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The Educational Journal.

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Editorial Notes.

A PARTIAL return given by some of our American exchanges shows that during the past year forty-two American colleges had their endowments increased by \$3,675,000. A striking testimony to the excellency of the voluntary system in higher education.

A CORRESPONDENT calls our attention to the fact that in our report of the meetings of the Public School Section of the Provincial Teachers' Association in last issue, in summarizing the recommendation of the Committee on Entrance Examinations, the words, "High" and "Public" are interchanged. The report should read, "There being at least as many Public as High school teachers on each Examining Board." The necessity for the correction is obvious.

WE have much pleasure in again calling the attention of our readers, and especially of all teachers of primary classes, to our "Primary Department." The instalment in this issue will be found to contain excellent hints and suggestions on several points of great importance in connection with the management and teaching of primary classes. The editors of this department intend to establish a "Query Box," and will be glad to receive and answer, to the best of their ability, questions having relation to any matters which come properly within the limits of this department.

BY the time this issue of the JOURNAL is in the hands of its readers the Industrial Exhibition in this city will be in full operation. The indications at the date of writing are that it will surpass all its predecessors in both the extent and the quality of the products exhibited. The exhibits are, we believe, full and complete in every department, the only cause for regret being that, notwithstanding that almost every available space on the large grounds is now occupied with buildings, some applications from would-be exhibitors have had to be refused for want of room. Meanwhile the Exhibition is, as will be admitted on all hands, incomparably the best for all commercial and educational purposes to be seen in Canada, if not on this Continent. It is to be hoped that teachers and pupils from all parts of the country will be able to avail themselves of the opportunity and spend a day or two in making themselves acquainted with the state of agricultural, manufacturing and scientific industry, not only in this Province, but throughout the Dominion, as every Province is represented.

THE attention of the musically-inclined amongst our readers is invited to the advertisement of the Toronto College of Music, in this number. The past season gave practical proof of the excellent results of the work done in every department of the College. The teachers are thinking and earnest men whose minds and ideas have been expanded in the art centres of Europe, while the principal and really important features of the leading schools of England, Berlin, Vienna and Leipsic are, it is claimed, incorporated in the system of the College. In the Organ Department the students have exceptional facilities as regards lessons and practice, owing to the presence in the College Hall of a large three-manual pipe organ, built for the institution by Messrs. Warren. Among the special announcements for next season are the following honors, to be awarded among the pupils: A gold medal, for general proficiency in music, and open to all students at the College; a gold medal in the organ department, and several scholarships in the vocal, piano and organ departments. The prospectus, containing full information, may be obtained on application, either by mail or personally, at the College office, 12 and 14 Pembroke St.

THE recent meeting of the American Association for the Advancement of Science, in this city, was an event of no small importance in the intellectual history of Canada. The number of members in attendance was very large. The papers and addresses on scientific and related subjects were so numerous that we cannot take space for even a list of subjects and authors. No doubt a good deal was said and read which will leave no permanent results, and add little to the world's stock of valuable scientific information. It would not be wonderful if utterance was given to some things not far removed from nonsense. On the other hand, a large proportion of those who were present and took part in the exercises, were persons of acknowledged eminence in the scientific world, and many of their papers presented the gathered fruits of prolonged individual research. Many of the American gentlemen and ladies present availed themselves of the opportunities afforded for visiting other parts of the country. In addition to the impetus given to scientific inquiries and pursuits, the meeting can hardly fail to have a good effect upon the future of our international relations, by giving to a large number of our neighbors, exerting more or less of political and social influence, a better knowledge of the resources of our country and the character and ambitions of its people.

DURING the recent meeting of the American Science Association, in this city, Professor Seaman presented the report of a committee that had been appointed to consider the question of chemical instruction in Public schools. The majority of the committee reported in favor of having instruction given in chemistry in the High schools. A minority, however, dissented from this view, holding that the teaching of chemistry in High schools was not practicable. The varieties of individual opinion were also very considerable. Consequently we are for the present left pretty much where we were at the outset.

AN interesting light has been cast upon the vexed Homeric problem by a discovery recently announced in the *London Times*. Mr. Flinders Petrie, who has been exploring in the Fayûm, has discovered a series of alphabetic signs incised on pottery of the Twelfth Dynasty, at Illahûm, and on pottery of the Eighteenth and Nineteenth Dynasties, at Tell Gerob. The two sets of characters have this in common that they are neither hieroglyphic nor hieratic. "In a word, they are not Egyptian, but apparently very early Cypriotic, or Greek." This discovery, if confirmed, will prove that the beginnings of the alphabet were already in use 2,000 years before the Christian era. This wonderful pottery is on its way to England, whence, no doubt, we shall hear more about it.

"Its fundamental principle that vivid impression, secured by thorough concentration and imagination, must precede true expression, cannot but appeal to the common sense of every rational inquirer." The above words, which we quote from a testimonial addressed to Mr. Silas S. Neff, Principal of the National School of Elocution and Oratory, by the students who received his instructions at Grimsby Park, this summer, and referring to the "Neff system of expression," undoubtedly "strike the key-note of effective reading and speaking." We should not, indeed, have supposed that a system based on a psychological principle so obvious, could be properly styled "new and original." But these words are probably intended to apply to the peculiar method in which the principle is reduced to practice by Mr. Neff. Be that as it may, no teacher of reading can be too fully persuaded that clear conception and imagination are indispensable to true and effective expression.

"ADVANCED English Schools in Rural Districts," was the suggestive title of a paper read by Mr. J. H. Smith, of Ancaster, at the recent Convention of the Ontario Teachers' Association. We have seen but a meagre account of the contents of the paper, but the idea it embodied seems to us a most sensible and excellent one. Whether it is at present feasible we are scarcely able to judge, but of one thing we are sure. No greater educational boon could be conferred on

the country than would be the securing, by some means, of higher educational advantages for those children who never go beyond the Public schools, that is, we suppose, the great mass of Canadian children. If some means could be devised by which such children, or a large percentage of them, could have another year of schooling, of an unconventional, stimulating sort, as a final preparation for life, the result would be to raise the average of general intelligence as nothing else could, and to give to the great majority a much better preparation for lives, both of usefulness and of happiness, than they now receive.

MUCH attention was attracted by the visit of the Shah of Persia to England, during the past summer. From the conflicting character of the press notices one is at a loss to know whether to regard the Shah as an uncultivated barbarian, or an Eastern gentleman of education and refinement. That the country over which he rules is not in a state of savagery is very apparent from the account of it given by Mr. J. D. Rees, in the *Nineteenth Century*. "Elementary education," says this writer, "is far advanced, and the poor and humble are often fairly well acquainted with and inordinately fond of the works of Saadi and Hafiz;" "politeness is the rule in all classes;" "money is an honorarium and not a payment;" and the peasants are all "able to support large families of daughters." "Add to these pleasing features," says an English exchange, "that life and property are secure, that rents are not excessive, and that even the poor have Persian carpets and rose leaves piled for fragrance, and we have a picture of comfort and happiness that would almost make the average Englishman wish that he were a subject of his dusky majesty."

If such schools as those advocated by Mr. J. H. Smith could be established they should, it seems to us, be differentiated from the common school, in two directions. They should, in our opinion, devote about one-half of the time to the study of English proper. By this we mean not technical grammar, nor rhetorical forms, nor word derivations, nor histories of literature, but to the actual reading of the English classics, both of the present and of earlier days. This would develop intelligence, and in fact nearly all the higher powers of mind in the very best manner, and would at the same time give the boys and girls of the country access to sources of information and of pleasure that would never run dry, and would elevate and enlarge their whole after-lives. The other half of the time should be given to manual training, with direct reference to the industries and activities of future life. Agriculture, and the related arts and sciences, for the boys; cooking, sewing, and the related arts and sciences, for the girls—within the limits of the practicable in both cases, of course—should have the largest places. The scheme may seem visionary, but can any one doubt that one year at such a school might be made worth two or three at the ordinary grind?

Educational Thought.

THE one crowning qualification of the perfect teacher is sympathy—sympathy with young children, with their wants and their ways; without this all other qualifications fail to achieve the highest success.—*Fitch*.

THERE is no danger of loving truth too well, because truth is the one thing needful and comprises all things needful. It comes in by as many channels as we open to its flowing. It feeds the whole inner man and satiates no single sense, but keeps its welcome ever fresh through all, if all are kept as open doors for its in-coming.—*Miss E. E. Kenyon, in Southwestern Journal of Ed.*

SCHOLARS welcome anybody who in the open tournament of science will take his chance, dealing blows and receiving or parrying blows; but the man who does not fight himself, but simply stands by to jeer and sneer when two good knights have been unseated in breaking a lance in the cause of truth, does nothing but mischief, and might, indeed find better and worthier employment.—*Max Müller, in Science of Thought.*

CHILDHOOD and youth are the great sowing time of life; the young are the hope of the world; the boys and girls of the present generation will be the men and women of the next. What, in character, what, in mental, moral, and spiritual structure they are becoming now, that, in the main, they will be found then—true men and women, or pigmies—a strength or a weakness, and festering sore, to the commonwealth.—*Rev. Thomas Law, M.A.*

READING is an educator; whether it is a good or bad educator depends on what you read. Read good literature. The best books are within the reach of the most meagre purse. Your trouble is perhaps not want of money, but want of time. No! We all have time enough to learn if we have wisdom enough to use the fragments of our time. * * * The man who uses his fragments of time has nearly one month more in a year than his neighbor who is wasteful of the precious commodity.—*Irish Advocate.*

THE teacher has recognized his true functions as simply a director of the mental machinery which is, in fact, to do all the work itself; for it is not he, but his pupils, that have to learn, and to learn by the exercise of their own minds. Personal experience is the condition of development, whether of the body, mind, or moral sense. What the child does himself, and loves to do, forms his habit of doing; but the natural educator, by developing his powers and promoting their exercise, also guides him to the formation of right habits. Education can only be gained by doing a little well.—*Joseph Payne.*

"I SHOULD say that morality not only can be taught in our public schools, but is taught, and must be taught. Obedience is the first law of every school,—a necessary condition of its existence, as it is the first and most salutary moral lesson that can be taught a child. Timely silence, punctuality, self-control, regularity, are constantly enforced, till they become fixed habits within the school, and tend strongly to become habits of life. To go a little higher, in what public school are not the obligations of truthfulness, unselfishness, respect, and courtesy taught, at least implicitly, perhaps even so most effectively?"—*William C. Collar.*

IT is often said, it is no matter what a man believes, if he is only sincere. This is true of all minor truths, and false of all truths whose nature it is to fashion a man's life. It will make no difference in a man's harvest whether he thinks turnips have more saccharine matter than potatoes—whether corn is better than wheat. But let the man sincerely believe that seed planted without ploughing is as good as with, that January is as favorable for seed-sowing as April, and that cockle-seed will produce as good a harvest as wheat, and will it make no difference? A child might as well think he could reverse that ponderous marine engine which, night and day, in calm and storm, ploughs its way across the deep, by sincerely taking hold of the paddle-wheel, as a man might think he could reverse the action of the elements by God's moral government through a misguided sincerity. They will roll over such a one, and whelm him in endless ruin.—*H. W. Beecher.*

Special Papers.

DRAWING.*

THE fact that a subject is or is not taught does not increase or lessen its importance. If it did, Drawing, I am afraid, would occupy a position far in the background. It is a subject that is too much neglected in our Public schools. The reason cannot be that the teachers do not possess the sufficient knowledge, as the Departmental examinations require a fair knowledge of this subject. It may be difficult to teach, or it may be that it is not given sufficient prominence in our curriculum of studies. I do not mean to place drawing at the top of the list of more important subjects, but it should occupy a more prominent position than it does.

The object of teaching is to cultivate the minds of our pupils and to impart a stock of useful knowledge. To cultivate the mind—to train the boys and girls to think for themselves, should be more especially kept in view. To impart useful knowledge is a minor point.

What subject affords more excellent facilities for training the mind than Drawing? It tends to cultivate in a very great degree the observing powers, the memory, the reasoning and the imagination. It compels close attention and trains our pupils to think in an orderly manner, by its effect upon the mind, and cultivates a clearness and precision of expression. It also helps to store the mind with a knowledge of facts.

Drawing should be introduced to every new pupil. It is natural for every little boy and girl to draw. Why not take advantage of this? Have drawing a prominent subject in every class.

Begin by requiring simple drawings to be copied on slates, and as soon as possible introduce drawing from objects. Every mind has a tendency to deal with real things. Not only this, but it will pave the way for other and more difficult exercises. In the junior classes (first and second) I should suggest such exercises as the following: After placing such models as a slate, a bell, a book or a tablet before the class, require its members to make drawings on their slates, and as soon as possible introduce drawing upon paper. A great deal of care should be taken just at this stage to place such objects as require the least perspective effect. Pupils of the third class are quite capable of making a fair representation of such models as a box, a vase or a pitcher. The work, of course, should become more difficult as the pupils advance. This kind of work should be continued in all classes below the fourth. Freehand and Dictation Drawing, of course, should receive much attention in the junior classes, taking care to have the exercises properly graded.

