part of the room for the pupils who recite care should be taken to prevent all irregular movements in coming to and removing from the positions assigned. Interruptions by scolding, striking the desk, or inflicting punishment for rules violated, should be guarded against. Should the teacher find it necessary to employ punishment, it will be far wiser to attend to the matter after school hours. When the circumstances of the case are considered calmly, there will be far more probability of acting with judgment and discretion.

In commencing a recitation it may often be desirable to draw attention to what has been previously explained. The mode of teaching should not consist entirely in giving questions, nor would it be wise to have the time solely occupied in explanations by the teacher. A wise plan would be to have a mixture of both. With young pupils especially, the questions and explanations should be interspersed. In no part of the recitation should the teacher proceed while there is inattention from any of the pupils. It is scarcely necessary to

state that no language should be employed by the teacher which he would not wish others than his pupils to hear. There is no reason why improperly prepared lessons should give rise to such ungentlemanly expressions on the part of the teacher, as would lower him in the estimation of his pupils. Let his words and actions be such as will gain their respect, secure their confidence, and cause them to regard him as their friend.

An explanation should never be given until the pupils are prepared to receive it. Let the curiosity be arrested by a few questions timely put, and where there is a manifest desire to receive information, the judicious teacher will find little difficulty in giving instruction with effect.

In every recitation it should be the object of the teacher to satisfy himself of the extent to which the pupils have prepared the lesson assigned. In connection with this there should be some mode adopted for recording the manner in which each lesson has been prepared by each pupil. To do this while the teaching is going on would be very unwise. The teacher should keep himself free while conducting the lesson. Little enthusiasm can be found where the teacher attempts to mark for each question put. After the recitation is over the pupils making no mistakes can be called upon to stand, and a credit mark recorded opposite to their names in a book suitably arranged for the purpose. Care should be taken to have each pupil answer in a manner that can be understood by the other members of the class. Each pupil should, in fact, be regarded as an assistant teacher, so far as his answer may be instructive to the class. A great deal of the success of the teacher will depend upon his tact for giving suitable questions. It is most discouraging when questions are given that have little or no connection with the subject to be prepared. It is equally discouraging when they are

put in such a manner as would puzzle a philosopher, much more a child, to understand what is meant. They should not be so easy as to require little thought, nor so difficult as to go beyond the capacity of the pupils. Often questions are such as depend on the memory alone, and as a consequence, the cultivation of the reason is neglected. Such teaching frequently becomes a mechanical process of hearing the pupils recite the words of the book. Except, perhaps, in the case of definitions and the like, the pupils should be encouraged to give their answers in their own language.

The questions should be given in a systematic order. Nothing so clearly shows a deficiency in a teacher as asking questions in an illogical and disconnected manner. In the case of young pupils the questions should generally be such as require direct answers. In no other way can the same amount of interest and animation be kept up. It would, however, be a great mistake to adopt this method to the exclusion of all others. With advanced pupils, it will be well to give occasionally questions that require extended answers. The Topic method, as this is termed, may be adopted with great advantage in teaching such subjects as History and Geography.

The order in which the pupils of a class should be called upon to answer questions is of the greatest importance. Various methods have been long in use, each of which has its advantages and disadvantages. Answers may be required orally or in writing. Oral answers cannot be dispensed with, but as soon as pupils become sufficiently advanced, written answers should sometimes be required, and written exercises brought in each day. If this were adopted to a larger extent in our Public Schools, there would be much more accuracy and less carelessness. A great deal of the frightful spelling would disappear, and there would be fewer instances of pu-

pils failing to answer on paper what they are said to understand.

When oral answers are required, it will, in most cases, be advisable to adopt the promiscuous method of giving questions. Each pupil should regard every question as his own, and be prepared to answer it if required. By this plan the teacher is left free to put the question to any pupil he pleases, and if he is wise, it will be given with the design of having the best effect on the class as a whole. The questions should be given in such a manner as would show no injustice to any member of the class. The most backward pupils should receive the greater number of questions. When the teacher has been successful in getting these to understand the subject, there will be little danger but that the more advanced will understand it as well. When a pupil of the class is inattentive, the skilful teacher will not fail to give the question to the careless one, and thus restore order. This will answer the purpose better than calling upon him in thundering tones to pay attention, or cuffing his ears for daring to refuse to listen to a teacher, who may, perhaps, be deficient in creating an interest in the subject. When the promiscuous method is adopted, the pupils are more likely to prepare the whole lesson, and give attention while the recitation is going on. While it is upon the whole the best method of giving questions, it should not be slavishly followed. The skilful teacher should know when to depart from it and adopt any other system. When the interest appears to flag, and answers are difficult to obtain, the simultaneous method may be adopted. All the pupils who think they can answer the question may be called upon to stand, or they may be requested to answer together. A few questions given in this way may often throw new life into a class, and the usual mode of putting questions may be resumed. It would be unwise to depend too much on

the simultaneous method. When all may answer who wish, too many may wish *not* to answer. When, however, the more careless are the more likely to receive questions, there will be a powerful agent assisting the teacher in preserving order. It may be said that by the promiscuous system much time is lost in waiting for answers which could be readily given by others of the class. In reply to this fair objection, it should be recollected that it is often desirable to afford some time for thought before an answer is received. A teacher well acquainted with the respective attainments of his class will know from whom an answer may be expected. It should also be borne in mind that the success of the recitation does not depend upon the great number of questions given. In point of fact the teacher may have very little delay, if no time for consideration is required.

Occasionally it may be wise to employ the consecutive mode of questioning. This plan may be adopted with considerable advantage in small classes of young children. With older pupils, when a certain order is adopted, many may not give attention, except when it is their own time to answer.

Should the consecutive method be used, it will be wise to employ the promiscuous system in connection with it. Sometimes it will be an advantage to call upon a pupil to state what he knows of a subject, or to answer a series of questions. One of the more advanced pupils may in this way become very serviceable in imparting instruction to the more deficient.

Considerable attention should be given to the manner in which the pupils answer the questions. They should be expected to stand while speaking, and observe a becoming posture. No disrespectful mode of speaking should be tolerated. No credit should be given to a pupil for any recitation where improper attention has been shown.

Care should be taken that the answer is such as the question demands. When it is incomplete or partly wrong, defects should be pointed out and corrections made. All ungrammatical language used in answering should here, as elsewhere, receive the necessary attention from the teacher.

It will often be necessary in conducting a recitation to guard against causing the pupils to become discouraged. The youth

of the pupils should not be forgotten, nor too much expected from their immature minds. Habits of permanence and self-reliance should at all times be inculcated. The teacher should sympathize with his pupils in all their difficulties and lead, rather than drive them on to roads of knowledge and means of influence. He should endeavor to preserve uniformity in all his actions, and in governing his school evince the power of governing himself. He should strive to obtain pleasure in his work, and exhibit as little as possible unhappiness of disposition or irritability of temper. Is it not often that the difficulties which the teacher finds in conducting a recitation may be traced to himself? How well school duties are managed when the mind of the teacher is undisturbed! And is there not much in conducting a recitation to afford the teacher pleasure? In what position in life could there be better facilities for doing good? It is true that the teaching of religious dogmas is wisely no part of the duties of the school. The teacher is not prohibited from giving moral instruction, but rather expected, on every suitable occasion, to implant the principles of justice, honesty and truth. Does not the time of recitation afford a means of accomplishing a great deal in this way?

The school is to the teacher what the studio is to the skilful sculptor. It is there he tries to repair the defects and restore the image of the original. He is a highly privileged man who can say, "In my youth I had a good teacher," and much is he to be deplored who can only say the opposite. Let not the teacher be discouraged. He may feel dissatisfied with what he has accomplished, and lament that he is not better adapted to his work. His best motives may be misunderstood and his brightest hopes often dashed aside, but he may have what is of far higher value, the consciousness of having done his duty. He may cherish the hope that his labors may not be in vain, and good effects may eventually result from his actions. While satisfied that the principles which he strives to impress on the minds of his pupils must eventually effect their happiness, it is in his power to enjoy the proud satisfaction of feeling that his example and precepts tend to advance the principles of Him who came to extend peace and good will among men.

PUBLIC SCHOOL "TEXT BOOKS."

BY H. DICKENSON, TEACHER, BRANTFORD.

(Continued from December No.)

