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The Educational Journal.

Consolidating "THE EDUCATIONAL WEEKLY" and "THE CANADA SCHOOL JOURNAL."

VOL. III.

TORONTO, JUNE 1, 1889.

No. 4.

The Educational Journal.

Published Semi-monthly.

A JOURNAL DEVOTED TO LITERATURE, SCIENCE, ART, AND THE ADVANCEMENT OF THE TEACHING PROFESSION IN CANADA.

J. E. WELLS, M.A. Editor.
H. HOUGH, M.A. Manager Educational Dept.

Terms.—One dollar and fifty cents per annum. Clubs of three, \$4.25; clubs of five, \$6.75. Larger clubs, in associations, sent through association officials, \$1.25 each. Individual members, subscribing at a different time from that of the formation of the Club, may send their subscriptions to this office. Their orders will be taken at club rates.

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PUBLISHED BY

THE GRIP PRINTING AND PUBLISHING CO.
TORONTO, CANADA.

T. G. WILSON, General Manager.

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SCHOOL WORK AND PLAY.

A New List of Generous Premiums.

The Publishers of "School Work and Play" have decided to make a grand effort to interest all of the teachers, and all of their pupils, in this country, in the new Canadian paper for Canadian boys and girls. Its excellence is admitted on all hands; but, unfortunately, it cannot live on even the most sincere and friendly encomiums. Four thousand more subscribers are required to place it on a safe financial footing; and to the teachers and their pupil canvassers alone can the publishers look for the success of the enterprise.

Sundry prizes were offered for the formation of school clubs; but these were mainly confined to the teachers. The publishers now make the following offers, which they believe will be sufficient to induce an effort to secure the success desired:

PRIZES FOR PUPIL CANVASSERS.

- 1.—To the boy or girl sending the largest list of new subscribers by Sept. 1st, *A Gold Watch*.
- 2.—Second prize, for second largest list, *A Silver Watch*.
- 3.—Third prize, for third largest list, *\$10 in cash*.
- 4.—Fourth prize, for fourth largest list, *A Printing Press* or a *Magic Lantern*, if the list be sent by a boy; or *A Good Writing Desk*, if sent by a girl.
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It is a condition that the fifth prize list number at least 25.

PRIZES FOR THE TEACHERS.

First.—In order to secure the interest of the teachers in engaging their young canvassers, and overseeing their operations, we will give a Concise Imperial Dictionary, best binding, to the teacher of the pupil who wins the Gold Watch; and a Concise Imperial Dictionary, cloth binding, to the teacher of the pupil who wins the Silver Watch.

We also increase our former offers to teachers getting up school clubs, as follows:

- 1.—*An extra copy for an order for 5.*
- 2.—*The "Educational Journal" for an order for 15.*
- 3.—*"Grip," 1 year, for an order for 25.*
- 4.—*"Grip" and "The Educational Journal" for an order for 35.*
- 5.—*The Concise Imperial Dictionary, best binding, for an order for 50.*
- 6.—*The Concise Imperial Dictionary and "The Educational Journal" for an order for 60.*
- 7.—*The Concise Imperial Dictionary, "The Educational Journal," and "Grip," for an order for 75.*
- 8.—*Webster's Unabridged Dictionary, bound in sheep, "The Educational Journal," and "Grip," for an order for 100.*

These generous offers to teachers, are, of course, independent of those to the pupils, the teachers securing these premiums for their own work, as the pupils secure their premiums for theirs.

Will our friends not now make one grand effort, either in a thorough canvass of their own, or in setting reliable pupil canvassers at once to work?

Samples will be sent to all teachers whose addresses we have, on 1st May, and samples and directions will also be furnished, on request, to all pupils who wish to act as agents and compete for the prizes. Address,

GRIP PRINTING AND PUBLISHING CO.,
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Editorial Notes.