After a pupil has been promoted into the fourth class, he should be made acquainted with the primary principles of parallel perspective. I do not recommend burdening the minds of boys and girls with a multitude of terms, their meanings, etc. I think it far more beneficial to make them thoroughly acquainted with a few of the more important facts. It is impossible for a pupil to make a good drawing of some of the objects represented in Drawing Book No. 5 unless he understands some of the principles of parallel perspective. I recommend teaching these principles and giving practice in drawing such objects as a box, a trunk, a cube, a book, etc., in a mechanical way, before requiring a pupil to attempt to sketch, freehand, the perspective drawings in No. 5.

Before attempting this the use of the proper instruments should be taught. All perspective drawing should be made as accurate as possible, and therefore the proper instruments are necessary. The pupils should be provided with two pencils (hard and soft), a pair of compasses, a ruler, a rubber and a set square. The hard pencil to be used in the marking of construction lines, and the soft one to mark the outline of the object. Both pencils should be sharpened to a wedge-shaped point—not round. A piece of sandpaper or an old file is a good thing with which to sharpen the lead. The compass ought to have one needle point, and the other so that a pencil may be attached. The ruler should be thin and marked off in inches, halves, quarters, etc. The square made of tin, pasteboard, or thin wood in the form of a triangle, having angles

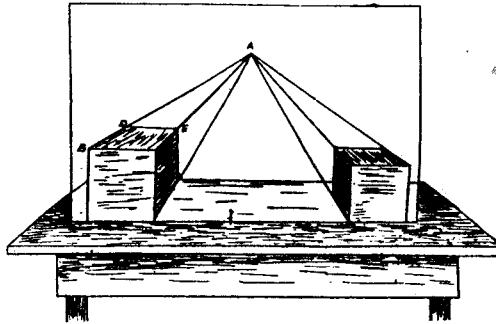
of 30, 60 and 90 degrees, and from four to six inches in length.

That the first principles should be thoroughly understood before proceeding further is true with reference to every subject, but especially true with reference to drawing. Upon this fact our success largely depends. There must be no lecturing by the teacher. He must merely act as a guide. Make the lesson conversational and as practical as possible. Facts that cannot be illustrated by reference to objects should be illustrated by means of rough drawings. Give many examples and a great deal of practice. Exercise is the grand law of development and practice makes perfect.

I should next make the pupil acquainted with the scale. This is important but easily accomplished.

My short experience teaches me that it is better to take a practical method of bringing out the points in connection with perspective, than to explain such terms as the "visual angle", the "station point", etc., etc. The method I have adopted is this, which I think can be easily understood by any fourth class pupil:—

Teach the meaning of the word "perspective." That it is derived from two Latin words signifying "to look through", which, of course, suggests that there must be a something through which to look. This something is an invisible plane supposed to be interposed between the object and the spectator. Upon this upright plane, we must suppose objects to be represented as they appear. This can be easily illustrated by means of a pane of glass placed before the pupils on a table as shown in the following sketch:



In making preparation for the experiment observe very carefully the following:—

1. The pane of glass to represent the picture-plane must be upright and parallel to the spectator.
2. The eye of the pupil must be directed towards one point and kept in one position.
3. The boxes or blocks must be placed parallel to the glass and touching it.

After everything has been properly arranged by the teacher, the pupil must be allowed to complete the experiment. He must take his position before the glass and look steadily towards a point, (A) and by means of a piece of pointed soap make a point on the glass corresponding to the apparent position of the corners of the blocks. Lines should now be drawn to represent the edges. After the tracing has been finished the following facts may be noticed:—

1. By producing the lines representing the edges that are perpendicular to the plane of the glass they will meet in a point. If the experiment has been performed with fair accuracy this point will be the point upon which the pupil's eye has been directed. Principle illustrated—all parallel retiring lines appear to meet in a point.

A horizontal line drawn through this point represents the horizon or height of the eye.

2. All horizontal and vertical lines appear the same in the picture, with the exception that they become shorter in appearance as they are farther from the spectator.

3. The lines representing the edges in contact with the picture-plane are of the same length as the edges of the cube. Measuring, therefore, should be done on the picture plane.

The bottom edge of the glass represents the ground line.

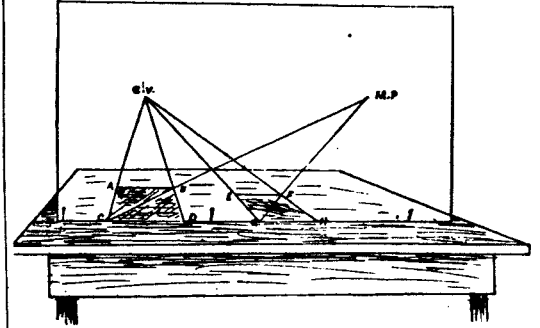
The glass may be now placed flat upon the desk and the lines transferred to paper.

Other experiments may be resorted to for the purpose of further illustrating some of these facts. For example:—Hold a pencil in the hand at arms'

length and mark the length of object at different distances from the eye—reference might also be made to the appearance of a railroad.

The next in importance is to illustrate the method of measuring, which can quite easily be done by means of another simple experiment: Horizontal and vertical lines may be measured by means of receding lines, and can be illustrated from experiment one by referring to the edges of block No. 1. D E, although appearing much shorter, is really the same length as B C.

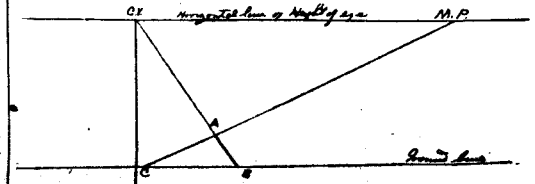
Again, place the glass upon the table, remove the blocks, and in their places put square pieces of paper or cardboard, the same precautions to be observed as in the first experiment. The following cut will show the position of the glass, etc.



In the same way as before mark the appearance of the pieces of paper, taking care to have the eye of the pupil directed towards one point, and in this case care should be taken to select a point as near to the right or left of the glass as possible. Draw the diagonals of the squares and produce them until they meet in M P. M P will be found to be in the same horizontal line with C V. By means of this point we may do all our measuring for retiring lines in parallel perspective.

The method of reasoning is this: A B C D and E F G H are squares, therefore all the sides in each are equal. B D is equal to C D in reality, although on account of the position of D B it looks to be somewhat shorter, also F H G H = G H.

As to the position of M P it will be found by actual experiment that it is the same distance from C V as the pupil's eye was when making the experiment, therefore from C V to M P represents the distance of the spectator from the picture-plane. Therefore, to measure the length of retiring lines we measure to the right or left of the line running to C V, and draw from this point to M P (which represents the distance of the spectator from the picture plane); the point where these lines intersect each other is the farther end of the retiring line. For example: The spectator is looking towards a certain point represented by C V and is a distance represented by C V to M P, from the P a straight pole is lying upon the ground to the right and perpendicular to the P P. Show its appearance—



C V A B is the direction of the appearance of the pole by measuring on the G L from B to C, the distance equal to the length of the pole, and drawing from this point to M P. The lines intersect in A, therefore A B is the appearance of the pole. Teachers should be very careful to give many problems and much drill so as to thoroughly fix these principles in the minds of his pupils. After the pupils have thoroughly understood these experiments, they will have a good foundation upon which to build a thorough knowledge of parallel perspective.

For the training of entrants I should teach these facts by experiment, then give problems to be done in a mechanical way before allowing them to make the drawings in No. 5. After they become acquainted with the principles upon which these have been made, they should be required to copy them, observing these principles. It will not only enable them to understand the work, but to make their work much more accurate and correct.

*Paper read by Sam'l J. Latta at West Huron Teachers' Association.

Primary Department.

CLEANLINESS.

BY ARNOLD ALCOTT.

"THOSE that wish to be clean, clean they will be." So spake the old Irishwoman in that charming fairy tale by the Reverend Charles Kingsley, *The Water Babies*.

Many of our teachers have pupils who come from homes where poverty, with its too frequent attendant dirt, exists. These children are in somewhat the same predicament as was "Topsy," in Uncle Tom's Cabin. They grow in spite of circumstances.

Our surroundings, or, as the philosopher would say, our environments, educate us more effectually than we think. The eye is one of the most definite, and one of the clearest of the perceptive faculties. Psychologists tell us that distinct, vivid impressions form the basis for future elaboration into thought. In poetry we find the same idea. If you will refer with me to Goldsmith's Traveller, we shall find that in speaking of the influence of country, soil and climate on a people, he says:

"Turn we to survey,
Where rougher climes, a nobler race, display;
Where the bleak Swiss, their stormy mansions tread,
And force a churlish soil for scanty bread."

As a consequence of the barrenness and sterility of the Highlands we have a thrifty, industrious, conscientious race produced. Those who dwell in country places have a fondness for and communication with Nature, with the works of God, which those residing in towns and in cities, have in but a superficial and artificial sort of way.

Since it is an axiom then that we are influenced largely by what we see, we believe it to be an absolute necessity, in order to have pure pupils, physically, that the school-rooms and school-yards be tidy and clean. Let us make the schoolroom bright and cheery, for indeed, it is the only pleasant place for those scholars who have not been blessed with neat homes.

Having surrounded our children with good, the next step is to devote our attention to them.

How are we to secure personal cleanliness?

It gives me much pleasure to give to you the following methods, which I have tested, and have found satisfactory:—

1st. *Private Talks*.—By talking privately with individual pupils beneficial effects have been produced, because this mode of treatment does not lessen the respect of a scholar in the eyes of his fellows.

2nd. *Pictorial Illustrations*.—It is a well-known fact that children are fond of praise, that they like to be noticed.

Many teachers make mistakes just here. For example, they put the names of the talkers on the board, or the names of the bad writers, or of the bad spellers, or they bring out before the class those who came with dirty boots.

Present gratification is a natural instinct, if I may so call it, with children. Therefore, this notoriety pleases them to a certain extent. In other words, a wrong spirit is inculcated.

And such procedure is not likely to be productive of the best results as regards abolishing talking, improving the writing and the spelling, and getting the boots clean. To take the latter case, let the teacher make much of those who have clean boots. Thus we reward the good and ignore, seemingly, that which is otherwise.

Again, we may talk about those birds which are fond of water, about the purity of white flowers, and may draw suitable pictures on the board, and write thereon the names of our clean, tidy pupils. Various little devices of this sort may be used by the ingenious teacher with much advantage.

3rd. *Stories*.—In the junior course of the Chautauqua Young Folks' Reading Union, the *Water Babies*, by Canon Kingsley, is prescribed. This course is for children under twelve. We should lead our scholars to read the book, or if they are too young, we should tell them the salient points of the story. By vividly portraying little Tom's dirty condition, and by dwelling on his wish to be clean, we have been able to so impress our pupils with the desire to be clean that the results have been gratifying.

It has been said that the best way to civilize Russia would be by the judicious use of soft soap in that country.

However we do it, we must see to it that our scholars are neat and clean, if we would begin work aright. We should train them to be tidy in the most trivial matters, even in so insignificant a one as that of cleaning slates. Water should be used always, and every pupil should have his or her cloth or sponge. This is very important.

With the older pupils, and even with the juniors, we should show how necessary personal cleanliness is with reference to the preservation of good health.

Charles Kingsley says that "People's souls make their bodies, just as a snail makes it shell." This is undoubtedly true, but the reverse is also true, in so far as that if a boy be clean, tidy, and neat in appearance, it will be the easier for him to be morally pure and true. It will be easier for such an one to be upright and honest, than for him to be slouching and sneakish.

We have offered a few suggestions, knowing that to the wide-awake teacher, these will serve as a stimulus to greater efforts.

Indirectly, and directly, we must be diligent in this work, until we have found our *El Dorado* of bliss, in the sunlight of the bright, clean faces of our boys and girls.

We must steer carefully but surely, between the Scylla and Charybdis of dirt and ignorance, keeping a sharp outlook, and doing all we can to encourage the free use of soap and water.

Let us by our personal magnetism infuse into our pupils the desire to be clean; let us send into their hearts sparks of electric fire from our own souls; let us, in the words of the noble English statesman, William Ewart Gladstone, "make it easy for them to do right, and hard for them to do wrong."

We have given you no sky-scraping theories, but proved realities. Nevertheless we ask you not to accept them, but, in the words of the apostle, we say, "prove all things, hold fast to that which is good."

"As in the elder days of art,
Builders wrought with greatest care,
Each minute and unseen part,
For the gods see everywhere.
Let us do our work as well,
Both the unseen and the seen,
Make the house where gods may dwell
Beautiful, entire and clean."

HONOR ROLLS.

"RHODA LEE."

A GREAT deal has been said for and against honor rolls and it is to be supposed that as long as teachers of different mind and calibre exist there will be some who will abuse but many who will use this simple though effective school-room artifice. In some cases the combination is wrong; in others the plan adopted has not been given a fair trial. By combination I mean the spirit of class and pupil coupled with the honor-roll. The spirit must be right to start with or the efforts will be entirely misdirected. Endeavor by all means to have your children love and do what is right for its own sake and not for the sake of excelling others.