The remedy we suggest against such abortive attempts at book-making as have been imposed upon us of late is: If we can get a Council of Public Instruction, which shall not be composed almost solely of clergymen, selected apparently for no other purpose than the conciliation of the various sects which they represent—if we can get a Council that shall combine in one harmonious whole, a representation from each of the three classes engaged in practically carrying on the work of education in the land—then let this Council be the authors and compilers, as well as authorizers, of our Text Books. We propose, in the third place, to direct the attention of your readers to our "Text Books" on English Grammar, which are anything but satisfactory. Dr. Sangster stated at one of his Institutes, recently, that the "fittest place for them was at the bottom of the sea." To this fact we must attribute the apathy and disgust with which the study of this branch is looked upon by the rising generation. Grammar being a branch of the philosophy of mind, and its natural place being between language and logic, nothing can be more absurd and preposterous than the generally prevalent method of attempting to teach this abstract subject in our schools by making pupils commit to memory definitions, rules, and a cart load of technicalities, which to them are nothing more than a collection of unmeaning sounds. In the construction of our Text-Books on Grammar—the introduction to the elementary excepted—the compiler, instead of giving us any improvement on older Text Books, seems to have done everything to make it as intricate and confused as possible. He must have sat at a circulating table, swung from the ceiling, with the "works of Dalgleish, Angus, Fowler, Mulligan and others,"

of which, he states in his preface, he has made free use, vibrating around him, selecting here a little and there a little, as the spirit moved him. We have given us definitions, (the definition of the Relative Pronoun for example,) general rules, exceptions to these rules, exceptions to these exceptions *ad infinitum*, declensions and conjugations, profusely scattered over every page, all of which, of course, must be crammed, *verbatim*, like a mass of rubbish into the memories of the little urchins, although they should not attach a single correct idea to such scholastic exercises. If the *Grammars* we speak of were not authorized—were not, in fact, the only Provincial authority that we have on this subject, we might *refrain* from criticism, but seeing that such is the case, in justice to ourselves—in justice to our pupils—and last, though not least, in justice to the *Queen's English*, we dare not pass them by without lifting up our "Ebenezer" in condemnation of the insufficiency of sense and super-abundance of nonsense crammed within their surfaces. The compiler condemns the practice of employing examples of False Syntax in teaching grammar. And yet in his book we need go no further than the preface to find, not only gross blunders, but inaccuracies, inelegancies sufficient to stamp his practice beneath his profession. He is inconsistent. He teaches one thing by theory and the reverse by practice. He says his "False syntax is in an Appendix," from which we must infer his whole book is an appendix. Let us illustrate. In deviation from Bullions he says, "such deviation has not been made without DUE CARE and attention BEING PAID to conflicting opinions." Who ever heard of *care* being *paid*? We have heard of *care* being *taken* and *attention* being *paid*, but certainly we

do not *pay care*. Again, in the expression, "In laying before the teachers of the Province a *new work* on English Grammar, it may not be out of place to say a few words respecting *this particular* treatise," the worthy compiler evidently refers to the same thing, but common sense would lead us to infer that two things were referred to. Again he says, "Free use has been made of the *works* of Dalgleish, Latham, Fowler, &c., and the editor (?) gladly avails himself of the opportunity of acknowledging the valuable assistance which he has received from their respective grammars." Such murdering of English. The "works" may mean works produced by these men unitedly, whilst the evident intention of our worthy compiler is to refer to each individually. Of all the works of the individuals referred to—one of whom boasts of the number of books produced by him as being second to none in the language—either the grammars of each are the only works worthy of the name, or are the only ones worthy of thanks. Nothing can be more simple than the English verb, which has only two or three varieties in its termination. Yet we find the compiler of our Authorized Text Book taking up no less than 75 pages discussing this part of speech. Notwithstanding nature and common sense point out but three divisions of time, he introduces six. On the same principle on which he admits six tenses, he might introduce nearly double that number. It is quite possible to make a child understand that an action was performed at some past time, is being performed now, or will be performed at some future period—that the present is where the past and future meet, but it is absolutely impossible to convey to the mind of the child a clear idea of any more than these three, although a hundred distinctions and definitions should be crammed into his memory. A disposition to introduce quibbling and useless metaphysical distinctions has been the bane of theology and one of the causes of division in the Christian church. A similar disposition has rendered grammar perplexing and uninteresting to young minds, and prevents them from understanding or appreciating its nature and general principles. By attempting too much—by gorging their memories with all the distinctions, modifications and rules the compiler has seen fit to inculcate, he seems to have produced a dis-

gust at the study more than any of his predecessors.

On page 30, "both of an adjective and a verb" should be "both of an adjective and of a verb." An error of the same sort occurs in his preface, where he says, "Many valuable hints have been gathered both in this and other parts of the Grammar from Morrel's excellent treatise." Should it not be, "both in this and *in* other parts," and would not the sense have been more readily arrived at if the "have been gathered" followed the word "Grammar." On the second page of the preface would not "commend themselves to both teachers and pupils" be more nearly correct if read "commend themselves both to teachers and to pupils." Another objection is the giving of two, and sometimes three sets of definitions instead of a uniform set for both books. In graded schools this is especially a grievance, and one that should be removed. In the "introductory" a conjunction is a "sentence joining word," while in the "Analytical and Practical" we find it moderated into "a word which shows the particular manner in which one part of a sentence is joined to another." A note after the latter further informs us that the primary use is to connect two affirmations—that it sometimes appears to connect two words, but a little examination will shew that it has two propositions. Let us enumerate. I. A conjunction is a *sentence joining* word. II. A conjunction is not a *joining* word, but that it shows the *particular manner* in which the joining is done. III. A conjunction does not show the particular manner in which *sentences*, but *parts* of sentences are joined. IV. A conjunction's primary use is to connect two affirmations. V. A conjunction sometimes appears to join words. VI. A conjunction joins two propositions. Are the "six" all right or all wrong. The first is absurd, ridiculous, and very amusing in such a sentence as, "Two and three make five." Would he say two makes five and three makes five, or would he say two is a part of five, and three is a part of five, and together they make five. The definition will suit such a sentence as he uses as an example—"Charles and Mary survived William," but just change the words "survived William" into "are brother and sister," and what will be done? Or Charles and Mary make a pair, or Charles and Mary carried

fifty pounds, or sang a duet, or are a contented couple, &c., and yet we are directed to instil such absurdities into the mind of the youths. One would hardly imagine we lived so near the close of the nineteenth century. Here is one of his deviations from Bullions. Orthography treats of the *sounds* of letters and the mode of combining them into syllables and words, (*with a view to their being correctly spelled.*) The words italicised are original. Spelling *sounds*, forsooth! Printing sounds of letters into syllables and words. What relation do the sounds of the letters c-a-t bear to the word cat? Will the compiler explain?

On page 18, we hear that the "Appositive agrees with its subject in case." It always seemed to us that the subject was that of which something was affirmed, or the nominative to a verb. Yet the youth of the entire Province are here told that the "appositive" has a "subject." At the foot of the same page in a note is, "The rule respecting the appositive will also apply to the *other* cases." We are told that the noun has three cases, nominative, possessive, and objective. Now, we are told that the appositive must be included. We are told that the noun has but one case,—that the pronoun has three cases—that the objective is not a case—that the possessive is a real case—that position is case—that case is an inflection—that it is a relation—that case is indicated by change of form—that case is indicated by difference of opinion. *Which and how many* of the foregoing are we to believe? The lesson on case in the grammar must cause us to conclude that the compiler is a *great* case. What is said in reference to person is equally ambiguous and perplexing. I. We are told that the inflections of the noun are number, gender, and case. II. Nouns have three persons. III. A noun by itself is impersonal. IV. The third person may belong to all nouns. V. Person properly belongs to the pronoun. VI. The first and second persons can belong to nouns denoting persons. VII. The subject of a verb, if a noun, must be in the third person. VIII. A noun in the predicate is generally in the third person. IX. The verb agrees with its subject in person and number. X. A pronoun must agree with the noun for which it stands in person, gender and number. To reconcile the foregoing *ten* statements would be a herculean

task indeed. Irregular verbs are those which do not form their past tense in the indicative active and their participle by adding d or ed to the present. Hundreds of such verbs could be enumerated, and yet the author can find but two really irregular verbs, viz., am, was, been, and go, went, gone. Will some one rise and explain how we are to distinguish between an irregular verb and one that is REALLY irregular. Abstract nouns when personified are of the feminine gender. How with "Virtue is its own reward?" Must we say, "Virtue is her own reward?" How beautiful! However, in the second edition, this is rectified by inserting "generally" after "are." Note to paragraph 36 says, "Children seems to be a double plural." Then of course it must seem to be a quadruple singular. Paragraph 73 says, "a participial phrase contains a participle followed (by virtue of its verbal power) by the objective case, as: "The Earl of Richmond having defeated Richard became King of England." Let us change the active participle into the passive participle. "The king having been defeated at Bosworth lost the crown;" and where is the objective case after the participial phrase? Will some one rise and explain? After he gets through mutilating the adjective into distinctive, definite, distinguishing, proper, participial, &c., we are treated with a note to the following effect: "When any of the words here classed as adjectives are not joined to nouns, but stand instead of nouns, they will, of course, be parsed, not as adjectives, but as pronouns." Of course, then, Canadian, British, good, bad and indifferent must be parsed as pronouns throughout future ages, unless we choose to parse them as nouns, which we have (on the same page) authority for doing. Is it not written that "adjectives without a substantive are sometimes used as nouns, as: God rewards the good, and punishes the bad."