THE Minister of Education has issued a circular calling for a conference of representatives from the Boards of Management of Free Libraries, and the Boards of Directors of Art Schools, throughout the Province, to meet in Toronto on the 4th inst. The object of the conference is to ascertain how far an amalgamation of these two classes of institutions can be practically advantageous, and how evening classes for artisans, mechanics and workmen can be best organized under the auspices of the amalgamated institutions.

WE have to plead guilty to carelessness in allowing two errors to creep into our "Answers" in "Question Drawer" of last issue. In enumerating the Great Powers of Europe, we confined our attention too literally to the continent proper, and omitted to mention Great Britain, an omission of some importance as our readers will, no doubt, admit. In naming the Executive Council of Ontario we should have given Hon. A. S. Hardy, instead of Hon. T. B. Pardee, as we inadvertently did, as Commissioner of Crown Lands. The latter resigned a few months since on account of illness and was succeeded by the former. In answering these questions, things we do not know we usually take pains to find out. It is the things we do know that get wrong sometimes. Moral—Editors and teachers should take care not to "know too many things that are not so," as one of the American sages has it.

School Work and Play, for June 7th, (No. 11), will appear early next week. It will be found fully equal to former numbers. Most of the Teachers of this country are now aware of the merits of this little paper; and the ten copies which have already been issued will be understood to have well established its character. The universal testimony is that it is a good paper for the children to have. Attention is called to the list of Premiums to be given for canvassing for this paper. Will teachers be kind enough to show this premium list to active children in their schools, and have them send for samples, with a view to working up the lists. Subscriptions run with the year, and back numbers can always be supplied. It will be admitted that the publishers are sparing no pains or reasonable expense to make this paper interesting and useful to the children. They ask the teachers to assist in this work.

READ "Bebe's" interesting paper on "School-room Improvements," in the "Hints and Helps" department of this number. We have other good hints on school matters from "Bebe's" pen, which will appear in another issue, and for which she will please accept our thanks. Will not other of our lady subscribers, many of whom no doubt wield the pen of the ready writer, do us and our readers similar favors?

THE *Evangelical Churchman* comes to our exchange table enlarged and improved, and in a very attractive form. The Editors praise warmly the enterprise and energy of the publishers, J. E. Bryant & Co., to whom the success of the paper is largely due. Owing to Mr. Bryant's former connection with one of the predecessors of the EDUCATIONAL JOURNAL this item will be of interest to many of our readers.

THE method of "Payment by Results," against which the teachers of England have so long and vigorously protested, is partly but not wholly abandoned in the much discussed new code. The best authorities seem pretty well agreed in condemning the system, and sooner or later it will have to go, root and branch. But what method of administering the grant shall be adopted in its place, is now the question. It is by no means an easy one.

THE *N. E. Journal of Education* says that "the Canadian Parliament is talking about excluding American publications from Canada," and taunts us with being afraid of competition, even with our heavy duties. Our contemporary should inform itself better before making sweeping assertions. The Canadian Parliament proposes to exclude American pirated editions of foreign works from entering Canada to compete with editions which pay an honest royalty to the author. It proposes also to prevent British publishers from turning Canada's relations to the Empire to her disadvantage by selling the Canadian market for English copyrighted books to American publishers, thus shutting out Canadian publishers from all chance of competition. When the United States has passed an honest International Copyright Act, and not till then, it will be in a position to throw stones at its neighbour's house.

THE English Public School teachers' organization known as the N.U.E.T. (National Union of Elementary Teachers) has held its last conference. "Henceforth," says the *Schoolmaster*, "its members refuse to be known as elementary teachers." Instead of the familiar initials the shorter form "N.U.T." is henceforth to be used. The resolution to drop the word "Elementary" from the title was not carried without a struggle. The objects and methods of the Society remain the same, but it has been resolved to register the Union under the Companies' Acts. When this is effected the annual "conferences" will give

place to annual meetings of the members of the Company, under some new name not yet chosen. A fundamental difference in the workings of the body will be that every individual member of the Company, or Union, will have a statutory right to be present and take part in the proceedings. Whether the change will promote or diminish the influence and efficiency of the Union remains to be proved.