When one of your active, troublesome boys gets into the "fort" described in our last number, as a good soldier, let him feel that it is the record and reward of a "trying" week, and he is now pledged to keep up his reputation as a good soldier. He is not to be contented with his own success but is also to help others, in school and out, to get into this place of safety.

Be careful that your "Busy Bees," referred to in our last paper, never stop to pride themselves on their thriftiness. Guard against your children stooping for the prize before they have gained the victory. Have them scorn the thought of unworthy honor, and undeserved praise. This right spirit is not by any means an easy thing to obtain. Neither is anything else worth having. Nevertheless get it.

This emulation may be applied, either to the intellectual part of school work, or to the moral actions of the pupil, but it is in the latter that we recommend the use of it most strongly.

We think it must be the experience of all who have faithfully used the honor rolls in this connection, that, for the promotion of general good conduct and tidiness especially, they are extremely use-

ful. In some districts more than others it is very difficult to have clean boots throughout your class. A little incentive in the way of a "boot roll" is productive of grand results. Draw a large side-view of a boot on the board and print neatly across it the word "shine." Below the shoe write the names of all who have not once in the week come with muddy boots, wet days excepted. For variety you might give to this lengthy list the name of "The Boot Brigade."

You will find many thoughtless boys, who at one time were blissfully happy in taking the short route through the mud, picking their way and endeavoring to preserve their "shine" in order to gain a place in the "brigade."

Neither do they care now to stop to play on the way, and thus the device has developed into a two-fold blessing, overcoming dilatory as well as untidy habits in your class. We might mention a great many more bad habits which might be subdued in this way, but will leave it to each teacher's own ingenuity to find out what incentive is best suited to aid all little folks in overcoming their "crying evil," and when you have discovered this, with your combination correct, you will assuredly be rewarded by good and encouraging results.

TACT.

BY RHODA LEE.

MANAGEMENT, viewed from one point, may be said to be of two kinds. Tact, or the natural, instinctive power of management which some teachers possess, and that which may be derived from child-study and the observation of cause and effect in the school-room and home. Yes, home. If there is a child in your home, study him, and you will find much that will aid you in your school work.

"How I wish I had that tact," someone says. Now let me tell you, I think in all probability you have a considerable quantity of it, but instead of trying to use it you have been enforcing your rules with a grand will, certainly, and yet with, perhaps, a sprinkling of harshness and despotism of which you would scarcely deem yourself capable. How much more peaceful, pleasant and profitable the day would have been could you have conquered that idle, "I can't" boy, or that obstinate girl, by a little tact, than by the exercise of your indomitable will and authority. Undoubtedly tact is a very important "wheel" in the school-room work. Let us note the various "spokes" of which it is composed, and their bearing on the other machinery. One of the first and most necessary is praise; and let it be spoken, by all means, not merely thought. A little deserved praise to the right one, in the right way, at the right time, never fails.

If you have had some trouble, as I have, with noisy feet, you will find it advisable to say sometimes, "Tom, I am glad to see you have conquered your feet," or to a row, "The girls in the second row have had good feet during the last lesson." This, to some who have been really trying, will do much towards obtaining steadiness of feet.

In no better way than by a little well-timed praise can neatness of work be obtained. You may give the commendation in a variety of ways. When examining the slates, place on the work some mark, either with white or colored chalk, or change the position of the pencil from its place on the desk to the slate, or, in preference to this, place the slates deserving approbation on a ledge along the wall.

Remember, however, that it is not only the best, but the one on which the greatest effort has been expended, that is deserving of praise. If your children love you as they ought, and have not been satiated with praise, they will value your approbation very highly, and prize it when received.

Children love to be praised, and we, in our love for it also, are reminded that we "are but children of a larger growth." How in our school work we long for a word of commendation, and when we receive it, with what added zest we work!

Let me tell you of a little experiment I made in my class quite recently.

I had been greatly troubled with some harsh, loud voices in my class, and had tried many plans for softening them, but, from forgetfulness more than anything else, these voices would come out at times and influence the whole class. One morning I stopped my scholars in a song, and, turning to the boys, I said, "Boys, I was in the country this

Correspondence.

SPELLING GEOGRAPHICAL NAMES.

To the Editor of the EDUCATIONAL JOURNAL:

summer, and took a book one morning and went out to the woods for a quiet time with the trees. I was sitting under some very tall pines, and had begun to feel a little drowsy, when I was startled by the harsh, grating voice of a crow, who was cawing loudly over my head. Just as the great black-bird stopped cawing, I heard the sweetest song upon my right. It was from a little yellow oriole, and coming after that noisy crow, it sounded sweeter to me than ever before. Your singing made me think of that morning. Do you know why? Now let us all try to be orioles."

The next song was the sweetest I ever had in my class. I then said to some boys who had naturally harsh voices, but who had softened them wonderfully, "John, I know now how soft your voice can be," and "Frank, you are helping greatly in the banishing of the crows." Then I praised the whole class for their efforts in copying the oriole, and the next song was even softer. That evening I drew with my colored crayons in a spare corner a picture of the pine trees, perched the old crow on the top, and brought out the little yellow bird, very distinctly, on a lower branch.

Any tendency to loud singing was instantly put an end to by a mere glance at the crow, or a reference to our listening bird, and a little praise to the "orioles" in the room, who I am happy to say are much more numerous than they once were.

Other spokes in the tact wheel will be discussed at a later date.

Praise, let me say before leaving it, is never more necessary than just as we are commencing a new term, when we have new scholars who have little confidence and less application. Cheer them up and help them on whenever you can with a word of praise for their tiny efforts. And let it be genuine praise. Do not let the lips and face be at variance.

"Praise that is spoken but in part,
Fails to cheer the saddened heart,
But the whole-souled praise that beams from the face,
Drives care and despair from every place."

HINTS FOR OBJECT LESSONS.

WE should endeavor at this time to use some of Nature's autumn supplies for these lessons and I shall suggest only what lies within the power of every teacher to readily obtain. Have as many object lessons as possible in your lowest classes, but have at least two a week in every grade of the primary department. Take pains to make them bright, attractive and orderly, and they will become an all-round pleasure, and a decidedly interesting part of the week's work. One lesson this month might be on the seed of the *sunflower* which is to be found in almost every garden. The plan of procedure at this time will be in the order of the series. The following heads of the first lesson will perhaps be of assistance in guiding the investigations of the class.

Supply every child with a few seeds and have in the room one or two flowers and leaves.

I. *Sunflower-seed.*

1.—SIGHT.

- Shape.
- Color.
- Nature of surface judged by eye.
- Note other objects resembling the seed in appearance.

2—TOUCH.

- Nature of surface discovered by feeling.
- Weight.
- Form undiscovered by sight.
- Break seed and question as to the qualities of skin and flesh—whether hard or soft, also their uses.

3—TASTE.

- Sweet or sour. Compare with other things.
- Compare with other seeds with regard to use as food.
- Refer to the decided "taste" the chickens have for it.

Close by a little talk about the use and growth of seeds.

Note—Sketch plant on black-board using colored chalks.

II. Leaves, (any plant or tree).

III. Wheat.

SIR,—Among other interesting matter in your JOURNAL of Sept. 2nd, appeared a very able paper on Geography, by Mr. Ross. In this he enumerates in a very exhaustive and instructive manner the necessities or apparatus essential in the teaching of Geography, defines what should be taught, and sets forth his method of imparting the subject to the children. Just here I might say that such articles as the one in question are a decided benefit (and I speak from experience,) to teachers. It shows them other methods than their own, which if they do not altogether adopt they at least may to a great extent profit by.

But there is one thing connected with the teaching of Geography to which in my opinion more prominence ought to be given than that accorded by Mr. Ross. I refer to the spelling of geographical names. After impressing on the pupils' minds the names and positions of places, a thorough drill in the spelling of these should at once be given. At each subsequent review special attention should be given to spelling. This, with the practice the pupil would get in writing and map-drawing, would be sufficient.

The course the Education Department has taken of late years in crowding subject after subject on the Public school curriculum has led of necessity to the neglect of spelling. This is to be deplored as, next to reading, it is probably the most important branch.

The only way, then, open to teachers is to so manage their classes that their pupils will be acquiring a knowledge of spelling in every subject as well as in Geography. Respectfully yours,

J. A. JOYCE.

ENNISMORE, Sept. 4, 1889.

CLASS-WORK vs. DESK-WORK.

To the Editor of the EDUCATIONAL JOURNAL:

SIR,—I read with considerable interest two short discussions in the JOURNAL of September 2nd, concerning the programme of studies for rural Public schools. I think some of the statements and questions in the first letter are slightly erroneous. To find fault is easy, to criticise is difficult. I think the following remarks about some of Mr. W's questions and statements will be supported by sound reasoning and common sense. "Of the time spent by a pupil in school under a good teacher," says Mr. Wallis, "the most valuable part is that spent in class." This statement, if passed without comment, might lead some teachers to neglect the desk-work, and devote too much time and labor to the class-work. The educator's aim is to teach children to study. Where can the teacher have a better opportunity of ascertaining whether he has accomplished this or not, than he has when the pupils are seated after class-work? It is not what is learned, but using what is learned that is valuable to a pupil. While in the class a pupil cannot use the knowledge imparted to him by the teacher, and, therefore, he must use it at his seat. May we not conclude then that the desk-work is of as much importance as the class-work? and also that the study programme, whether preparatory or supplementary, is of as much importance as the recitation or teaching.

Again, he asks, "In how many years could an average pupil complete the Public school geography spending thirty minutes a week in recitation? or the course in British history by spending forty-five minutes a week in recitation? Does it matter how long it requires a pupil to complete a subject as long as he knows what he has studied? If a pupil were taught merely to recite and not to know he would likely never be able to complete a subject. The amount studied and recited is nothing, what is remembered is all. If a teacher is crowding a pupil's mind for examination, of course forty-five minutes a week for history in the class is not enough, but for a thorough, practical educator, aiming to mould his pupils into educated men and women the time, with the desk and home study, is quite sufficient. "Art is long."

Mr. W. says: "Let the Department arrange a programme, etc.," something which he thinks is impossible. Suppose the Department arranged a pro-

gramme suitable for all schools, then teachers would become mere imitators, instead of being, as all true educators are, earnest independent thinkers, and enthusiastic workers. No programme can be made for any one school that will exactly suit the circumstances of every other or any other school. If a teacher can modify a programme arranged by the Department, can he not as easily form one of his own better suited to the ever varying circumstances of his school?

It would be impossible for the Department to state how many hours should be devoted to each subject each week. In some schools the pupils require to give one subject special attention. Another school another subject. It is the teacher's duty, and the teacher's only, to decide by personal and actual experience to which subject, in each case, the most time must be given.

Mr. W. thinks that it would be advisable to strike off some subjects from the course, and that this would be wise and progressive. Our course of studies is not too extensive. The fault lies not in too extensive a course, but in teaching too much of any one subject. The amount is given without the idea, theory without practice, principle without the application, problems are solved, words parsed, definitions studied, but the relation of the one with the other is not understood. If a pupil be taught to use a principle learned in one subject, in his study of another, then the teaching too much of any one subject can be avoided, and time and labor economised. Do not let us retrograde. The aim of our present system is to place the ungraded schools upon the same footing as the city schools, and thus keep the educational work abreast throughout the country.

August 9, 1889.

EDUCATOR.

MURDERING THE QUEEN'S ENGLISH.

PROBABLY there is not an instrument in common use, from a pencil to a piano, which is used so imperfectly as language. You were well taught here and most of you have been using the English you learned for some time since you graduated. But, if you will let me be plain, I suspect that it would be safe to offer a gold medal as a prize to every young lady here who will not before to-morrow night utter some sentence that cannot be parsed; will put no singulars and plurals into forbidden connections; will drop no particles, double no negatives, mix no metaphors, tangle no parentheses, begin no statement two or three times without finishing it, and not once construct a proposition after this manner: when a person talks like that they should be ashamed of it. We all repeat and perpetuate conventional blunders and hereditary solecisms without once applying the study of four or five years in syntax and conjugation to our current speech. Where is the reform to begin? I say emphatically set about grammatic correctness, first of all. Watch yourself. Criticise yourself. Be intolerant with yourself. Get some housemate to expose you. Say over the thing correctly till the mistake is made impossible. It would be no more discreditable to your school training to finish a picture out of drawing, or to misspell the name of one of our territories; or to mistranslate a line of Virgil, or to flat in music, than to confound the parts of speech in a morning call. Nothing is to be said in this presence of slang. If I were to exhort those who are here on that matter it should be only to forbearance, in that they are obliged to hear it from their ill-bred acquaintances. "Awful handsome" and "horrid nice" and "jolly sunset," and all that pitiful dialect, coming of weak heads and early neglect, we shall have to bear with until select and high-toned schools, like this one, have chastened the manners and elevated the spirits of the better-conditioned classes; and, through them, the improved standard will work its way outward and downward into the Public schools and the homes of the people. Unexpected hyperbole is often witty, but nonsense is not, nor are stale repetitions of nonsense. An ill-natured bachelor shamelessly reports that he has entered in his diary a thousand scraps of talk of young women heard in the streets and houses, of which seven hundred and eighty begin with "says I," or "says he," and one hundred and twenty contain the combinations "just splendid," "stuck up," and "perfectly lovely."—*Bishop F. D. Huntington, to a class of Young Women.*

Examination Papers.