His division of Syntax contains 16 or 18 rules, some of them complete, and in every case accompanied with numerous explanations, distinctions and exceptions, with a plentiful mixture of etymology, as though the tremendously strained memory of the grammatical tyro had not already been sufficiently taxed. Is such a task necessary in the first instance? and if imposed, will it tend to inspire the pupil with a

greater relish for grammatical studies, or render him more accurate in the art of composition. We ought ever to remember that the habit of accurate composition depends more upon practice than upon a multitude of rules, and I appeal to every one who is in the habit of composing, whether in the moment of committing his thoughts to writing he ever thinks of more than two or three of the leading rules of Syntax. A vexed question just now agitating this country is, whether children are not introduced into the study of Grammar too early. I can see some reason in parents objecting to their children learning grammar as it is laid down in our Text Books. I can see some reason for parents objecting to their children being plunged headlong into the difficulties of Analysis and Syntactical rules immediately on commencing the study. On page 21 is a fair illustration. We find there the rule, "The subject of a finite verb is put in the nominative," and on page 24 "the objective case follows an active transitive verb or a preposition." What does our pupil, on commencing the study, know of a transitive

verb or a finite verb either. As grammar is laid down in our Text Books it is level to the comprehension of men, and not children. It is a gross deception that grammar cannot be taught without rules, abstruse definitions, and those cart loads of technicalities to be found ungraciously scattered throughout the books. Instead of trying to bring to the surface every little perplexity and intricacy, every endeavor should be made to keep them hidden as much as possible, until a taste has been formed for the study. By all means let us have less of the *dry* and *abstract* and more of the *familiar* and *conversational*. Let some one confer a blessing upon this imposed upon country by constructing a grammar that will be level to the comprehension of children. We would especially recommend to his notice—first, that a grammar should contain nothing superfluous, and second, everything should be contained in the fewest possible words, both of which seem to have been forgotten by our present compiler, as some of his syntactical rules occupy whole pages.

Concluded next No.

SELECTIONS.

HOW TO TEACH GEOGRAPHY.

Now it is not exaggeration to say that there is no other subject of elementary instruction which affords so great opportunities for mental culture as are found in the proper study of geography. Every faculty of the young mind can find a field for its exercise therein. Geographical forms of one or another kind, as mountains or hills, plains or valleys, lakes or streams, are under the eye of every child, and furnish occasion to exercise most delightfully his powers of observation and expression. With these forms as a basis, and through the aid of pictures, the imagination can be called into play to create distinct mental pictures of geographical forms and regions not within the reach of observation. The

immediate and obvious relations existing between the surface and the drainage, the climate and distribution of vegetation, the natural characteristics of a region and the leading pursuits of its inhabitants, call into healthful and pleasing action the reflective and reasoning powers, establish associations, and in the end give occasion for appropriate exercise in classification and generalization.

At the beginning, then, of the study of text-books in geography, precede the study of each lesson by an oral exercise, the purpose of which is to awaken and direct thought, to enable the pupil to comprehend the subject matter of the next lesson, and to interest him in it. In the succeeding re-

citation, question him not only in regard to his recollection of the matter assigned for study, but especially in regard to his comprehension of it.

Topical recitation as a test of memory, questions as a test of the comprehension, and the preparation of tabular analysis of the subject matter under discussion are all valuable, and should all be employed, the one or the other being employed in testing each pupil according to the habit of mind which the teacher has discovered in him. If one is inclined to memorize and repeat mechanically, catch him with questions on the meaning of expressions used and the relations of facts stated, or require a tabular analysis, which, like a genealogical table, shall show the relation of each separate idea in the text under consideration to all the others. If the pupil has the power and can comprehend readily the habit of thoughtful study, but is embarrassed by a feeble memory, as is sometimes the case, topical recitation will, with tabular analysis, be most profitable for him as a compelling exercise in that direction in which he most needs strengthening.

One more question in regard to method remains to be answered: What shall we do with little children? What shall be the direction of our "first steps" toward geographical knowledge? In our judgment, if the plan just outlined be pursued with the younger classes and every lesson be, as far as possible, explained and illustrated by reference to nature as it exists within the range of the observation, it dispenses with the necessity of any introductory course or first steps, so called. Still usage has made such a course seem necessary to the majority of teachers and the question of its character and purpose becomes an important one. An introductory course is limited as to character, first by the feeble condition in the very young of nearly all the mental faculties and observation, memory, and imagination, and by the necessity of giving to the young pupil something which will be of practical value to him in case he has no subsequent geographical course.

Being obliged to depend mainly on the pupil's power of observation and imagination as avenues to his mind, we shall be obliged to commence with a study of the landscape under the eye of the pupil from day to day for his first geographical ideas, and upon these base our instruction in re-

gard to regions beyond the range of his observation. The attention being directed to the surrounding landscape, a few well-directed questions will enable the pupil to frame simple definitions of the various geographical forms it contains, which definition will henceforth be to him expressive of real mental conceptions, instead of a meaningless form of words, as is usually the case.—After the list of definitions of familiar forms is complete, lessons may be given upon the location of objects in the landscape in terms expressing their distance from the school-room. These lessons may be followed by others upon the climate of the locality. The vegetation most common, whether forest trees or cultivated plants, furnish material for further lessons in the geography of nature.

When the *geography of nature* in the locality is complete, that of man becomes the subject of study and political geography.—The location and boundaries or the different farms, their produce, together with the reason why the one farmer finds it most profitable to raise cattle and wool, while another raises grain and fruits—all have their value in awakening and directing thought in reference to the objects and events about us, and form an excellent preparation for future study.

Finally, the nearest village becomes the text for another sort of lesson. The question, what are these people engaged in? and why have they gathered together at these particular points? answered to the comprehension of the pupil as it may be, because it is open to his own observation, will give the means of hereafter impressing upon his mind the fact that the location and comparative size of cities are not the result of accident. It will thus enlist the intelligence and consequently the interest of the pupil in the study of the names, location and comparative size of cities, ordinarily the least interesting portion of the subject. This sort of work may, at the discretion of the teacher, be extended to the pupil's own State; and it may be followed by familiar conversational lessons upon the characteristic regions of our own country and upon other countries which are great geographical types. In each case these descriptive lessons in regard to the country, should be followed by exercises upon the map of the country, giving the names and location of a few of its important mountains,

streams and cities. The simple lesson being finished, the pupil is prepared to begin the philosophic course heretofore delineated, and to gain from it the utmost it has to give either in knowledge or mental discipline.

By this preparatory course, several things of value have been accomplished. In the first place the pupil has received a series of distinct and indelible mental impressions, instead of dead forms of words. Second, a map has become to him a true symbol instead of being itself the object of study, and it thus has an instructive power which could in no other way have been given it. Third, by learning to associate ideas he has the secret of permanent pictures of the na-

ture of the principal countries of the globe; the *manner of life* existing therein; their location; and the characteristics and *location* of their leading cities. Thus if he should never receive another lesson in geography, he has what will be of value to him all his life, instead of merely a few names and definitions, soon to pass away entirely from his memory, which are the sole results of the usual first steps or primary course.

Here, as in the regular scientific course, the work demanded as a preparation for future study is the very work most valuable in case there is to be no future study.—Here as everywhere, the logical and philosophical method of proceeding is the only truly practical one.—[Kansas Ed. Journal.

EXAMINATION QUESTIONS.

(We give, in this issue, as many as we can find space for of the Examination Questions at the recent County Board Examinations, and will continue their publication in next issue.)

THIRD CLASS.

History.