THE teacher cannot be too careful to instil into the minds of his pupils the highest ideas of honor and truthfulness. It is needless to add that in order to do this he must himself be a living epistle of those qualities, that may be read by all his pupils, and they are sure to be sharp readers in such matters. Would our readers like to know what has just now suggested these remarks? We will tell them. We have just been going through a few of our educational exchanges, and in a little pile of ten or a dozen we have met with two cases which prove that neither editors of educational papers nor their contributors—presumably teachers or ex-teachers—are always honorable and truthful. In the one case an editorial, in the other a contributed article, are bald plagiarisms. Both are taken *verbatim et literatim* from other papers (one happens to be one of our own poor productions) without acknowledgment. They cannot be explained as accidental omissions to give credit. Think of a teacher of the young stooping to meanness like that!

CONSIDERABLE discussion has been excited by a statement recently published by the *Christian Register*, and based, of course, on statistics, setting forth the aggregate number of floggings inflicted in the Public Schools of Boston during the past ten years. The figures make a big total, over 18,000 per year, which appeals strongly to the unreflective imagination, though, when divided by the number of pupils, the quotient shows that the average school child would come in for but one whipping in about two years. That is not excessive, perhaps, if corporal punishment is to be administered at all. In regard to the latter point, Mr. Walton, of the State Board of Education, is reported as saying, "When I am in school I am in favor of corporal punishment, when out of school I am opposed to it." This is frank, and to the point. To those who believe in the practice, it will seem to justify corporal punishment, on the ground of practical necessity. To our mind the argument tells on the other side, being a virtual admission that weakness or passion in school does that which judgment and conscience condemn out of school.

"WHAT a wonderful painter Rubens was?" remarked Merritt at the art gallery. "Yes," assented Cora; "It is said of him that he could change a laughing face into a sad one by a single stroke." "Why," spoke up little Johnnie, in disgust, "my school teacher can do that."

Educational Thought.

THE riches of the commonwealth
Are free strong minds, and hearts of health;
And more to her than gold or grain,
The cunning hand and cultured brain.—*Whittier.*

CAN there be a more wretched economy than of the faculties of the soul? They were given us to be improved and expanded, to be carried as near as possible to perfection, even to be prodigally lavished for a high and noble end.—*Journal of Education.*

THE men to whom in boyhood information came in dreary tasks along with threats of punishment, and who were never led into habits of independent inquiry, are not likely to be students in after-years; while those to whom it came in the natural form, at the proper times, and who remember its facts as not only interesting in themselves, but as the occasions of a long series of gratifying successes, are likely to continue through life that self-instruction commenced in youth.—*Herbert Spencer.*

WHAT, after all, is the main function of the teacher who is seeking to give to his pupil a right training, and a proper outfit for the struggles and duties of life? It is, no doubt, to give a knowledge of simple arts, and of those rudiments of knowledge which, by the common consent of all parents and teachers, have been held to be indispensable; but it is also to encourage aspiration, to evoke power, and to place the scholar in the fittest possible condition for making the best of his own faculties and for leading an honorable and useful life.—*J. G. Fitch, M.A., LL. D.*

HERETOFORE, it seems to some of us, the common schools have been run according to theories of college and normal school professors, with a view of giving an education suited to doctors, ministers and lawyers but not so valuable to labourers or mechanics. Now as ninety per cent. of our children leave school before thirteen years of age, should we not aim to concentrate our efforts so as to reach those who are with us so short a time, and so do the greatest good to the greatest number? With this view, our teaching will become more practical.—*F. L. Wurmer.*

AMERICAN soil is now the camping ground for Europe, Asia, and Africa, and it is going to be. We might as well attempt to keep back the tides of the Atlantic and Pacific as try to change the decree of a universal brotherhood on our soil. We don't want to change it, but we must provide for it. One force, and one force only, can save us. This is public education—not mumbling, Chinese fashion—not repeating, Hindoo style—not reciting, after the old American and English form, but *thinking, doing—doing and thinking. This will save us.*—*N. Y. School Journal.*