EDUCATION DEPARTMENT, ONTARIO.—
MIDSUMMER EXAMINATIONS, 1889.

THIRD CLASS TEACHERS.

HISTORY AND GEOGRAPHY.

Examiners: { M. J. KELLY, M.D., LL.B.
J. E. HODGSON, M.A.

NOTE.—Only eight questions are to be answered, viz., 3 from group A, 2 from group B, and 3 from group C.

A.

1. What, and where to be found, are the evidences of the occupation of England by (a) the Celts, (b) the Romans, (c) the Danes, (d) the Norman French?

2. What English kings were connected with the Crusades? Show how these wars affected the English people.

3. Outline, with brief notes, as to their causes and effects, the constitutional changes that occurred during any two of the following reigns:—(a) that of John, (b) that of Henry III, (c) that of Charles I, (d) that of Charles II, (e) that of William III.

4. Sketch the leading features of the reign of George III.

5. Give an account of the Chartist Agitation. Enumerate the demands made by the leaders of the movement, and show how far these demands have been since satisfied.

B.

6. Detail the cause of the Canadian Rebellion of 1837, and the results that flowed from it.

7. State fully the circumstances that led up to Canadian Confederation.

8. Outline briefly the Constitution of Canada as defined by the British North America Act of 1867, noting the functions generally of the Dominion and Local Legislatures. State which has jurisdiction in matters affecting:—Indian Affairs, Education, Fisheries, Rivers and Streams, Postal Service, Militia, Municipal Institutions, Bankruptcy, Penitentiaries, Gaols, Reformatories.

C.

9. Locate the principal commercial centres of the British Islands, indicating their most important trade relations and mentioning for what each centre is especially noted.

10. Draw an outline map of the United States, showing the water system and describing its effects on commerce, climate and productions.

11. State the causes and directions of the trade winds, the monsoons, and the land and sea breezes; and show how trade, climate and productions are affected by them.

12. Locate as definitely as possible the following places, mentioning for what each is remarkable: Heidelberg, Aden, Duluth, Calcutta, Carthage, Victoria, Sault Ste. Marie, Halifax.

13. Give an account of the natural resources of British Columbia and the Basin of the Mackenzie River, with the probable effects of their development on the future of the Canadian North-West.

ARITHMETIC.

Examiners: { J. F. WHITE.
W. H. BALLARD, M.A.

NOTE.—Candidates will take the first four questions and any five of the others.

1. (a) Simplify $\frac{5 \times .006}{\frac{1}{2} \text{ of } \frac{1}{3} \times (\frac{1}{4})^2} + \frac{\frac{1}{2} \text{ of } \frac{1}{3} \times (\frac{1}{4})^2}{1.6 \times .625}$ (Answer in fractional form.)

(b) Find the average, correct to 4 places of decimals, of $12\frac{1}{2}$, 21, $7\frac{1}{2}$, .034, $3'125$, 0, $24'58$ and $12\frac{1}{10}$

NOTE.—No marks will be allowed for either (a) or (b) except the answer be perfectly correct.

2. It what time will \$30441 gain \$2210'10 if at the same rate, the gain on \$24944'10 for 1 year and 15 days is \$2596'92? What is the rate per cent. per annum (365 days to a year)?

3. A house that cost \$15500 rents for \$155 a month. It is insured for \$10850 @ $\frac{1}{4}\%$ yearly; the taxes are 15 mills on an assessment of \$12450, and \$346.45 is spent each year on repairs. What rate of interest does the investment pay?

4. A rectangular field, whose width is $\frac{3}{4}$ of its length, contains 15 acres, 123 per. In going from one corner to the opposite how much shorter is it to take the diagonal than to go around the two sides?

5. A note of \$2450, dated Halifax, June 1st, 1886, for 4 mos., bearing interest @ 6%, is discounted at a bank on Aug. 15th @ 8%. Find the proceeds.

6. A farm cost $3\frac{1}{2}$ times as much as a house; by selling the house @ 10% loss and the farm @ $7\frac{1}{2}\%$ gain, \$3993.30 is received. Find cost of each.

7. Bought 64 yds. of cloth, @ \$5.70 a yard. If it shrank 5% in length, find the selling price per yard to gain 20%.

8. A and B are partners, A's capital being $\frac{2}{3}$ of B's. At the end of 5 months A withdraws $\frac{1}{4}$ of his capital, and at the end of 9 months B withdraws $\frac{1}{3}$ of his. How should they divide a gain of \$4222.33 at the end of the year?

9. A man sold his 5 per cents @ 78 and invested the proceeds in 6 per cents @ 104. His change in income being \$385, find how much 5 per cent. stock he had.

10. A dealer shipped 400 bushels wheat @ \$1.40, 800 bushels @ \$1.62 $\frac{1}{2}$, and 300 bushels @ \$1.20, to his agent, who sold the first at 20 per cent. gain, the second at 15 per cent. gain, and the third at 4% per cent. loss. The agent's commission was 3 per cent., and other charges were \$83.44; find the dealer's gain per cent.

11. What is the cost of boards, at \$1 for 50 sq. ft., to make a closed box 7 ft. 10 in. long, 3 ft. 8 in. wide, 2 ft. 6 in. high (outside dimensions), the boards being 1 inch thick?

12. Reckoning a pint to be 30 cub. in.: if 462 gals. are taken out of a cylindrical cistern 7 ft. in diameter, how many inches will the surface of the water be lowered? ($\pi=3\frac{1}{7}$).

UNIVERSITY OF TORONTO.—ANNUAL
EXAMINATIONS, 1889.

JUNIOR MATRICULATION.

ENGLISH COMPOSITION AND PROSE
LITERATURE.

PASS AND HONORS.

Examiners: { A. H. REYNAR, M.A.,
DAVID REID KEYS, M.A.

NOTE.—Candidates for University Scholarships will take only those questions marked with an asterisk. All other candidates (whether for Pass or Honors, Second Class or First Class Certificates) must take the first four questions and any two of the remainder.

*Pass Candidates are warned that part I. counts half the paper.

I.

*1. Write a Composition on:—

The Genius of Goldsmith as illustrated in the Citizen of the World.

II.

*2. Explain the title, "The Citizen of the World." Under what circumstances were these essays written? Who were Goldsmith's models in this style of writing?

*3. "The distinctions of polite nations are few; but such as are peculiar to the Chinese appear in every page of the following correspondence. The metaphors and allusions are all drawn from the East. Their formality our author carefully preserves. Many of their favorite tenets in morals are illustrated. The Chinese are always concise; so is he. Simple; so is he. The Chinese are grave and sententious; so is he. But in one particular the resemblance is peculiarly striking: the Chinese are often dull; and so is he. Nor has my assistance been wanting. We are told in an old romance of a certain knight-errant and his horse who contracted an intimate friendship. The horse most usually

bore the knight; but in cases of extraordinary dispatch the knight returned the favor and carried his horse. Thus in the intimacy between my author and me, he has usually given me a lift of his Eastern sublimity, and I have sometimes given him a return of my colloquial ease.

"Yet it appears strange in this season of panegyric when scarcely an author passes unpraised either by his friends or himself, that such merits as our philosopher's should be forgotten. While the epithets of ingenious, copious, elaborate, and refined are lavished among the mob like medals at a coronation, the lucky prizes fall on every side, but not one on him. I could on this occasion make myself melancholy, by considering the capriciousness of public taste, or the mutability of fortune; but during this fit of morality, lest my reader should sleep, I'll take a nap myself, and when I awake tell him my dream."

(a) State the subject of each of these paragraphs. How is the transition made?

(b) Cite or refer to examples of the Chinese peculiarities in these Essays.

(c) Distinguish between: *metaphor* and *simile*; *tenet* and *doctrine*; *formality* and *stiffness*; *concise* and *precise*; *simple* and *clear*; *romance* and *novel*.

(d) Derive *sententious*, *romance*, *knight-errant*.

(e) Note any words used in a different sense from that now given them, and explain the distinction.

(f) *panegyric*. Give synonymous words and distinguish carefully in meaning.

*4. Re-write the second paragraph, substituting words of Old English (Anglo-Saxon) origin where you can.

*5. Criticise Goldsmith's use of figurative language.

6. Describe the visit to the Club of Authors.

*7. Sketch the character of the Man in Black.

8. Compare Beau Tibbs with a modern dandy.

*9. Compare Goldsmith as an essayist with the writer of the Victorian age who, in your opinion, most resembles him.

BOTANY.

HONORS.

Examiner: J. J. MACKENZIE, B.A.

NOTE.—Candidates for Honors must take questions marked *. Candidates for First Class C. examination must take the first three questions and any three of the remaining four.

*1. Describe accurately the plant submitted.

*2. Refer it to its proper position among Phanerogams, and mention several allied Canadian species.

*3. Illustrate, by drawings, as accurately as possible, the structure of the flower before you. Show by a floral diagram the relationship of the different organs.

*4. Give some account of the method in which plants obtain their food. Explain in this connection what is meant by insectivorous plants and mention some Canadian examples.

5. Describe fully the fructification in the common horse-tail (Equisetum) and compare it with that in the club moss (Lycopodium).

*6. Give some account of the Stonewort (Chara), and its method of reproduction.

*7. Give a short account of the means by which cross fertilization is brought about in the flower, illustrating your answer as fully as possible by Canadian examples.

NOT NECESSARY.

THE public schools do not need to assume either college or university terms to have all the dignity that they need. It is their duty to occupy the place that belongs to them and lend such assistance as they can to encourage such an education as will develop the whole man. The greatest tribute that can be paid to a public school teacher's work is that he did so good work that he left a strong aspiration for the great fields of knowledge yet beyond, and his pupils were ready and willing to pay the price necessary to attain it.—*Exchange*.

School-Room Methods.

FRACTIONS.

If thorough work has been done in factoring numbers and in finding their common divisors and common multiples, this subject of fractions brings little that is either new or troublesome.

Let these two ideas be clearly fixed before attempting operations with fractional numbers: 1st. What a fractional number is. 2nd. How it is represented. In the first, build on what the child already knows. Let him find for you $\frac{3}{4}$ of an apple, $\frac{3}{4}$ of the length of the room, $\frac{3}{4}$ of the surface of the desk, $\frac{3}{4}$ of a square or other regular figure drawn on the blackboard. Find $\frac{3}{4}$ of a sheet of paper, according to the dictation of the class. Do a great deal of this objective work, carefully graded, of course. Provide yourself with strips or circles of paper uniform in size, with which all the operations can be performed. Bring out the idea that the parts must be equal. This work should be kept up long enough to give the pupils' readiness in finding fractional parts.

Right here is a good place for the pupil to have such problems as this: How could you divide three apples equally among four boys? He soon reaches the generalization that the n -th of a unit is equal to one m th of n units.

Now should come the expression of a fractional number. The numerator numbers the units, the denominator simply names them. The latter idea is the new one to the child. He has always read 4 as a symbol for a number; now it is to be read as "fourths." Let him master the idea that the denominator is the name given, and merely shows into how many parts the unit of the fraction has been divided. The clear comprehension of this will save much confusion. Let him now represent the fractional parts already found, until he clearly associates the number and its symbol.

He is now ready for the terms, proper, improper, simple, complex and compound. After these are comprehended the principles of fractions should be presented and explained. In giving these principles and in making reductions of fractions, objects should be used freely to aid the pupil in grasping the idea. We have found it a good plan to have the effect of multiplying or of dividing the numerator mastered before considering the operations on the denominator. This is a good place to do slow and sure work. Make haste slowly.

In taking up reductions and the other operations, let fully nine-tenths of the work be oral. Illustrate methods by means of the simplest fractions. Train the pupils to work correctly, quickly and neatly. In board or slate work, have operations performed mentally whenever possible. For instance, in reducing $\frac{2}{3}$, $\frac{1}{3}$, $\frac{1}{3}$ and $\frac{1}{3}$ to their least common denominator, the denominator may be found by inspection, and each numerator may be found the same way. So the crayon is used simply to record results.

In taking up addition and subtraction, connect them closely with the same operations as applied to whole numbers. Only like numbers can be added or subtracted. Write the numbers in a vertical column. Look for the least common denominator and, if possible, find it by inspection. If the new numerators are separated from the original fractions by commas, the new denominator need be written but once. This device saves time and makes the work clearer and neater. If the pupils are trained to use their eyes, they will often see in the columns pairs of fractions that can be united at sight, and others that are not in their lowest terms. They will also soon learn that it never pays to reduce a whole or mixed number to an improper fraction before adding.

That there are two ways of multiplying and also of dividing a fraction, has been learned while mastering the general principles of fractions. Lead the children to see which of these methods is always the easier, and then see to it that they use this easier one whenever they can do so.

Multiplying a fraction by a fraction is more complicated, as the operation involves two steps. An expression like $\frac{2}{3} \times \frac{1}{4}$ should be treated as $\frac{2}{3}$ of $\frac{1}{4}$. The operation of finding 3 times one-fourth of $\frac{1}{4}$ does not prove confusing to pupils who understand what has gone before. This problem may be read, "Find one-fourth of three times $\frac{1}{4}$."