1. Give some account of the reign of Alfred the Great.
3. Write explanatory notes on the *Great Charter, the Habeas Corpus Act, the Petition of Right.*
3. What English Sovereigns laid claim to the crown of France? State the nature of those claims.
4. Give some account of Sir Walter Raleigh.
5. Give an outline of the career of Oliver Cromwell.
6. Under what circumstances were Scotland and England united, *first*, as to their crowns, *secondly*, as to their legislatures?
7. Give some account of the events which led to the Treaty of Utrecht.
8. What is meant by the "Anti-Corn-law Movement" of 1846?
9. What circumstances induced Columbus to entertain the idea of a western route to India?
10. Describe Cartier's third visit to America.

Education and School Law.

1. Explain what is meant by Education :

distinguish Physical, Mental, and Moral education.

2. By what means may "aptness to teach" be best acquired by a young Teacher?
3. What principles should regulate the distribution of rewards and punishments in a school?
4. Describe your method of teaching
 - (a) Dictation.
 - (b) Geography.
 - (c) Reading.
5. What is an object lesson? Give notes of an object lesson on "A Grain of Wheat."
6. What methods would you adopt
 - 1st. To secure order in school?
 - 2nd. To excite interest in study?
 - 3rd. To promote the moral culture of your pupils?
7. What are the duties of Public School Teachers, according to law?
8. What are the regulations with regard to
 - (a) Absence for the purpose of visiting schools?
 - (b) Visitors' book, and the reception of visitors?

Geography.

1. What is meant by the terms Arctic Circle, Longitude, Zodiac, Parallels of Latitude?
2. A ship sails from Liverpool to Canton; through what waters and by what land does she pass?

3. Where are Sheffield, Aberdeen, Rio Janeiro, Trieste, Father Point, Zealand, Bombay, Sydney, Batavia, Lyons, Smyrna, Cronstadt, Hong Kong, Aden, Cape Agulhas, Straits of Sunda, Table Bay, Gulf of Tartary?

4. Trace the course of the following rivers, naming any cities and towns on their banks: St. Lawrence, Red River, Mississippi, Rhine, Ganges, Nile.

5. What products are exported from Marseilles, Aleppo, Odessa, Riga, Dantzic, Malaga, Manilla, Calcutta, Balize, Melbourne?

6. Draw an outline map of the portion of Ontario west of Toronto, shewing the counties, county towns, and chief rivers.

7. Describe the physical features of Spain.

8. Name in order the States of the American Union lying on the Atlantic, with their capitals.

9. Enumerate the Provinces of the Dominion, and give the chief cities.

English Grammar, Etymology, and Spelling.

"As I was reflecting upon *what* I saw, I heard a voice *in* the crowd *lemoaning* the condition of mankind, *which* is thus managed by the breath of Opinion, deluded by Error, *fired* by Self-Conceit, and given *up* to be trained in all the courses of Vanity, *till* Scorn or Poverty *come* upon us."—*Ad-dison*.

1. Divide the extract into propositions, state their relations to one another, and analyse them.

2. Parse the nine italicised words in the quotation.

3. Write a sentence containing an example of every part of speech properly used.

4. Compose a complex sentence containing an example of apposition.

5. Define Conjunction, Passive Voice, Relative Pronoun, Gender.

6. Give the plurals of Appendix, Phenomenon, Cupful, Courtesy, Apology, Paradox, Genus; the feminine forms of Hunter, Sultan, Executor; the past tense and past participles of Chide, Grave, Engrave, Lay, Allay, Rive, Arrive.

7. Compose or quote a sentence containing the words *bail* and *bale* properly used, and another illustrating the different meanings of the word *crew*.

8. Correct the errors in the following

sentences, giving the reasons for the changes you make:

"I was that frightened you could have knocked me down with a feather."

"He was more beloved, but not so much admired as Cinthio."

9. Correct when necessary the spelling of the following words: Intracasy, Existance, Auxiliary, Saccharine, Fillial, Efervescence, Lasserate, Imbecility, Mattrass, Camelopard, Pollygimy, Fillagree.

10. Give the meanings of the prefixes and affixes occurring in the extract for analysis, and classify them according to their derivation.

11. Illustrate by examples the use of each of the prefixes denoting *negation* or *destitution*; and of each of the affixes denoting *manner*, and *rank, office, or dominion*.

NOTE.—In order to pass for a 3rd Class Certificate, the candidate must obtain at least fifty per cent. of the total value of this and the Arithmetic paper, and at least fifty per cent. of the aggregate of the values of all the papers.

Arithmetic.

1. From a pound Troy are coined $46\frac{23}{40}$ sovereigns; find (in £ s. d.) the price per oz. of gold.

2. Divide \$29.50 between two persons, so that one shall receive half as much again as the other.

3. Simplify $1\frac{5}{12}$ of $\frac{13}{16}$ — $\frac{1}{2}$ of $\frac{19}{20}$ + $\frac{3}{14}$ of $\frac{5}{12}$

— $3\frac{3}{5}$

4. The sum paid for 494 gallons of oil, *including* a duty on each gallon which amounts to $\frac{1}{5}$ th of the cost price of a gallon, is \$1719.12; find the duty on a gallon.

5. A merchant tailor bought 27 pieces of cloth, each containing $19\frac{2}{3}$ yards, at \$4.31 $\frac{1}{4}$ a yard, and paid freight \$9.62 $\frac{1}{2}$; he sold so as to gain \$381.87 $\frac{1}{2}$. At what price per yard was the cloth sold?

6. A and B can do a work in 3 days, B and C in 6 days, A and C in 4 days. If \$16 be paid for the work, what is each man worth per day?

7. Find the value of 30 cwt. 1 qr. 15 lbs. of sugar at \$10.20 per cwt. (qr. = 25 lbs.).

8. A person, after paying an income tax of 2 mills in the dollar, has \$1531.93 left. Find his gross income.

9. Find the cost of covering a room 27

feet wide and 30 ft. long, with matting 2ft. 6in. wide and costing \$1.62½ a yard.

10. A miller has a bin 8 ft. long, 4 1-5th ft. wide, and 2½ ft. deep, holding 75 bushels; how deep must he make another bin which is to be 18 ft. long and 3 5-6ths ft. wide, so that its capacity may be 450 bushels?

11. A man engaged in business with 2 capital of \$10920, is making 12½ per cent. per annum on his capital; but, on account of ill health, he quits the business, and loans his money at 7¾ per cent. How much does he lose by the change in 2 years, 5½ months?

SECOND CLASS.

History.

1. Trace the descent of Queen Victoria from James I.

2. Give an account of the Long Parliament.

3. Write notes on "The Act of Supremacy," "The Emancipation Acts of 1819 and 1834," "The Trent Affair."

4. What points contended for by the Chartists in 1841 have since been conceded?

5. Give some account of the South Sea Bubble.

6. Sketch Cromwell's foreign policy.

7. Give the particulars of the following battles: Culloden, Plassey, Trafalgar, Victoria.

8. Write an account of the invasion of Canada in 1812.

9. What important constitutional Acts affecting Canada were passed in 1774, 1791, and 1840, respectively? Give the particulars.

10. Give an outline of Lord Elgin's administration.

11. Write notes on Charlemagne, Famerlane, Maria Theresa; and give the particulars of the following battles: Salamis, Pharsalia, Morgarten, and Bannockburn.

English Grammar and Etymology.

"Strange as it may seem to find a songwriter put forward as an active instrument of union among his fellow-Hellens, it is not the less true that those poets whom we have briefly passed in review, by enriching the common language and by circulating from town to town either in person or in their compositions, contributed to fan the flame of Pan-Hellenic patriot-

ism, at a time when there were few circumstances to co-operate with them, and when the causes tending to perpetuate isolation seemed in the ascendant."—GROTE: Hist. of Greece.

1. Give the full syntactical parsing of the nineteen italicized words.

2. Divide the extract into propositions, stating their kind and connection, and give a complete analysis of each proposition.

3. Parse the italicized words in the following quotations:—

"In spite of such a man as Gibbon's opposition."

"They are not the same that they have been."

"He did it in the geography class."

"They are very much in the style of Milton's sonnets."

"That is the way that boys begin."

4. Correct, giving reasons, or defend the modes of expression employed in the following quotations:—

"Give us the secrets of his pagan hell,
Where ghost with ghost in sad communion dwell."

"What sort of a looking man is he?"

"Thou lovest, but ne'er knew love's sad satiety."

"One sort of feels impressed with the vastness of the building, though disgusted with the childishness of the ceremonies."