THE primary principle of education is the determination of the pupil to self-activity, and that teacher who fully recognises the active agency of the pupil's mind in acquiring knowledge and experience and in applying them to the affairs of everyday life, will be the most useful to his pupils. In the training of youthful minds we regard *formation* as of more importance than *information*, the *manner* in which work is done as of greater consequence than the matter used in the work. All true education is *growth*, and what we grow to be concerns us more than what we live to know. Plato has profoundly defined man the hunter of truth; for in this chase, as in others, the *pursuit* is all in all, the *success* comparatively nothing.—*Sir William Hamilton.*

A STORY is told of a teacher, who upon entering the school-room, habitually raised his hat and made obeisance to his pupils, and in explanation of his unusual habit, said: "Before me are the kings and queens of to-morrow." It is safe to prophesy success for a teacher who thus highly values his profession, for in no selfish or superficial spirit will he enter upon his responsible and noble work. But while I appreciate the importance of his task—nay, because I rank it most highly—I offer my first obeisance to the teacher himself. Greater than the king is the king maker, and of more importance than the queen are the forces which produce queenhood. Among the world's workers, none is to be more revered than the teacher who measures up to the full dignity of his trust.—*Rev. De LaMarter.*

Special Papers.

RELATION BETWEEN TEACHER AND PUPILS.*

BY MRS. WHITE, CENTRAL SCHOOL, GUELPH.

THE question of the "Relation between Teacher and Pupil" is a wide one—one that cannot be handled perfectly in a short paper, one that is not often touched practically, and yet, it is one that affects every man and woman engaged in teaching. Let us try, while met here in convention, to gather a few hints which may help us to realize more fully than we have been accustomed to do, our responsibility as teachers.

In the first place, our profession makes us responsible, not only for the pupil's mental training, but for the moral and mechanical training; in other words, we have to do with the work of heart, head and hand. Let not teachers imagine that their work is accomplished, if they merely see that a boy or girl learns so much geography, grammar, arithmetic, etc. In too many instances this, and this only, is the idea of teaching and, sad to state, teachers are too often judged—that is their ability as teachers is judged—by the number of pupils they pass at each examination. Now this kind of thing is all wrong.

When this matter is spoken of, sometimes one is told that "the school system promotion examinations" is to blame. Let us as teachers look this thing in the face, give it a full-faced, square, honest look—not be too thin-skinned to acknowledge that we are to blame, and not so conceited as to think that we are not open to being found fault with in this regard, viz., of being bound hand and foot to bookish teaching. Whether we acknowledge it or no, the fact is apparent that there is too much memory, rote, machine work, or whatever you choose to call it, in most of our departments. The mental powers are actually dwarfed instead of being developed. The process of rote teaching and too much preparation of the mental food; too much cutting and drying, and handing to pupils in form of notes, without seeing that the pupil is intelligent on the points, results in turning out a sort of human machine. Now, fellow-teachers, we know that no two minds are exactly alike, and no two persons will give exactly the same account of same scene, whether they have actually witnessed it or read about it, and it is certainly a most pernicious, I was about to say wicked, mode to follow in teaching: this of handing the food to the pupils for them to swallow, without knowing anything more about it than that they must know it word for word from notes. We not only make school work hard and irksome, but distasteful, instead of being delightful and attractive. No persons can be interested for any time in that about which they are not intelligent; and how can we expect our pupils to be different from ourselves. One says, "How is this to be changed?" The change should take place in the very first book. Each pupil should be taught to exercise thought from the first; draw out of the pupil as much as we give, else we destroy the very faculty we should cultivate, and we are fast turning pupils into machines, cast in the same mould, knocking out of them their originality and individuality. Innumerable instances might be given of the ludicrousness of this process. A teacher on one occasion gave an exercise in literature, to paraphrase a certain lesson that had been gone over (the teacher was new), and when the exercises were examined, every word of each exercise was exactly the same—leading to the discovery that the previous teacher had given notes on lesson. Notes were suddenly destroyed and a new order of things introduced. So it happens in history. Notes are learned by pupils and given off, word for word, and if the subject-matter is touched upon in a slightly different style, the pupil is at a loss. This delightfully inspiring habit of training to think might be commenced with the reading lesson; subject-matter thoroughly gone over, all sorts of questions asked in a very short time, by pupil as well as teacher, then a short account written by pupil there and then, read off by one after another, and in time it becomes a real pleasure. It is wonderful how the young mind will grasp the idea of expressing the thought, in fresh, original