There are several ways by which we may explain the work of dividing one fraction by another. The following seem the easiest for pupils to grasp:—

I. $\frac{1}{2} \div \frac{1}{4} = ?$ Consider $\frac{1}{4}$ the fourth part of $\frac{1}{2}$.
 $\frac{1}{2} \div \frac{1}{4} = \frac{1}{2} \times \frac{4}{1} = 2$. But the true divisor is the fourth part of three, hence the true quotient is four times $\frac{1}{2}$.
 II. Only like numbers can be compared. $\frac{1}{2} = \frac{2}{4}$.
 $\frac{2}{4} \div \frac{1}{4} = \frac{2}{4} \times \frac{4}{1} = 2$.
 From either method it is an easy matter to deduce the rule.

As soon as any operation is understood, give a great many problems involving that operation. Encourage the use of cancellation, even in mental problems, and insist on its use in written examples. See that the pupils do not swing away from their moorings—forget what the unit of their fraction is. This fault causes much of the trouble found in fractions. If a pupil does not seem to grasp the conditions clearly, it is well to require him to illustrate by diagram, or to show in some other way the idea that he gets from the problem.—*County School Council.*

AN EXPERIMENT IN COMPOSITION WRITING.

I WAS tired of listening to so-called compositions on the trite subjects of Friendship, Winter, Education, Hope, Pleasures of Memory, Punctuality, *et id genus omne*. Every Friday afternoon I had suffered untold torments, while the lads and lasses of my class stumbled up to the platform by my side and mumbled off their wise nothings on these subjects. The affair was getting to be as much dreaded by me as I know it was irksome to my scholars. Could anything be done to awaken an interest in this really most valuable exercise? I had often striven to answer this query, and had occasionally broken the bonds of habit, and had given out subjects which I wished to be discussed or written about. Sometimes it would be biographical, and the lives of great men in history would be the subject, but the encyclopædias were the sole source of information, and the results, in a literary point of view and value, were practically *nil*, and this line was abandoned after a few weeks. After many trials with varying degrees of success, I finally hit on the following plan:—I announced a week previous to the afternoon for literary exercises, that the only subjects for composition were descriptions of something each scholar had seen being done; they were to be accounts of the actual working of some business or occupation, and such writer was to be familiar with his subject. The composition was to be written in the school-room, and was to occupy the hour usually given to the reading of the regular weekly essays.

As the hour approached I observed that there was considerable eagerness on the part of the children to begin their writing, and when the paper was distributed, there was not a moment spent in preliminary excursions and wool-gathering. All went industriously and eagerly to writing. Fifty-four papers were handed in at the end of the allotted time, and fifty-four satisfied boys and girls sat back in their seats with calm expectancy and contented mien. It may not be worth while to recount all that this exercise meant to us all, and how it was followed up with ever-increasing interest and profit. Let me state some of the subjects on which the first compositions were written.

Twelve girls and one boy described the process of making bread, and their directions were for the most part lucid and safe to follow. * * * *

The games or pastimes were well cared for, three boys describing the ever revered game of hockey, while lacrosse, cricket, baseball and tobogganing, were written up by their devotees. The sons of artisans looked after the trades of their fathers, for seven boys wrote about the building of wooden and brick houses, and several described the making of rubber shoes, weaving of carpets, type-setting, building of the running parts of a wagon, planing of boards, etc. One girl went into the details of making butter; another of making pincushions; another told how to knit, and gave a catalogue of the various articles she had knitted during the past year.

Washing was the topic of one girl's essay, and she solemnly averred that she enjoyed doing the week's wash, and thought "blue Monday" the best day in the week; while another girl gave her experiences in ironing clothes, and told how she often burned her fingers. A dainty miss, who had visited

Marblehead during the summer, gave a four-page description anent lobster catching; another told how to color Easter eggs, and another gave full details in the art of papering a room. One boy, the son of the proprietor of a variety store, told how express carts were put together, and the boy who plays the violin wrote an interesting account of how the violin is made, and what must be done to learn to play it. One boy, whose grandfather is a farmer, told all about weeding carrots, and didn't seem to think there was much fun in the occupation.

The experiment succeeded beyond my expectation, and I had a good opportunity to study the likes and dislikes and the inclinations of my pupils. I know it is a good plan, and I commend it to the consideration of others.—*Allen Dale, in American Teacher.*

For Friday Afternoon.

THE GOLDEN KEYS.

A BUNCH of golden keys is mine,
 To make each day with gladness shine.
 "Good morning!" that's the golden key,
 That unlocks ev'ry day for me.

When evening comes, "Good night!" I say,
 And close the door of each glad day.
 When at the table "If you please!"
 I take from off my bunch of keys.

When friends give anything to me,
 I'll use the little "Thank you" key.
 I'll often use each golden key,
 And so a happy child I'll be.

GOOD-MORNING AND GOOD-NIGHT.

GOOD-MORNING peeped over her eastern gate,
 To see if the children were up;
 And laughed at a bumblebee coming home late,
 Who was caught in a holly-hock cup.
 Good-Morning has eyes like the glint of the skies
 When they're bright as the sun and the stars
 mixed together
 And her lips are so sweet, and her steps are so fleet,
 She can dance like a thistledown, fly like a feather.
 You "never have seen her?" Oh, me! Oh, me!
 What a dull little sleepy-head you must be!

Good-Morning can sing like a brook or a bird;
 She knows where the fairies all hide;
 Some folk, hard of hearing, say they never have heard
 Her sing, though they often have tried.
 Good-Morning has hair made of sunshine so rare,
 The elves try to steal it to weave in the weather;
 Which made her afraid, the bonny wee maid
 To swing on the gate many minutes together,
 You "never have seen her?" Ah, me! Ah, me!
 What a cross, lazy lie-abed you must be!

Good-Night is her neighbor, a dear little soul,
 Who swings in a hammock and not on a gate.
 She half shuts her eyes with a great yawn so droll,
 It would make an owl laugh, I will venture to state,
 Good-night always brings the most wonderful things,
 To hide in the children's beds, glittering and gleaming!
 Such tales she can tell, and she tells them so well,
 You could listen all night, and believe you were dreaming!
 You "never have heard her?" Oh, me! Oh, me!
 What a small naughty wide-awake you must be!

Good-Night has a house full of beautiful toys,
 That she keeps for the children—no grown folks are there;
 And she carries them off, the wee girlies and boys
 To her magical palace, and oh, how they stare
 Good-Night never frowns when she sees the white gowns
 Come trooping to beg for more stories,—the dear!—
 But with kisses and smiles the time she beguiles,
 And bids them to come again soon,—do you hear?
 You "never have been there!" Ah, me! Ah, me!
 What a very sad, grown-up young chick you must be!

—*Rosa Evangeline Angel, in St. Nicholas for June.*

BUSINESS NOTICES.

WE direct attention to the announcement of the merits of the "Concise Imperial Dictionary." It is our intention to handle this Dictionary in connection with the JOURNAL, and we offer it in the best binding, and the EDUCATIONAL JOURNAL for one year, both for \$5.50, plus 14 cents for postage. Subscribers who are paid in advance may deduct the amount they paid for one year, send the balance, and have the book at once. This gives the party the JOURNAL for \$1.00.

Editorial.

TORONTO, SEPTEMBER 16, 1889.

ABOUT DULL PUPILS.

THE London *Globe* has been calling attention to an evil which, under the baneful stimulus of the code and payment by results, seems to have made very serious headway in England. We are by no means sure that the same thing may not need some attention in Canada. "Until comparatively recent years," says the *Globe*, "the British pedagogue took the fat with the lean in respect to clever and dull boys. He made the best that he could of both, well aware that juvenile quickness in learning is no criterion of success in after-life. Nor did he attempt to dispute that it was as much his mission to teach the stupid as the smart. Now, however, there are many schoolmasters—and their number is increasing—who seem to consider that the main object of education is to enhance the renown of the place where it is imparted, and not to benefit the recipient. In their eyes the dull boy is simply a blunder and a nuisance; they wash their hands of the wretched dunce, and relegate his training to the chapter of accidents."

The *Globe* goes on to say that even in some of the Board schools there is said to be a disposition to work on this plan, but that it is in higher spheres that really notable instances are found. A case in point referred to is at Manchester, where the Grammar school has a high and no doubt deserved reputation. "In order to maintain this character, the high master sets his face against dull boys; if they cannot learn as quickly as, in his opinion, they ought, they must leave. A father, who has just received an intimation of this sort, naturally considers it rather hard that his boy should be cast adrift for no other fault than mental sluggishness. He admits that the lad is dull, but contends that, when he himself was at school, the pedagogic method was to bestow especial care on pupils of that sort, with the result that they have often turned out excellent men of business."

We do not remember to have heard any similar complaints with regard to Canadian Public or High schools, but in view of the keen competition for educational standing as determined in the case of the former by the Entrance, and in that of the latter by the Matriculation and teachers' examinations, Ontario teachers are entitled to great credit if they have not often been guilty of the injustice indicated. The temptation to neglect the boy or girl who cannot be got ready to make a creditable pass must be

very great. It is well understood that the reputations, and not infrequently the situations, of the masters of both Public and High schools depend very largely upon the relative success of their respective schools in passing candidates at these examinations. When to this is added the effect, perhaps unconscious, of the fact that the task of teaching is much more delightful when the pupils are bright than when they are dull, it would be surprising if the latter did not fail, in many instances, to receive a due share of attention.

The conscientious teacher needs only to have the danger pointed out in order to put himself on his guard against the commission or permission of so cruel an injustice. The sagacity of the true teacher will soon discover, too, that the difference in mental ability is often relative rather than absolute. The fact that a boy or girl seems hopelessly dull in arithmetic or Latin, by no means proves mental inferiority in every respect. The dulness may be found, in many cases, to be more apparent than real; the result, perhaps, of bad teaching and consequent bad mental habits, or of chronic discouragement at an earlier stage of progress. It is told of a boy who afterwards became distinguished for intellectual ability, that he on one occasion was severely flogged for failing to tell the reason why a certain word was in a certain mood, or tense, or case. After administering the educational panacea in the old style, the pedagogue repeated the grammatical formula which he had been vainly striving to elicit, and chided the boy for his obstinacy in refusing to give what he must have known to be the required answer. "Oh," said the boy, "that is the *rule*. I knew that all the time, but it was the *reason* you asked for."

Most teachers of experience will have met with somewhat similar cases, in which a new device, or merely a new and unconventional way of putting a question or making an explanation has let a flood of light into what was mistakenly supposed to be an obtuse intellect, and marked the beginning of a new era of progress. Unhappily, the large classes and crowded programmes in most of our schools make it simply impossible for teachers to study the characters and idiosyncracies of individual pupils as they should. But it is none the less desirable that all should guard strictly against the twin dangers, that of neglecting pupils who are unmistakably dull and consequently in greater need of patience and help, and that of too hastily assuming dulness in the case of those who do not respond so readily as others to the ordinary educational methods.

THE LATE PRINCIPAL MCHENRY.

IN the death of Mr. Donald C. McHenry, late Principal of the Cobourg Collegiate Institute, the cause of Secondary Education in the Province of Ontario has suffered a serious loss. The particulars of the sorrowful event are, no doubt, known to most of our readers. It was while attending the recent annual meeting of the

Ontario Teachers' Association, at Niagara-on-the-Lake, that Mr. McHenry was stricken down with the disease which, after two weeks of suffering, terminated his useful life. The immediate cause of death was spinal meningitis, but it is the opinion of his friends that over-work, the result of his enthusiastic devotion to the interests of the institution over which he so successfully presided, had prepared the way for the inroads of the disease, and so was the primary cause of his premature death.

Mr. McHenry was a native of the town of Napanee, where he was born in 1840. In that town he received the rudiments of his education, which was afterwards completed at Victoria University, from which he graduated in 1873 with the highest honors in classics and modern languages. Some years spent in learning and practising the business of printing and journalism, followed by several years of teaching as assistant in the Napanee Grammar School, during all which years his spare hours were assiduously devoted to study and mental improvement, formed, no doubt, an excellent preparation for the success afterwards achieved as college student and High school master.

Some months before graduation Mr. McHenry had been designated in advance for the classical mastership in the Cobourg Collegiate Institute. After one year of successful work in that capacity he was promoted to the Principalship. That position, as is well known, he filled with distinguished ability till the date of his death. During the sixteen years of his management the Institute has done a large and useful work, having sent up about three hundred matriculants to Victoria University, besides a large number for teachers' examinations, law, theology, etc., and no doubt a still larger number for various spheres of industry and usefulness in the humbler walks of common life. The Chancellor and Professors of Victoria bear high testimony to Principal McHenry's faithfulness and ability as a scholar, teacher and disciplinarian.

One of the best features in the character of Mr. McHenry, and that which makes his decease a loss to the Province as well as to the locality, was the public spirit which led him to take an interest in whatever affected the work of education generally. He did not, like too many successful head masters, confine his labors and sympathies exclusively to the institution with which he was connected, or the neighborhood in which he lived. He was a regular, interested and influential participant in the deliberations of the Provincial Teachers' Association.