5. Write the plural of: two, hidalgo, no, chimmey, colloquy, Livy, vinculum, 3, appendix, Lord Gordon, court-martial.

6. Give the abstract nouns of the same derivation as brief, true, common, needy, poor.

7. Classify the pronouns, enumerating those coming under each head.

8. Give examples of the different uses of—

(a) Words ending in *ing*.

(b) But.

9. Give the principal parts of hew, fly, stride, rive, crow.

10. Correct, where necessary, the spelling of—indigenous, surpluss, deliniation, dipthong, subtle, judgement, ellygyac, prophane, purliew, suffragan, indispensable, responsible.

11. What are the Latin and Greek prefixes meaning from, beyond, without.

12. Make lists of the prefixes and affixes occurring in the extract for analysis, and classify them according to (a) Meaning, (b) Derivation.

Chemistry, Botany and Physiology.

1. Mention the different forms in which uncombined carbon occurs.
2. What are organogenis? Explain the meaning of the term, and name the compound substances which form the organic constituents of plants.
3. Explain the action of chlorine when used for bleaching and disinfecting.
4. Explain the meaning of the terminations *ous* and *ic*, and of the prefixes *hypo* *hyper* and *per* in chemical nomenclature.
5. Name the elements which enter into the composition of each of the following substances:—Common Salt, Saltpetre, White Lead, Corrosive Sublimate, Rock Crystal.
6. State generally the composition of Hard Soap, Soft Soap, Glass, Oil of Vitriol.
7. State and illustrate the law of multiple proportions.
8. Describe minutely the constitution, and explain the functions of leaves and flowers.
9. Explain the meaning of the botanical terms *fruit*, *stomata*, *endogen*, and give three examples of plants to which the last term may be properly applied.
10. Describe the position and use of *biceps*, *flexor*, *cutiti*, and the deltoid muscle.
11. Enumerate the bones of the arm.
12. Describe the position and use of the Thoracic Duct, Duodenum, Pancreas, and Sympathetic Nerve.
13. Describe the action of the several parts of the heart.
14. Explain the chemical changes in the air and blood caused by breathing.

Book Keeping

1. Explain and illustrate Book—Keeping by Double Entry and by Single Entry.
 2. Name and describe the principal books used in Double Entry.
 3. Describe the Cash Book, Invoice Book, Bill Book.
 4. Name and describe the different kinds of accounts.
 5. Must the two sides of the Stock Account be equal, whether there be gain or loss, if the Books have been correctly kept? Explain.
 6. Exhibit Ledger Accounts for the following items, and close the Accounts.
- TORONTO, 1st December, 1863.
- I have on hand balance of former ac-

count, \$500. Borrowed of James Smith, \$200. Paid John Williams, \$531.69. Received from Thomas Moore, \$200. Jan. 3: Received from John Williams, \$691.50. Jan. 4: Paid James Smith, money borrowed, \$200. Jan. 5: Lent Thomas Moore, \$350.20. Jan. 5: Paid James Smith, \$271. Jan. 6: Lent James Smith, \$100. Jan. 8: Received from Thomas Moore, \$250. Jan. 8: Paid James Smith, \$372.20. Jan. 9: Received from John Brown for James Smith, \$76.40. Jan. 10: Advanced John Williams, \$155. Jan. 12: Received from Thomas Moore, \$55.20. Jan. 14: Received from James Smith, \$500.

Composition.

Any one of the three following subjects may be chosen :

Christmas.

Canada, as a home for Emigrants.

A Canadian Writer.

School Law.

1. What formalities are essential to the validity of an agreement between a School Board and a Teacher? and what is the consequence of their omission?
2. What class of persons are excluded from the right of obtaining, on examination, certificates of qualification to teach?
3. What special exemption from public duties, devolving on other Canadian subjects, do Teachers enjoy under the law of Ontario?
4. What is the law respecting the present validity of certificates granted prior to 15th February, 1871?
5. To whom does the law give the right to attend the school of a section?
6. Give the required dimensions of a Public School-house for fifty scholars; and mention the articles that would, in your opinion, be required to equip the rooms and grounds satisfactorily.
7. What are the rules and restrictions respecting the awarding of prizes to the scholars?
8. What classes of persons are eligible for election as School Trustees in cities, towns, and sections, respectively?

Education.

1. What do we understand by school organization? State the chief objects to be kept in view in organizing a school, and show how you would proceed in classifying a new school of 50 scholars.

2. What is meant by the *natural order* of presenting a subject? Illustrate this by giving notes of an introductory lesson on

- (a) Physiology.
- (b) Fractions.
- (c) Grammar.

3. In administering discipline, what guiding principles should be kept in view?

4. What methods would you adopt

- (a) To secure order in school?
- (b) To prevent truancy?
- (c) To enlist the interest of the pupils in the credit of the school?

5. Enumerate the conditions essential to a good system of teaching arithmetic.

6. What are the chief points to be attended to by the Teacher in order that the health of the Scholars may not suffer at school?

Natural Philosophy.

1. Describe the wheel and axle, and state the mechanical advantage of the machine. Show that the wheel and axle, in the state of equilibrium, is identical with the lever.

2. ACB is a straight lever, whose fulcrum is C. Find the weight which, acting at A, is balanced by $15\frac{1}{2}$ oz. at B, and, acting at B, is balanced by $16\frac{16}{31}$ ths oz. at A.

3. A straight lever ACB, whose fulcrum is C, is kept at rest in a horizontal position by two forces, one a weight suspended from B, and the other the tension of a string which is attached to A, and runs in the direction AE. If AE be equal to AC, and the perpendicular distance of E from AB be equal to BC, find the relation between the weight suspended from B and the tension of the string EA.

4. (a) Let AB be the shorter arm of a syphon, and BC the longer. Suppose the instrument in operation. The end A is immersed in water, and the water is running out at the other extremity C. Explain why, when a portion of the water at B, the highest point of the syphon, falls down towards C, the water adjacent to it, on the side towards A, rushes up to fill the space that would otherwise be left vacant. Why might not the water in the limb BC all fall down towards C, and at the same time the water in the limb BA all fall down towards A?

(b) Is there any limit to the vertical elevation of B above the surface of the fluid in which BA is immersed? If so, why?

5. Draw a diagram representing a system

of pulleys (3 moveable pulleys in the system), in which the mechanical advantage (that is, W —) is 18.

P
(b) If $W=16$ lbs., state the tension of the string passing around the middle pulley.

6. A body whose specific gravity is $1\frac{1}{2}$ (specific gravity of water being 1) hangs from a string in such a position that $\frac{1}{4}$ of a cubic foot of the body is under water, $\frac{1}{8}$ of a cubic foot being above water. Find the tension of the string. (Observe the note at the foot of the paper.

7. (a) A cubical vessel, whose capacity is one cubic foot, is filled with condensed air whose elasticity is 5 times that of the free external air. Find the space which the condensed air would occupy, if allowed to expand till its elasticity was reduced to that of the free external air.

(b) Find also the pressure of the condensed air on the interior surface of the vessel in which it is contained. (Observe the note.)

8. A hollow cubical vessel, whose capacity is one cubic foot, and which is filled with water, rests with one of its faces ABCD on a horizontal plane. What is the pressure of the water on the upper face of the vessel? What upon the base? What on each of the sides?

6. Let ABCD be a square. Bisect BC in E and CD in F. Join AE and AF. If a particle at A be acted on by two forces, represented in magnitude and direction by the lines AE and AF respectively, find the numerical value of the length of the line representing the magnitude of their resultant, the sides of the square being unity. (*The simplest solution will be to resolve all the forces in the directions of AB and AD respectively, &c.*)

NOTE.—In solving the above problems, the weight of a cubic foot of water may be assumed to be 1000 oz., and the atmospheric pressure to be 15 lbs. on the square inch.

Geography.

1. Give reasons for believing the earth to be round. How do we know it to be not a perfect sphere?

2. Define Estuary, Glacier, Isothermal line, Asteroid; giving examples of each.

3. State the form of government, religion and chief products of the following: Russia.

Spain, Germany, Italy, Turkey, China, Australia.

4 Mention the chief results of the obliquity of the earth's axis.

5. Point out resemblances and differences in the great physical aspects of Asia and America.

6 Name the political divisions of Asia, with their capitals; describe their relative positions; and draw an outline of the Southern coast of Asia.

7 Write a description of the Dominion of Canada, with reference to (a) its physical aspects, (b) its political divisions, (c) its economic products.