He took a useful part in the public discussion of various important educational questions. As an instance we need but remind our readers of the earnestness and ability with which he, a few years since, advocated the abolition of the prize and scholarship systems in our Universities. There can be little doubt that his contributions to that discussion, before the Provincial Association, in the public press, and in the columns of the EDUCATIONAL JOURNAL had much to do with moulding educational opinion, effecting the

partial reform already accomplished in the Provincial University, and paving the way for the complete ascendancy of sounder educational principles and practices in the near future. In many other directions, too, his mind was fruitful in the suggestion of improved methods, as the record of the Teachers' Associations will bear witness, and his recommendations were always listened to with respectful attention, and in many instances adopted.

Mr. McHenry rests from his labors, but the influence of his life will not soon cease to be felt in the various spheres in which he was so devoted a worker. His example is well adapted to give encouragement and stimulus to other workers in the same fruitful field. He honored his profession by deeming it worthy of the best service of mind and heart. The profession in its turn will delight to honor his memory. He has gone to a higher and better reward, but it is well, nevertheless, that the good services of a faithful worker should be held in grateful remembrance.

EDITORIAL NOTES.

THE two new "labor saving" books, *Practical Problems in Arithmetic and One Hundred Lessons* (400 exercises), in English Composition, are meeting with an extensive sale. Teachers see at a glance that these little works save a great deal of time and labor, and nearly every order asks for both of them. Fifty cents will secure them, by return of mail, post-paid.

A HIGH School Master asks us why it is that the Literary Selections prescribed for Entrance and Third Class Teachers' Examinations cannot be known by teachers and candidates until the last moment, before the commencement of the school term or year for which they are prescribed. We cannot solve the conundrum. Whether the Department thinks some educational purpose is to be served by keeping those interested in suspense as long as possible, or whether the delay is merely the result of pressure of other work on the part of those whose duty it is to make the selections, we are unable to guess. For the University Matriculation, and consequently, for Second and First Class Teachers' Examinations, though there is a similar rotation of authors, the exact portions to be prescribed are announced for years in advance. We are unable to conceive of any harm that can possibly result from the arrangement, nor can we understand why candidates for High School Entrance and Third Class Certificates should be placed at a disadvantage as compared with more advanced students. We commend the matter to the attention of the Department.

WE have received from the author, Mr. D. W. McKerchar, B.A., a copy of his well written and timely paper on School Libraries, read before Pilot Mound Teachers' Convention, June, 1889. Mr. McKerchar takes strong, but not too strong, ground, in favor of a well selected collection of

standard books in every school-room. This, he maintains, would "supply the missing link" in our courses of study. The reading of these books would give the children a taste for good literature, and would encourage them to read the standard authors. We are not prepared to go as far as Mr. McKerchar in denunciation of the class of literature disseminated by our Sunday schools. Though much of it is objectionable enough, especially on negative grounds, it is surely, to say the least, a serious exaggeration to assert that "as far as vicious literature is concerned the works of 'Pansy' and 'A.L.O.E.' may be classed with those of 'Cap. Collier' and 'Old Sleuth the Detective.'" It would not, however, be easy to exaggerate the blessings that would accrue to the individual and to society at large could Mr. McKerchar's suggestions for the establishment of libraries and fostering a taste for good reading, in all the schools, be carried into practice. We hope that his well-reasoned pamphlet may be widely circulated and do much to further the object in view.

Literary Notes.

Treasure-Trove for September is to hand with its usual variety of story, biographical sketch, letter-box, thrilling picture for prize story, poetry, good illustrations, etc., well fitted both to please and to instruct its young readers.

AMONG other attractions of the September number of the *Popular Science Monthly* are: a delightful study of animal life and character contributed by Olive Thorne Miller, in the shape of a description of a pet lemur which the author possessed; a discussion of the tariff question from the ethical point of view, by Mr. Huntington Smith; an essay on the "Origin of the Rights of Property," by Henry J. Philpott; and a paper by Prof. Huxley bearing directly on the question involved in the recent discussion between himself and the Rev. Dr. Wace, concerning the genuineness of miracles.

Scribner's Magazine for September contains the opening chapters of a new serial—an exciting and patriotic romance of colonial days by Harold Frederic, the London correspondent of the *New York Times*; the last regular article in the successful railway series of twelve papers; another of the Fishing articles, this time describing the picturesque Nepigon region of Canada; an out-of-door paper by W. Hamilton Gibson, with the author's own illustrations; an end paper by the famous Irish leader, historian and novelist, Justin McCarthy; and other striking papers on literary, educational, and military topics by eminent writers, with short stories and poems.

"THE Dominion of Canada is a device to keep the peace between those to whom Nature has allotted an irrepressible conflict." So says the writer of an article called "La Nouvelle France" in the September *Atlantic*, which will be the subject of discussion in the United States, and of something more than discussion in Canada. It aims to show that the French-Canadian party is steadily gaining Canada to itself, and that by its consummate organization, it is reconquering it from its nominal English rulers. The paper is an interesting pendant to that on French-Canadian literature in the August number; and it will, as has been said, no doubt call out some joiners.

THE September *Century* contains a paper on Napoleon Bonaparte of unusual interest and importance, being contemporary accounts, by British officers, of the ex-Emperor's exile to Elba, his voyage to St. Helena and life on that island. The Lincoln instalment is crowded with absolutely new material, and has to do mainly with Lincoln's triumphant re-election. The authors quote freely from unpublished MSS. by Lincoln, and their own letters and diaries. An article appropriate to the season is Mr. Hamilton Gibson's ingenious and original study of butterfly and plant life, accompanied with illustrations by the author. This paper is entitled "Winged Botanists," and shows the remarkable botanical knowledge of the various butterflies in selecting allied plants for food in the caterpillar stage.

THE September number of *The North American Review* announces that the entire control has been purchased by the Hon. Lloyd Bryce, to whom a controlling interest in *The Review* was bequeathed by the late Mr. Rice, and that his purpose is to conduct it as a Magazine of the Times, on the lines laid down and followed by his predecessor with such remarkable success. The present issue fully bears out the announcement made by the new editor and proprietor. Three of the uppermost topics of the day are treated by men of acknowledged authority on the subjects on which they write. "The Value of International Exhibitions" is discussed by Senator Hawley; Dr. Brown-Séguard's "Elixir of Life" by Dr. William A. Hammond, and "Capital Punishment by Electricity" by Elbridge T. Gerry, Esq.

THE first number of *The New England Magazine, the Illustrated Monthly published in Boston* and edited by Edward Everett Hale and Edwin D. Mead, has several articles relating to Plymouth and the Pilgrims. The opening article is "A Plymouth Pilgrimage," by Mrs. Abbey Morton Diaz, who is a daughter of Plymouth. It is a chapter of delightful gossip about old and new times in Plymouth. Dr. Hale writes upon "The Pilgrims' Life in Common," telling of a Socialism in which the individual was thoroughly respected, and several other articles of ability deal with Plymouth topics. Other articles of varied character appear and Professor James K. Hosmer begins an historical romance, "The Haunted Bell,"—the scene of which is laid in ancient Montreal. The name of Edward Everett Hale who is joint editor with Edwin D. Mead, of this new periodical, will recommend it highly to many Canadian as well as American readers.

FOLLOWING the article on the late Miss Laura Bridgman, in the August *St. Nicholas*, the number for September contains a full and interesting account of "Helen Keller," a young girl who, also, is deaf, dumb, and blind. The sketch is by Florence Howe Hall, a daughter of Dr. Howe, and contains portraits of the child, of her teacher, a facsimile letter from the little girl herself to Mrs. Hall, and other illustrations. Mary Hallowell Foote tells the sad story of "The Lamb that couldn't 'Keep Up,'" and a beautiful drawing illustrating the little story forms the front-piece of the number. Treadwell Walden tells in a brisk style some Adirondack adventures in the days when travelling in that region presented the alternative of hunger or success in hunting and fishing. Fannie W. Marshall contributes a keenly humorous little study of boyish character—"A Day Among the Blackberries"—describing the method by which three boys spent all day in "blackberrying," and came home empty-handed. Another very strong, humorous story is by Thomas A. Janvier ("Ivory Black"). It explains why "W. Jenk's Express," though a great success, was abruptly discontinued.

Mathematics.

All communications intended for this department should be sent before the 20th of each month to C. Clarkson, B.A., Seaforth, Ont.

MODERN METHODS IN GEOMETRY.

BY THE EDITOR.

"THE true test of mathematical training," says a recent writer, "is the power which the learner has obtained over original problems." It is for this reason that METHODS and PRINCIPLES are of supreme importance, while applications and details are of only secondary value from the educator's standpoint.

A very cursory examination of our principal textbook in geometry is sufficient to reveal a multitude of defects in method, quite enough to startle any one thoroughly imbued with modern ideas of teaching and the current maxims of education. Euclid's work was written more than 2,000 years ago, and was divided into 15 books, of which the 5th, 7th, 8th, 9th, 10th, 13th, 14th and 15th have long been abandoned for newer and less clumsy methods, so that we now use only a fragment of the original work, viz., the first four books and a small part of the sixth. To this fragment, however, British educationists have continued to cling with the energy of tenacious conservatism and Teutonic obstinacy.

Grave objections to Euclid's method of developing the science of geometry have often been pointed out, but so far with very little effect on the governing bodies of British universities. The well-known maxims, Teach one thing at a time; Proceed from the simple to the complex; and others of equally commanding importance, are violated on almost every page of Euclid's treatise.

At the very outset the book is hampered with arbitrary restrictions which involve various inconsistencies and exclude the constructions from practical use. For example, the rule is allowed to be used only as a straight edge, and not as a measure of length, and the consequence is that for the simple operation of marking off a given length on a straight line, Euclid's method requires us to describe five circles, an equilateral triangle, one limited straight line and two others of unlimited length. Such arbitrary restrictions divorce his system from practical use in architecture, engineering, etc. His exclusion of arithmetical principles belongs to the same category.

Much stronger in the light of modern principles of teaching are the objections that Euclid begins with abstractions, introduces ideas and methods of reasoning before they are required, and very imperfectly follows the maxim to proceed by gentle steps from the first simple notions to the most complex conceptions involved in the science. Books three and four are, of course, less exposed to this criticism than book one, which precisely reverses the proper order of development on the very threshold of the science. A formidable array of abstract definitions is given in the first pages, and some of them are never again even alluded to in the rest of the work. Now it is in grappling with the fundamental notions that the student finds the greatest difficulty; it is here that a thoroughly logical method finds its greatest mission. But in the first book there is not even a systematic division of the subject-matter. We are required to study the properties of lines, angles, triangles, circles, parallelograms, without any regard to order or to difficulty.

The consequence of this want of method are apparent everywhere, and give some color of reason to many of Sir W. Hamilton's famous strictures on mathematical studies. One serious consequence is the omission of important principles, overlooked because each separate division of the subject-matter is not exhaustively studied.

On modern principles of teaching, geometry must begin with the *point*. The abstract definition must be drawn by sufficient induction from concrete examples, imperfect, it is true, but sufficient to suggest the crude idea which is then refined into pure abstraction by the reason; just as the experiments of chemistry supply the rough material by which the reason rises to the wholly supersensual notions of molecules and atoms which no chemist has seen nor perhaps can ever see. If this necessary and fundamental notion is not carefully made by sufficient induction, the student may go on learning

demonstrations and still know nothing whatever about geometry.

The next step is to acquire properly the supersensual abstract notion of a line by the same rational process of induction from imperfect concrete examples. The motion of a point generates the line: the shortest possible line between two points is the straight line. The revolution of a straight line round one of its bounding points generates the plane angle. These are the first notions on which we may at once build up the superstructure of doctrine relating to the properties of lines and angles, which forms the first and most critical section of the science. This done we return to the straight line and study the figures formed by combining straight lines, such as the triangle, the square, parallelogram, etc. This forms the second section of the subject. Returning to the revolution of the straight line round its extremity, we generate the circle by the path of the other extremity. Next we study the easier properties of the circle, and the relations of lines, angles, parallelograms, etc., to the circle.

We need not enlarge further; it is manifest that geometry studied by orderly method is a science very different from the confused *olla podrida* of Euclid's Elements. As an instrument of education there can be no doubt of its vast superiority. The mental attitude of the student is wholly different, and the method has the advantage of being universally applicable to science in general.

To conclude this short article, perhaps the mention of a few good books on the subject may be appropriate: President Hill's *Geometry for Beginners* (Ginn & Co., Boston) is a valuable book, which might well replace the detestable old spelling book in our third and fourth classes, if we could only bring ourselves to a reasonable and moderately decent method of teaching spelling. Reynolds's *Modern Methods in Geometry* (MacMillan & Co.) is another excellent book that shows in a few pages how the junior pupils of our secondary schools might easily acquire all the working principles of Euclid's six books in a single year, and thus leave themselves free for higher work during the rest of their school life. Wentworth's *Plane and Solid Geometry* (Ginn & Co.), and Wentworth & Hill's *Exercise Manual* supply a far better, and we may add, a far higher course, than any of the text-books which we have been accustomed to use in Canada. The pupil here works out his own education without fear and trembling, in the clear light of logical development of the science. The publications of Sonnenschein & Co. (London) express the ideas of the English educational reformers, and *Chauvenet's Geometry* shows the clear ideas on the subject wrought out by the French mathematicians. Let any teacher examine any one of these books, and then turn back to Potts, Smith, McKay, Hall and Stevens, Deighton, *et al*, and he will begin to appreciate the amount of teaching power wasted every year by following the crude methods developed by the acute Greek pioneer of the science in the days of Ptolemy Philadelphus. It is like stepping off a railway train to mount a camel at the foot of an Egyptian pyramid, with the Sphinx in the back-ground.

The following note appeared in an English exchange:—The new position of Euclid in examinations was the chief subject for consideration at the fifteenth general meeting of the Association for the Improvement of Geometrical Teaching, which was held on Saturday, January 19th, in the council room of University College, London, Mr. R. B. Hayward, M.A., presiding. The report of the Council, which was read by the joint-secretary, Mr. E. M. Langley, M.A., recorded the success of the Association in its efforts in this direction. The Universities of Oxford and Cambridge and the Civil Service Commissioners, it appears, now regulate their examinations so that the student need not give Euclid's proofs of his propositions, but may adopt any other geometrical proofs, provided Euclid's sequence be not departed from. Attention was also drawn in the report to some principles which are set forth in the prospectus of the Technical College, Finsbury, with reference to the entrance examinations, as an example of what may be done by an examining body in the way of encouraging sound mathematical teaching.

Shortly after the preceding remarks had been written, we received from MacMillan & Co. a new volume of 300 pages in their usual first-class typography. It is entitled *ELEMENTARY SYNTHETIC GEOMETRY of the POINT, LINE and CIRCLE* in the

PLANE. The author is Prof. N. F. Dupuis, of Queen's College, Kingston. The general method of development indicated above is followed, and the first three chapters cover the ground of Euclid's Bks. I., II., III., IV., but the difference in the method of treatment is enormous. A cursory examination is sufficient to prove the great value of Prof. Dupuis' work. We have received the permission of the author to give our readers some specimens of the modern methods employed, which will easily prove their superiority to the time-honored treatment of Euclid.

English Department.

All communications intended for this column should be sent to W. H. Huston, M.A., care of THE EDUCATIONAL JOURNAL, Toronto, not later than the 5th of each month.

QUESTIONS AND ANSWERS.

DEAR SIR,—The notes on the Entrance Literature are of great benefit to me; I think the "Hints and Helps" department bears the right stamp.

By answering the following questions you will greatly oblige me:

I. Was "Highland Mary" dead at the time that Burns wrote, "Flow Gently, Sweet Afton"?

II. I often hear "scholar" used to signify one attending a school. Is such a use of the word proper?

W.J.S.

III. Analyze:—"There is no flock, however watched and tended, but one dead lamb is there."

ANON.

IV. According to the Public School Grammar, how would the following be dealt with:—"The word "his," in such a sentence as "It is *his* house." By what I can gather, under "adjectives" it is called a possessive pronominal adjective, and under "pronouns" it is called a pronoun in the possessive case. Have pronouns possessive case?

V. Will you please answer the oft-asked question, "What do you think of the P. S. History?"

A YOUNG TEACHER IN BRUCE.

VI. Will you kindly have the following lines fully analyzed and parsed for me in the JOURNAL as soon as convenient? They are from "The Heritage," page 212, Fourth Reader:

"A heritage, it seems to me,
Worth being poor to hold in fee."

VII. How should the infinitives in the following sentences be parsed? According to the "High School Grammar," the infinitive is always a noun. If so, it is not easy to explain how it is governed as to case in these sentences:

(a) Fruit is good *to eat*.

(b) He went *to find* his master.

(c) It was a path *to guide* their feet.

(d) He was a fool *to think* so.

(e) They are strong enough *to conquer*.

VIII. Will you please parse fully, in your next issue of the JOURNAL, the italicized words in the following sentence? "People are led on *to drink to excess* until they become drunkards."

MOUNT HOPE, June 3, '89.]

IX. Give the mood and tense of the verbs in the following sentences:

(a) I may go.

(b) May I go?

(c) May I go!

F.A.B.

X. Please give in your next number the analysis of the following lines, to be found on page 31, Fourth Reader:

"Among the beautiful pictures
That hang on Memory's wall,
Is one of a dim old forest,
That seemeth best of all."

R.N.

XI. "The Brook," Third Reader, second stanza:

"By twenty thorps a little town."

What is the meaning of "thorps"?

J. S.

XII. Which is correct, a "receipt" for making ink, or a "recipe" for, etc.?

ANON.

Book Reviews, Notices, Etc.

Blackwood's English Grammar and Analysis. Standards II. and VII. William Blackwood & Sons, London and Edinburgh.

Standard II. is intended to help children to recognize nouns and verbs in a sentence, and to familiarize them with the use and relations of these two parts of speech. It seems well adapted to this purpose. Standard VII. consists largely of sentences for practice in analysis. Prices, 1½d. and 3d. respectively.

Johnson's Canadian School Shorthand, for Self-Instruction; by G. W. Johnson, Head Master Central School, Hamilton, Ont., 1889.

This little work of seventy-three pages is a lithographic reproduction of the author's MS., and presents a very clear and neat appearance. The author claims many advantages for his system, such as that it is plainer than any other shorthand, that the strokes may be either heavy or light, and that there are no hundreds of contractions to remember or forget. He says, further, that he has hundreds of private pupils who have learned to write and read this system at the rate of from 100 to 150 words per minute in one month after beginning. If this can be done by an average pupil, no other recommendation is needed. Price, by mail, 25 cents.

Second Oration of Cicero Against Catiline. With Notices, Notes, and a Complete Vocabulary, by John Henderson, M.A., Head Master Collegiate Institute, St. Catharines. Toronto: The Copp Clark Company (Limited.)

This latest addition to the Classical Text-book Series of the publishers, contains the Oration prescribed for University Matriculation in 1890. It is by the same editor and on the same plan as the preceding volumes of the series, and evinces the same care and discrimination in the choice of material and the preparation of notes which have characterized Mr. Henderson's previous labors in this line. It will no doubt be welcomed by the classical masters in the High Schools. If we may be permitted to express a regret, it is that the publishers have not been able to see their way clear to use a larger and more attractive type, for both text and notes.

Practical Latin Composition, by William C. Collar, A.M., Head Master Roxbury Latin School. Boston, U.S.A., and London: Ginn & Company.

This work is constructed on an admirable plan, for which the author acknowledges his indebtedness to Ascham's "Schoolmaster." The exercises, which are carefully graded, are all based on the Latin texts of certain extracts from Cornelius Nepos, Cæsar and Cicero, which are given in the latter part of the same volume, and which the student is supposed to have thoroughly studied. In rendering the English exercises, which call for the reproduction of the Latin words and constructions, though with many changes of form and combination, the only source of information and verification besides the vocabulary, is the Latin text. This is the plan in a nutshell, and, as we have said, it is an excellent one.

Elementary Synthetic Geometry of the Point, Line and Circle in the Plane, by N. F. Dupuis, M.A., F.R.S.C. London and New York: Macmillan & Co., 1889; 294 pp.

To this valuable work we previously directed special attention. The whole intention of the work is to prepare the student to take up successfully the modern works on analytical geometry. It is safe to say that a student will learn more of the science from this book in a year than he can learn from the old-fashioned translations of a certain ancient Greek treatise in two years. Every mathematical master should study this book in order to learn the logical method of presenting the subject to beginners. As a hint to students writing on honor papers, where rapidity in getting down the work on paper counts a good deal, we may mention that Prop. 19, Book VI., here occupies just six lines, Prop. 10, Book IV., eleven lines, and Props. 35, 36, 37, Book III., and two important deductions are fully demonstrated on less than a page

and a half of widely spaced type. Prop. 13, Book II., occupies five lines, and 47, Book I., four lines of text. The examples for practice are numerous, and of the type often seen on university problem papers.

Applied Psychology: An Introduction to the Principles and Practice of Education, by J. A. McLellan, M.A., LL.D. Toronto: Copp, Clark & Co., 1889; 317+xxx. pp., \$1.

There are psychological books without any practical applications to the every-day work of the schoolroom, and there are books on method that attempt to establish principles of education empirically without reference to the organic laws of the mind to be educated. The former are comparatively barren, and the latter are inconclusive. This treatise, by one of the most eminent teachers of America, combines in a very happy manner the theory of mental phenomena and development, with practical rules, concrete examples, particular applications to special cases, and to individual subjects of study. Unlike Bain's *Education as a Science*, it is not strong in theory and weak in practical application. Dr. McLellan's examples and illustrations are all fresh, vigorous, and impressive of the principle under discussion, so that if one should fail to apprehend the theoretical discussion, the illustrations and applications would be sufficient to clear up the mystery. The book abounds with striking thoughts and fertile suggestions, and the teacher who wishes to abolish all sense of meanness and drudgery from his daily work cannot do so more effectively than by steeping his memory in the great truths here enunciated with great clearness and applied with remarkable eloquence and power.

The High School Algebra, Part II., by I. J. Birchard, M.A., Ph.D., and W. J. Robertson, B.D., LL.B. Toronto: William Briggs, 1889.

IN binding, paper and typography the publisher has made this the peer of the best English and American mathematical books. The authors, profiting no doubt by their previous experience, have considerably improved on their work in Part I. Notably they have given a more copious supply of well graded examples exactly suitable for a first course, and they have supplied a considerable number of elegant examples worked out in full as model solutions. To the honor work of Junior Matriculation and the pass work of the First Year of our Universities this book seems admirably adapted. It is just such a treatise as most masters would desire to place in the hands of their pupils, retaining Potts and Smith on their own desks for supplies of more difficult examples. The authors have evidently taken great pains to make their Algebra a first-class hand-book for students, and they have succeeded very well. While much of the recent progress in the science is fairly represented and clearly stated, the book on the whole is moderately conservative. It would be easy to point out omissions, and to find fault with the authors for adhering pretty closely to the beaten track; but in 322 pages one cannot expect to find everything, and for junior students an exhaustive treatise is generally more of a hindrance than a help. Any student who masters this book thoroughly will have laid a solid foundation for future success in mathematical studies, while those who drop mathematics at this stage will have acquired a fair knowledge of ordinary algebra and have received a valuable piece of mental training that will invigorate their logical power for work in any other department.

High School Zoology: An Introduction to Zoology for the use of High Schools; by R. Ramsay Wright, M.A., B.Sc., Professor of Biology in the University of Toronto. Authorized by the Education Department of Ontario. (The Copp, Clark Co., 75 cents.)

We have here from the pen of Professor Wright a model work on Zoology for use in High Schools. Various typical animal forms, such as the catfish, fowl and grasshopper are here described with some minuteness and the student's attention is at the same time directed to the characters of the class to which each belongs, so that he is ready to read the closing exposition of the general principles of zoology with intelligent appreciation. Recognizing the desirability of choosing, for comparative purposes,

XIII. (1) What is the meaning of the expression, "So please you," which occurs on page 87, Fourth Reader?

(2) In "From the Deserted Village," the following line appears:

"And even the story ran, that he could gauge."
What could the village teacher "gauge"?

(3) "You honor your bravest that fall." (p. 287, Fourth Reader.) Parse "bravest."

ANSWERS.

I. We think not.

II. Yes. In fact, it is the primary meaning.

III. This is a rather difficult sentence. According to general practice it would be called a *compound* sentence. We prefer to regard it as complex, the clause introduced by *but* being equivalent to "without one dead lamb."

Subject, *Flock*.
Attributes of Subject, (1) *No*; (2) *however watched and tended*.

Predicate, *is*.
Adverbial Adjuncts, (*There*), *But . . . there*.

Subordinate Sentence:
Subject, *lamb*.
Attributes of Subject, *one, dead*.

Predicate, *is*.
Adverbial Adjunct, *there*.

IV. As an adjective. The word has lost its genitival pronominal force. Pronouns have possessive cases very seldom. The rarity of the genitival force is exemplified by the strangeness of the following: "Their terror (*i.e.*, the terror caused by them), caused their enemies to flee."

V. A good many things. We prefer not to express an opinion in the English column.

VI. The word *heritage* is in apposition with the nouns in the preceding portions of the stanza. "It seems to me" is perhaps to be taken as an independent sentence and parenthetically. "Worth being poor to hold in fee" is adjectival to *heritage*, "being poor, etc.," being objective after *worth*. *Poor* qualifies predicatively some such word as person, "worth a person's being poor."

VII. (a) Adverbial to *good*.
(b) Adverbial to *went*.
(c) Adjective to *path*.
(d) Adverbial to *was*.
(e) Adverbial to *strong enough*.

VIII. *To drink*. A gerundial infinitive, used adverbially to *are led on*.

To. A preposition showing the relation between *to drink* and *excess*.
Excess. A noun objective after *to*.

IX. (a) Usually *may go* is for the sake of convenience considered as the *potential* mood of *go*. The principal verb, however, is *may*, and *go* is a dependent infinitive. In dealing with the expression in the latter way, (regarding the expression as a complete sentence) it is proper to parse *may* as in the indicative mood.