8. State precisely the position of the following; Luxembourg, Sedan, Cawnpore, Cologne, Labuan, Delhi, Valparaiso, Melbourne, Tahiti, Lake Van, Honolulu, Straits of Fuca, Cape Rosier, Gulf of Petchelee, Cook's Straits, Island of Perim.

9. Trace the course of the Danube, naming the chief cities and towns on its banks.

10. Give in order the States of the American Union lying on the Atlantic coast, naming their capitals and principal rivers.

11. Draw a map of the district of Ontario east of Toronto, naming the Counties and County Towns.

12. Describe the mountain systems of Europe.

Euclid.

NOTE.—Candidates who take only Book I. will confine themselves to the first 7 questions. Those who takes Books I. and II. will omit questions 3 and 4.

1. Define a *line*, a *straight line*, a *plane rectilineal angle*, a *right angle*, a *circle*, a *square*.

2. (a) Distinguish a *Postulate* from an *Axiom*.

(b) State two of Euclid's Postulates.

(c) Complete the enunciation of Euclid's 12th Axiom: "If a straight line meet two straight lines, so as to make," &c.,

(d) Enunciate the Proposition in which the 12th Axiom is first made use of.

3. If two triangles have two sides of the one equal to two sides of the other, each to each, and have also the angles contained by those sides equal to one another, they shall also have their bases, or third sides, equal.

4. If two triangles have two sides of the one equal to two sides of the other, each to

each, and have likewise their bases equal, the angle which is contained by the two sides of the one shall be equal to the angle which is contained by the two sides, equal to them, of the other.

5. If two triangles have two angles of one equal to two angles of the other, each to each, and one side equal to one side, namely, either the side adjacent to the equal angles, &c. (26, I). [Take the case in which the sides supposed equal are those which are opposite to equal angles.]

6. If from D, a point in AB, the base of an isosceles triangle ABC, perpendiculars DE and DF be let fall on the equal sides AC and BC, the sum of these perpendiculars shall be equal to the perpendicular let fall from either extremity of the base on the opposite side.

7. From a given point E, it is required to draw a straight line which shall divide a given parallelogram into two equal parts.

8. If a straight line be divided into any two parts, the rectangle contained by the whole and one of the parts is equal to the rectangle contained by the two parts, together with, &c. (3, II).

9. If a straight line be bisected and produced, to any point, the square on the whole line thus produced, and the square on the part of it produced, are together, &c. (10, 11).—Complete the enunciation, and give the construction necessary to prove the Proposition, with all the reasoning necessary in order that the construction may be made.

10. Let the sides, AB, BC, and CA, of a triangle ABC be 6 ft., 8 ft., and 7 ft., respectively; and let AD be let fall perpendicular on BC. Apply any Proposition in the Second Book of Euclid to determine the length of BD.

Arithmetic.

2. When greenbacks are at a discount of $16\frac{2}{3}\%$, what is the price of gold?

2. State and prove the rules for converting the different kinds of decimals into vulgar fractions.

3. Water expands 10% in freezing, find the weight of water in a solid piece of ice whose dimensions are 12 ft., 8 ft., $5\frac{1}{2}$ ft. (cubic foot water weighs 1000 ounces).

4. Show that the sum of the square roots of 0.79012345679 (last nine figures a repetend,) and 0.012345679 (pure repetend,) is unity.

5. Show (no formulas) how to find the (true) discount on a sum of money for a

given time and rate. How much may be gained by hiring money at 5% to pay a debt of \$6400, due 8 month hence, allowing the present worth of this debt to be reckoned by deducting 5 per cent. per annum discount?

6. A person having \$5000 Bank Stock, sells out when it is at 40 per cent. premium; what amount of money does he receive, brokerage being $\frac{1}{8}\%$?

7. If a piece of silk cost 80 cents a yard, at what price shall it be marked that the merchant may sell it at 10% less than the marked price, and still have 20% profit?

8. A merchant in Toronto has \$48000 due him in Halifax; how much more will he realize by having a draft for this sum on Halifax and selling it at $\frac{1}{2}\%$ discount, than by having a draft on Toronto remitted to him, purchased in Halifax for this sum at $\frac{3}{4}\%$ per cent. premium?

9. A and B are partners. A's capital is to B's as 5 to 8; at the end of four months A withdraws $\frac{1}{2}$ of his capital, and B $\frac{2}{3}$ of his; at the end of the year their whole gain is \$4000; how much belongs to each?

20. A commission merchant in Montreal sells for a Toronto merchant 800 bbls flour at \$6.37 $\frac{1}{2}$, on a commission of 3 per cent., and buys certain goods required by his Principal, on a commission of 2 per cent. on the price paid for the goods taking his commission out of the money in hand.—Find whole amount of commission.

11. A person sold two horses at \$160 each, losing 20 per cent. on one and gaining 20 per cent. on the other. Did he gain

or lose on the whole transaction, and how much?

12. The side BC, of an equilateral triangle ABC, is 30 feet; lines are drawn from the angles B, C, bisecting the opposite sides, and intersecting in D. Find the area of the triangle BDC.

ANSWERS.

ARITHMETIC SECOND CLASS.

1. 120. 2. Book-work. 3. 3000 lbs. 5. \$7.11 and 1-9th. 6. \$6993.75. 7. \$1.06 $\frac{2}{3}$. 8. \$11.73+. 9. 1714 and 2-7ths, 2285 and 5-7ths. 10. \$250. 11. He loses \$13 $\frac{1}{3}$. 12. 75 x the square root of 3 sq. feet.

ARITHMETIC, THIRD CLASS.

1. £3 : 17 : 10 $\frac{1}{2}$. 2. \$17.70, \$11.80. 3. 67-160ths. 4. 58 cents. 5. \$5.06 $\frac{1}{4}$. 6. C, \$3 $\frac{1}{3}$; B, \$2; A, \$3 $\frac{1}{3}$. 7. \$310.08. 8. \$1535. 9. \$175.50. 10. 7 and 7.23rds feet. 11. \$1267.93 $\frac{1}{3}$.

NATURAL PHILOSOPHY.

1. Book-work. 2. 1 lb. 3. Equal to one another. 4. Book-work. 5. (a) Book-work. (b) 4 lbs. 6. 312 $\frac{1}{2}$ oz. 7. (a) 5 cubic feet. (b) 64830 lbs. 8. Nothing; 1000 oz.; 500 oz. 9. Sum of the resolved parts in the direction AB is $\frac{3}{2}$; sum of the resolved parts in direction AD is also $\frac{3}{2}$. Therefore resultant = $\frac{3}{2}$ x the sq. root of 2.

EDUCATIONAL INTELLIGENCE.

CANADA

A SURPRISE AND HANDSOME PRESENTATION.—On the afternoon of the 12th Dec, about the close of the quarterly examination of the school, in S. S. No. 5. (known as the Pinkerton School,) Greenock, County of Bruce, Mr. Alexander McIntosh, Teacher, was presented by the pupils of said school with a highly complimentary address, and a handsome purse, well filled. Mr. McIntosh replied in a feeling and appropriate manner. There was quite a number visitors

at the examination, who expressed themselves highly pleased with the result of the afternoon's work.

E. M. TEACHERS' ASSOCIATION'.—The teachers of East Middlesex held their regular annual and quarterly meeting in the chamber of the County Council Nov. 28th and 29th, Inspector Groat presiding. The President read an able address on the "Calling and Duties of Teachers." The election of officers for the ensuing year resulted as follows; Messrs. Groat, for President; Dr.

Cooper first Vice-President ; J. D. Eckert second Vice-President ; J. G. R. Finchamp Secretary ; Jas. Grant, Treasurer. The following standing committees were also appointed : On Finance, Messrs. Finchamp, Hands, Edy ; on Arrangements, Messrs. Lyman, Eckert, Hoyt, Brown, Groat ; on questions, Hoyt, Finchamp, Hodgins, Eckert ; Resolutions, Wright, Stewart, Groat, McQueen, Ross ; Petitions, Dearness, Tilly, McConechy. Considerable business of the usual character was transacted before the close of the meeting.

—There are now thirty schools in the whole province of British Columbia, and it requires fourteen hundred miles' travel to visit them once around. The Superintendent establishes high schools at discretion. All public schools are free, and supported from the general school appropriation. Between New Westminster and Cariboo there are two places where all the children for five hundred miles could be accommodated by one school. In each of these districts they will build this Fall a school house and teacher's residence and a boarding house large enough to accommodate all. The people send their children here, and pay a minimum price for board. They hire a married man for teacher, and his wife takes charge of the boarding department. Attendance is compulsory or not, at the option of the district trustees.

DR. SANGSTER'S INSTITUTES.—Dr. Sangster will hold Teachers' Institutes as follows during the month of January :

Owen Sound, Grey Co., Jan. 15th, and 16th.

Perth, Lanark Co., Jan. 21st, and 22nd.

Cornwall, Glengary Co., Jan. 23rd, and 24th.

Brockville, Leeds and Grenville, Jan. 28th, and 29th.

Kingston, Frontenac Co., Jan. 30th, and 31st.

BRANT COUNTY TEACHERS' ASSOCIATION

—The regular quarterly meeting of this Association took place in the Central School, town of Brantford, on Saturday the 29th, November. After formal exercises and the reading and adoption of the minutes of the last meeting, the President Dr. Kelly called upon delegates to the Provincial Association to present their reports. The report from the Inspectors' and High School

Teachers branch were received from the Inspector for the County, and Mr. Mills respectively. The report from the Public School Teachers' branch, was dispensed with as the delegate, Mr. Dickenson was not present. The President gave an essay upon Canadian Literature ; Mr. Douglas a lesson upon Arithmetic ; Mr. Mills a lesson on Etymology ; Mr. Suddaby a lesson on Geography ; Mr. Thomas a lesson on Grammar ; and Mr. Echlin a recitation. Dr. Kelly, Co. Inspector stated that he had a method of taking reports, which he wished to introduce into all schools in the county. He explained the principle upon which his method was constructed, and stated his intention of endeavoring at the next sitting of County Council to get an apportionment sufficient to enable him to introduce a first instalment into each school. The convention then adjourned.

SCHOOL EXAMINATIONS.—Glencoe, Dec. 18th, Mr. S. Frederick Teacher ; highly successful. Questions were answered with great promptness—Notwithstanding the very bad state of the roads, the olio in the evening was a complete success. The Town Hall was crowded to its utmost capacity. W. J. Simpson, Esq., occupied the chair. Miss A. M. Currie presided at the organ. Recitations, dialogues and singing by the pupils, and speeches by C. B. Slater, D. McTavish, G. M. Harrison, John Boam, Dr. Lumley and N. Currie.—The annual examination of the pupils of Yeager's School section, Metcalfe, under the management of W. Ward, took place on Thursday, 18th ult. The pupils were examined during the day in the majority of branches required in our public schools, and evinced great thoroughness in their studies. Mr. Ward retires from teaching to engage in commerce, in which pursuit he will, no doubt, be as successful as he has been in that which he is now leaving.—A very successful examination took place in school section Nos. 1 and 13, Brooke and Warwick, county of Lambton, on Friday, Nov. 12th, in presence of quite a number of spectators who attended to witness the progress of the children under the control of the teacher, Mr. S. Cornell, which reflects great credit upon both scholars and teacher. The children acquitted themselves in a very creditable manner in the various branches.—A very successful examination

took place in school section No. 4, Brooke, county of Lambton, on Saturday Dec. 20th in presence of quite a number of spectators and teachers from the neighbouring sections, who attended, to witness the progress of the children under the control of the teacher, Mr. Donald Marshal, which reflects great credit upon both scholars and teacher.—At the close of the examination of the Lindsay High School, Mr. Donald Munro, a Mosa, boy, was the recipient of a gold watch valued at \$90, and a very flattering address.

SCHOOL HOUSE OPENING.—The people of S. S. No. 6, West Flamboro', have recently completed the building of a large and handsome Brick School House, which event was duly celebrated by a Tea Meeting, on Tuesday evening last. An ample supply of provisions was provided, and after the wants of the inner man were attended to, music, recitations, dialogues, and speeches followed until a late hour in the evening.

Able addresses were given by J. G. Hodgins, Esq., L. L. D. Deputy Superintendent of Education, Rev. E. B. Ryckman, M. A. Thomas Stock Esq., Warden, Thomas Bain Esq., M. P. Rev. J. B. Keagey, B. A. and J. H. Smith Esq., Inspector of Schools. A number of dialogues and recitations were given by the pupils of the school, and the teacher Miss Brown, is deserving great credit both for the selections and the manner in which her pupils rendered them. The music was furnished by the pupils of the school who were trained by Miss Smith. On the whole it was one of the most pleasant gatherings we have attended for many a day. The Trustees and the people of the section are deserving of great credit not only for such an entertainment, but for the very elegant and substantial school house they have erected.—*Dundas Banner.*

CHOICE MISCELLANY.

THE OLD YEAR AND THE NEW.

Methought I saw the Old Year, bent and gray,
Pass like a flitting shadow from the land;
He bore no sceptre, emblem of his sway,
But feebly grasped a rude staff in his hand.

And as he tottered toward a mighty throng
Of shades as dim as he himself had grown,
There rose upon my ear the voice of song,
Solemn and sweet, a requiem in tone.

The portals of the past had opened wide,
Moved by the power of an unseen hand,
And guardian angels stood on either side,
With faces strangely calm and sweetly bland.

And as I gazed I saw a long, long train
Follow the Old Year and the picture fill;
Grief that is past, and hopes that were in vain,
And joys that now no more the bosom thrill.

But suddenly the vision seemed to fade,
The sweet yet mournful music died away,
And where across my path had been a shade,
The glory of a wondrous brightness lay.

I looked, and saw the misty folds that shroud
The secrets of our future from our ken
Part like the breaking of a tempest-cloud,
When light and beauty clothe the world again.

The young year, beaming, beautiful and gay,
Smiled on me with a promise full and sweet,
And ah! such influence who could gainsay:
Or fail to trust the words such lips repeat!

Hail to the New Year! that for some is fraught
With youth and health and blessing manifold;
For some with nobler life and freer thought,
And with a glimpse of Heaven for the old.

Who knows what precious privilege will come
To gild with joy's own brightness all the year?
Who knows what happy hearts will find a home
That now are wanderers and oppressed with fear?

The bird that flutters on with wounded wing
Finds time a healer, and aloft can soar
When come again the rosy days of spring,
To sing as sweetly as it sung before.

The future beckons and the past is not;
The sunshine brightens, and the sky is clear;
Be every bitter pang of grief forgot
In joyous welcome of another year!

To make us know our duty and do it;
to make us upright in act and true in
thought and word, is the aim of all instruction
which deserves the name,—the epitome
of all purposes for which education exists.

EDUCATION is partly allopathic, partly
homœopathic; often like causes like; and
the doses to effect must be infinitesimal.
And if this were all, only the good could
make virtue flourish around them, whereas
now the sweetest flowers often cover the
saddest ruins.

WRITING IN OUR SCHOOLS.—The subject of writing is at present exciting much thought among teachers. All methods of teaching this branch, except the employing of professional teachers, have failed, and this is not practical only in a few schools, as the expense is too great. Hence a good writer whose only instructions were obtained in the schools, can hardly be found.

The only method that will ever reach the wants of our schools, is for the teacher to be qualified to teach this branch, and to give his personal attention to its development as strictly as she does now to arithmetic and grammar; then will it be a success in the schools, and by no other method can it be. The successful teacher of writing, like the successful teacher of other branches, must be qualified to teach it, and the joining of trained thought with personal interest will make success certain.

The time was when any one was thought capable of teaching writing. That day is past, for educated men consider penmanship a science; at least those who study it most do, and authors treat it as such. They have greatly improved and simplified the forms of the letters, and they have taken great pains in preparing series of copy-books to meet the wants of the learner, until one would suppose that the use of these books would certainly make writing a success; yet good writers are not the result, which shows plainly that nothing in the shape of helps can take the place of the qualified teacher. If those who are authorized to examine teachers would require applicants to pass an examination in penmanship at the black-board, it would be but a few years before teachers would be as thoroughly qualified in it as in any other study, and find equal pleasure in teaching it.

It may be asked, what are the requirements of a qualified teacher of writing? One of the requirements, and one that covers nearly the whole ground, is the ability to "chalk and talk." That is, the ability to put upon the black-board a system of correct forms, and to explain the same according to the principles of some generally used system of writing. It will require but little time to gain this knowledge and practice; not more than six weeks at the most, and when the whole time is given to it under a competent instructor, not over two weeks. No teacher

who desires to meet the wants of the schools will complain if the school examiners require this of him.

When the teacher is thus prepared, he feels strong before his pupils, and will not be ashamed when the subject of writing is being discussed, and he will be able to meet the wants of his pupils with regard to this branch in a business education. It is hoped that the examiners of teachers will give this subject the thought that its importance demands, and that steps will be taken to test its value to our schools. It seems reasonable that the teacher should be qualified to teach the studies that he is required to teach.