(b) and (c) These expressions seem to us identical. They should be dealt with in the same manner as (a).

X. (a) The sentence is complex, the subject being *one*. Attributes of subject, *of a dim . . . of all*. Predicate, *is*. Adverbial adjuncts, *among . . . wall*.

(b) *That . . . wall*. An adjectival clause belonging to *pictures*.

(c) *That . . . of all*. An adjectival clause belonging to *one*.

XI. A *thorp* is, as reference to the Imperial or any good dictionary will show, a small village, a hamlet.

XII. Both. The original expression, however, is *recipe*.

XIII. The clause has become, as Earle would say, highly symbolic. It originally meant, "If you will pardon me for making the statement."
Barrels and casks.

A noun, objective case, after *honor*.

WHEN'E'R a noble deed is wrought,
When'e'r is spoken a noble thought,
Our hearts in glad surprise
To higher levels rise.—*Longfellow*.

some form which may be so far typical that a knowledge of the structure of its various organs may enable the student to interpret the nature and significance of the homologous parts in others of the same order, the author selects, at the outset, the common catfish as a fairly primitive form, easily obtained and easily studied. A lengthy chapter is therefore devoted to a careful study of the structure of this familiar form, and the results obtained are used as a basis for the classification of the more common varieties of Canadian fish. Proceeding thence in the order of least differentiation the author describes the structure and classification of batrachians, reptiles (living and fossil), birds and mammalia (of which the cat is taken as the type). Chapters follow on the characteristics of the arthropods (of which the crayfish, spider and grasshopper are taken as types), the vermes, molluscs, and molluscs, and other invertebrate sub-kingdoms. The concluding chapter is devoted to an exposition of the general principles of the science. While it is admitted that Zoology does not lend itself so readily as Botany to the educational purposes of accurate observation and diagnosis by the individual student, it affords, in Professor Wright's opinion, an equally valuable discipline, in the tracing of the modifications of form throughout less nearly allied groups, in the manner indicated in the above synopsis. The teacher will be glad to find that the work is thus based on sound pedagogic as well as scientific principles, and may be used in harmony with the inductive methods now so generally recognized as constituting the only true educational process. We could have wished the print a little clearer, and some of the illustrations might have been better. But for school purposes, limitations of cost and price have, of course, to be carefully studied. The book follows substantially the plan of the Syllabus prescribed by the Education Department and will be welcomed as a necessary and valuable addition to the list of High School text-books.

Hints and Helps.

ERADICATING FALSEHOOD.

BY H. R. HOTZE.

ALL teachers who remain in the profession for a number of years will come in contact with children who habitually and wilfully tell lies. How to cure this habit is a question of great importance, for lies degrade men and are the sources of many other irregularities.

Lies originate from different causes, and must be treated accordingly. The principal causes are a false shame whenever the pupil has committed a wrong act, inconsiderateness, fear of punishment, glory in deceiving the teacher, bad example.

The following will be found of practical value in nearly all cases:

1. Find the causes why a pupil tells lies and remove them.
2. Trust the child and exhibit your confidence in it, until it deceives you.
3. The proud and bragging liar must be shown his weakness.
4. The thoughtless, inconsiderate liar must be put to shame by directing his attention to what he said.
5. If fear of punishment is the cause, treat the pupil with mildness.
6. Those who tell lies because others instruct them to do so must be reminded that we must obey God rather than man.
7. Those who have often been admonished and will not correct the bad habit must be given each a guardian, on whose testimony only he is given credit.

In order that pupils may not form the habit of telling lies at school, the following will be found useful:

1. Make the children love truth by exhibiting all its beauty.
2. Make children hate lies by showing its despicable meanness.
3. Tell stories of children who have had sufficient courage under trying circumstances to speak the truth, and thereby have laid the foundation of future usefulness and greatness. Washington and his hatchet is a fine specimen.
4. Always adhere strictly to truth yourself

5. Have it understood that lies pave the road for dishonesty and meanness, and that "a young liar will be an old fool."—*Exchange.*

MAKE AN IMPRESSION.

"MISS BLANK, do you remember my mentioning to you that your second year children were disorderly in dismissal, and asking you to correct the fault? I notice that they are still noisy, and some of them loiter about the premises for half an hour, disturbing those still in session."

"I told them several times as I dismissed them, that they must go right home, and not make any noise around the school."

"Well, you find that it is not sufficient to 'tell' these little ones a thing, do you not?"

"Yes, they forget."

It is not exactly forgetting; there was nothing to forget, for the matter made not the necessary impression upon them. It did not enter their heads thoroughly.

Remember that they are children; they hear a command but in a vague sort of a way, and many of them obey it only as they see others do so. They have not learned to listen in such a way that your words penetrate to their innermost thought—if they have any. They are creatures of impulses and imitation, and must be trained to habit.

"Telling," in a general way to little children is like pouring water on a duck's back, it does not stick. In the first place, when you tell them to or not to do, you must be sure that they take in your words, and then you must follow them up, not letting them from under your hand and eye until they have carried out your instructions, and pursue this course till they have acquired the habit of heeding your voice and feeling all over that your word is law and of obeying it naturally and willingly. You cannot accomplish this by sitting at your desk and giving directions which they must keep in mind. The very next movement takes their notice, and your words are gone like smoke. They could not repeat them if asked to do so. Out they go, pell mell, they do not know what "quiet" means, while you remain at your desk, hearing nothing, seeing nothing, and are surprised that they forget.

If you wish your influence over them to amount to anything, you must enforce their attention and obedience, kindly, of course, till these two qualities become them like a well-made garment. They must look up to you with confidence and respect; then you are ready to instruct.—*Indiana School Journal.*

SUGGESTIONS FOR YOUNG TEACHERS.

I.—CLASS MANAGEMENT.

1. Strive to govern by the eye, not the voice. Stand well back from your class so as to see every boy. Have dull, backward and restless boys in front. Separate mischievous children.
2. Give as few orders as possible, but be firm in having them promptly and thoroughly obeyed when given. Try to impress the children with the respect due to law.
3. Good discipline is impossible with children unemployed. Allow no waste of time in beginning.
4. Avoid speaking in a loud, blustering tone. Be ever on the alert and warn where necessary. Do not scold, and never threaten.
5. Give careful attention to details. Know your boys.
6. Never sneer at children. Be cautious not to dampen their natural ardor and gaiety.
7. Authority should be felt, not seen. The need for much punishment means, in nearly all cases, weak handling. If children are troublesome look to yourself first.

II. TEACHING.

1. Distinguish clearly in teaching between the means and the end. In class teaching every boy must receive individual attention.
2. Do not hurry; much good work is spoiled by being scampered over.
3. Try to make children think; do not rest content with loading the memory.
4. Do not waste time in long introductions. Recollect there should be a proportion of parts in every lesson.
5. Let your teaching be varied, not only to keep up interest, but that you may reach every boy's mind by some means.

6. A good teacher is constantly a censor of his own work. Bear in mind you are forming good or bad teaching habits.

7. Attention must be obtained principally by interest, manner and work; it cannot be secured by a mere exercise of authority.

8. Remember that the blackboard is a great help in nearly all lessons.

9. Learn to detect by the appearance of your class whether the children are in sympathy with and follow you, or not.

10. Practise all the teaching devices, use none exclusively. Strive earnestly to attract sympathy and attention from your class. Interest the children, and endeavor to take every one with you.—*Landon.*

THE Russians have recently improved on the sleeping coaches of the railway and the perambulating schoolmaster of the rural regions. They have provided a school-wagon which is furnished with a room for the teacher, a class-room or study, and a library, all suitably supplied with the necessary material. This wagon will be on the line of the Trans-Caspian railway all the year round, remaining as long as may be deemed necessary at districts which are not provided with a school.

HOSPITAL REMEDIES.

What are they? The growth of intelligence in medical matters has given rise to a demand for a class of genuine, reliable medicine. The opportunity of the ignorant quack, who grew rich curing everything out of a single bottle, has passed. To supply satisfactorily this demand this list of remedies has been created. They are the favorite prescriptions of the most famous medical practitioners of the day, gathered from the hospitals of London, Paris, Berlin and Vienna. Prescriptions which cost the patients of these specialists from \$25 to \$100 are here offered prepared and ready for use at the nominal price of one dollar each. Not one of them is a cure all; each one has only the reasonable power of curing a single disease, and each one keeps its contract. Sufferers from Catarrh, Diseased Lungs, Bronchitis, Asthma, Consumption, Rheumatism, Dyspepsia, Liver and Kidney Complaints, Fever and Ague, Neuralgia, Female Weakness, Leucorrhœa or Nervous Debility, should send stamp for descriptive catalogue to Hospital Remedy Co., 303½ West King St., Toronto, Canada. If your druggist does not keep these remedies, remit price and we will send direct.

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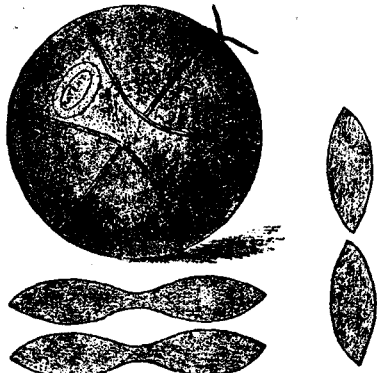
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ENTRANCE EXAMINATIONS

TO

High Schools and Collegiate Institutes.

The next Entrance Examination to High Schools and Collegiate Institutes will be held on December 18th, 19th, and 20th.

Examination papers will be set in Literature on passages from the following lessons in the authorized Fourth Reader:—

DECEMBER, 1889.

1. Clouds, Rains and Rivers.....	pp. 54—59
2. The Death of the Flowers.....	67—68
3. Flow Gently, Sweet Afton.....	98
4. Resignation.....	105—106
5. Lead, Kindly Light.....	145
6. Dora.....	137—142
7. The Heroes of the Long Sault.....	155—161
8. Lochinvar.....	169—170
9. A Christmas Carol.....	207—211
10. The Heritage.....	212—213
11. Song of the River.....	221

12. Landing of the Pilgrims.....	pp. 229—230
13. Edinburgh after Flodden.....	277—281
14. National Morality.....	295—297
15. The Forsaken Merman.....	298—302

JULY, 1890.

1. The Vision of Mirza—First Reading.....	pp. 63—66
2. " " " " Second Reading.....	68—71
3. To Mary in Heaven.....	97—98
4. Flow Gently, Sweet Afton.....	98
5. The Bell of Atri.....	111—114
6. Ring Out, Wild Bells.....	121—122
7. Lead Kindly Light.....	145
8. The Heroes of the Long Sault.....	155—161
9. Lochinvar.....	169—170
10. A Christmas Carol.....	207—211
11. The Heritage.....	212—213
12. Song of the River.....	221
13. The Ocean.....	247—249
14. The Song of the Shirt.....	263—265
15. The Demon of the Deep.....	266—271
16. Edinburgh after Flodden.....	277—281
17. Canada and the United States.....	289—291
18. The Forsaken Merman.....	298—302

At each examination candidates should be able to quote any part of the selections especially prescribed for memorization, as well as passages of special beauty from the prescribed literature selections. They will be expected to have memorized all of the following selections:

1. The Short Extracts..... (List given on page 8.)	
2. I'll Find a Way or Make It.....	pp. 22
3. The Bells of Shandon.....	51—52
4. To Mary in Heaven.....	97—98
5. Ring Out, Wild Bells.....	121—122
6. Lady Clare.....	128—130
7. Lead, Kindly Light.....	145
8. Before Sedan.....	199
9. The Three Fishers.....	220
10. Riding Together.....	231—232
11. Edinburgh after Flodden.....	277—281
12. The Forsaken Merman.....	297—302

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AGRICULTURE AND TEMPERANCE.—Papers will be set in these as optional bonus subjects. A candidate may choose which of them he will take, but it is not compulsory to take either, and he cannot take both. Marks not exceeding 75 may be added for the subject chosen. (Reg. 38).

TIME TABLE OF THE EXAMINATION, DECEMBER, 1889.

FIRST DAY.

9.00 to 11 a.m.....	Grammar.
11.15 a.m. to 12.30 p.m.....	Geography.
2.00 to 3.30 p.m.....	History.

SECOND DAY.

9.00 to 11.00 a.m.....	Arithmetic.
11.05 to 12.15 p.m.....	Drawing.
1.15 to 3.15 p.m.....	Composition.
3.25 to 4.00 p.m.....	Dictation.

THIRD DAY.

9.00 to 11.00 a.m.....	Literature.
11.10 to 11.40 a.m.....	Writing.
1.30 to 3.00 p.m.....	Temperance and Hygiene, or Agriculture.

Reading to be taken on the above days at such hours as may suit the convenience of the examiners.

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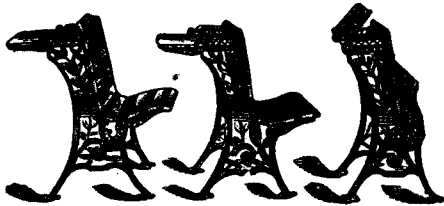
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