The State Normal School of Michigan has taken the proper stand on the subject, in requiring its graduates to be able to put upon the blackboard the alphabets according to the principles of some system of penmanship, and to explain the same; also to teach the method of holding the pen, the position at the desk, and movement. When other Normal Schools and Institutes take a like position, the success of this subject will be a fixed fact, and the day when good business writers will leave our schools will be near.—*National Teacher*.

It now begins to be seen and acknowledged that the completest discipline of the human mind must come from the comprehensive and systematic study of Nature itself. This step is an immense gain to rational culture by putting an end to the old anomaly that the most valuable knowledge for application in life is antagonistic to that required for mental development.

THE supreme question of education is undoubtedly that of mental discipline. Its primary object is to get the use of the tools of learning—the arts of reading, writing, and elementary computation. So much is indispensable for everybody; but where education proceeds to its higher work, the next step is the application of the implements to the acquisition of knowledge. Here difficulties arise from its boundless extent. All subjects can not be studied; whole ranges of them can never be even appropriated by any single mind; and, as what can be actually acquired is relatively so small, it was long ago seen that the main work of the school must be on the mind to develop its capacities for effective action in after life.

A SCHOOL SCRAP-BOOK.—Let me make one suggestion which I have found most valuable in my school-room, and that is a scrap-book, made from newspapers and magazines. Items are to be found, in every one I take up, on all manner of subjects connected with the different countries of the world, many of which are awakening to progress and liberty from the steps of centuries—items which are to be found in no school-book, nor indeed in any book, and help both teacher and children to feel that the world is alive, and the country and people they are studying of in some far-off land are quite real, with their interests very closely interwoven with their own. My scrap-book tells of sleepy Turkey waking up to the necessity of railroads and the advantages she will gain therefrom; and wonderful descriptions of the Mont Cenis Tunnel, that no text-book has room for; of the visit of Shah, so romantic in its de-

tails; and yet seemingly so important in the opening of the Eastern to Western civilization; of Chinese coal-fields, and Canadian salt deposits; of African adventure and discovery, and a strange journey in the heart of Asia; of Arabian deserts and curious Eastern cities; of the freeing of the slaves of Brazil, and of the opening light in Japan. It has stories of life in Lapland, Siberia, Borneo, and China; it contains pictures of remarkable trees of different lands, and a real grey silky leaf from the South African forests. It relates of Amadeus' abdication, and the royal progress and coronation of the Scandinavian monarch, King Oscar. It describes the late funeral of an Indian Prince, the Russian Ice Palace, fetes in Turkey, and wonders of South America. So it interweaves interests of to-day with every land or nation we touch upon in our geography lessons, and makes the children understand their reality and life.

TEACHERS' DESK.

J. C. GLASHAN, ESQ., EDITOR.

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

1. To send answers with their questions and solutions with their problems.
2. To send questions for insertion on separate sheets from those containing answers to questions already proposed.
3. To write on one side of the paper.
4. To write their names on every sheet.

ANSWERS TO PROBLEMS.

47. Time of flight of arrow fired vertically was not less than 36 seconds.

∴ time in ascent was not less than 18 seconds.

∴ initial velocity was not less than 18×32 ft. per sec.

The arrow ranges farthest fired at an elevation of 45 degrees.

Resolve the initial velocity vertically and horizontally.

Horizontal velocity was not less than $18 \times 32 \times \frac{1}{2}$ (s. q. 2) ft. per sec., (s. q. for square root,) which exceeds 277 miles per hour.

But Hiawatha's rate must have exceeded the horizontal velocity of the arrow for the latter to have fallen behind him, hence his speed exceeded 277 miles per hour.

This problem in a slightly different form was first proposed as a "College Question" at Cam-

bridge; it found its way into several collections, and was set in the form given in the TEACHER, in Toronto University.

48. Take moments about the centre of gravity. Ans. 32 and 48 lbs.

49. *Suit* seems to be governed by *in* understood, but this is an example of what grammarians of the old school never recognized or acknowledged; the word may be *correctly* parsed by different speakers in different ways. Card-players, for instance, would probably take this for a metaphor, make, *follow* transitive and *suit* its object; if they *think* as they *parse*, they are right. The Editor has found at least two who, on the other hand, *think* 'follow to suit,' i. e., 'follow to his suit.' These would be right in parsing in accordance. More anon.

50. *Horse* is used by synecdoche for the species; it is the *generic* masculine or neuter. *Violin* is used by metonymy for *the art of playing on the violin*; it is a common, not an abstract, noun. The etymology follows the word, not its tropical meaning, except in tropes derived from personification.

51. *Well* was used both as an adjective and an adverb. Examples of its adjective use are, "of here wel dedes," (of her good deeds) line 65, "wo is the rewme," (woe is the realm) line 152, both of Passus iii, of Piers the Plowman. B—text.

"I am well" arose from "well is me," a dative:

construction. The latter is actually found in the prayer-book version of Psalm 128, 2. Matzner, in his *Englische Grammatik*, gives only the latter in Anglo-Saxon, but both forms in Early English. Both forms are common in Shakespeare.

Worth. Several correspondents have quoted Lathan and other authorities for the meaning of worth; this is not *proving* its meaning.

"Geweorthe thin willa on eorþan." *Let thy will be on earth.*

Alfred's Version of the Lord's Prayer

"Orest it blomede and siþen bar."

"The beries ripe wurth ic war."

Erst it bloomed and then it bare.

The beries ripe as I was war.

Genesis and Exodus Early English Text Society.

"I wot ful wel what worth thi mede."

Of Clene Daylenhod, ln. 87.

"Thy wille worth uppon me."

Thy will be upon me.

Piers the Plowman, V. 248. A—Text

"Iet God worthe with al for so his woord techith."

Do. VII. 75. A—text.

"All snog and slekit worth thir bestis skynnys."

Gawayn Douglas Prology of the XII Buk of Eneados, ln. 186.

Day is in the dative, (objective governed by *to* understood.) Shakespeare has "Woe is us."

"Wa worthe than monne," (*the man, dative.*)

Lagamon, i. 142.

EDITOR'S DRAWER.

—We have some interesting correspondence on hand, awaiting attention.

PRIZE ESSAY.—The essays on the "Requirements of our Rural Schools," have been for some time under consideration, but the Committee, though they have made good progress, are not yet prepared to give their award.

EDUCATIONAL DEPOSITORY.—We have received from the Educational Department at Toronto a pamphlet in reference to the Depository of Books, Maps, &c., so long maintained by the Department. The opinions of a large number of Inspectors and others are given, and seem to be unanimously in favor of the Depository.

TO OUR PATRONS.

We extend to our many readers and friends a kindly and cordial greeting at the commencement of our second year of publication. We have the satisfaction of knowing that to many hundreds of teachers, our magazine has, during the past year, been a welcome visitor. We are constantly receiving words of cheer and encouragement, and it is our earnest wish, as it will be our constant aim, to strengthen the friendships formed, merit the generous confidence reposed in us, and secure for the *TEACHER* a still wider constituency of readers.

Anxious to extend our circulation to every City, Town, Village, and Township in the Province, we are prepared to offer extraordinary inducements to canvassers, and will send our list of premiums to any person wishing to act as agent in his (or her) locality.

Our clubbing terms for 1874 will be as follows:

One copy 1 year,	\$1.25
10 copies,	10.00

and a free copy to the getter up of the club.

The Magazine will be sent to any address. We want a good, live canvasser in every county. Send for Circular, giving terms to agents.

As a further inducement we will continue to send the November and December No.'s free to new subscribers.

SCHOOL OF TELEGRAPHY, HAMILTON.

We are glad to hear that this institution has met with great success since it was first started in May last. It has now fairly established its claims to be regarded as one of the permanent institutions of the country, opening up a new field of enterprise well worthy the consideration of young men about to choose a profession. The facilities it possesses for imparting a thoroughly practical knowledge of the telegraph business are perfect, as may be inferred from the fact that its graduates go direct from the school to situations on the G. W. R., and are acquitting themselves so satisfactorily that the Company have agreed to draw all their supplies in future from this source. The system of instruction is also carefully arranged and laid out systematically, so as to reduce the time required in learning to the shortest possible limit consistent with efficiency. Mr. Givin, the Principal, has been for fifteen years a practical operator, and brings both intelligence and experience to bear on its management. We can confidently recommend it to all who desire a knowledge of the business.