words; whereas, if a pupil is allowed to go on without this developing till twelve, thirteen and fourteen, it is next to impossible to get out of the cast-iron rut he has got into. Let us then, as teachers, love the pupils sufficiently to have them intelligent on what they are to make use of farther on in life. Let us not be hemmed in between two fences, or limits. Let us not be satisfied without thorough understanding on the part of the pupil of the work gone over.

Then we have excellent opportunities for heart culture. We should inculcate the desire to govern—self. Place a pupil on his or her honor, and we have a power that no rules can give. We command respect instead of demanding it. One teacher puts it thus: "Teach me to trust you." The young heart is not hard and it can be easily impressed. I know a teacher who tells pupils when going over those lovely pieces for memorization (specially short extracts), that if they get hold of the truth contained in one or two of these pieces, and it becomes a moulding principle, they have their fortune in their hand. Yes, any boy or girl, who is honorable, straight-forward, and honest, can face the world without human friends. They will soon get them.

"Honor and shame from no condition rise.
Act well your part, there all the honor lies."

Let them understand the truth every time in such pieces in all our Readers. Dig out the gems of thought, and thus build up character, for this, dear fellow-teachers, is a very important part of our work in the school-room. It has been said that "Teachers should be born," that no man or woman should touch the work unless they love it, or love the child—love to see the mind developed, and the heart cultivated. There stands before us a process of uprooting and cultivating. Remember, "That acts oft repeated become habits, and habits become second nature"—that we are helping to build character, and that we cannot come in contact with anyone, even for a short time, without influencing him for good or evil. Much need for watchfulness! See that the foundation is strong—thorough and secure for mental and moral work afterwards. Take the matter of copying: I heard a teacher say, with reference to it, "I tell my boys when they copy, they are telling a lie to me." "Yes," a listener added, "and stealing." The teacher replied, "and working for the father of lies." There are endless ways of interweaving grand moral lessons. We certainly have marvellous power in our hands as teachers. May we build and mould aright, bearing in mind that we must give an account of our stewardship.

Lastly, we have the hand or mechanical work to think of. We should be as much concerned about the hand-work of our pupils as the head-work—that is as to how the work is done in school and for school—neatness, exactness and particularity in everything should be noticed by teacher; lop off slovenly habits; notice manner of speech; position, treatment of others. Quality of work done as well as quantity, is most important. We should cultivate precise habits in putting down home work—home exercises should be given very early, for the sake of inducing neat habits. Attention should be given to the very minutest details—indenting paragraphs, leaving margin, etc. If these little niceties are not noticed until a pupil enters Fourth book, or Third, it is next to impossible to cultivate and ingrain them in four or six months; but if steadily, uniformly, and definitely attended to from the very first, the development would be gradual, natural, and thorough. So that by the time our boys and girls entered the Collegiate Institute or Grammar School, they would be little ladies and gentlemen in the best sense, and reflect credit upon the staff of teachers in the building from whence they passed. There are some other points which might here be mentioned, viz.: That the habit must be permitted in some of the lower rooms, of counting on fingers, multiplying by separate figures when 12 is the multiplier; dividing by 2 (or any single figure), making use of long division—doing actual work in dividing by 100 or 1,000; and a principal of a college was heard to state that he noticed actual work in dividing by 1. All these things should be specially noticed under head work; work that belongs properly to the head should not be done by the hand. Any kind of dodge is taken advantage of to save the effort of

thinking. No doubt all teachers know of these habits, they should be stopped before allowed to be taken up.

Then is it not a fact, that teachers sometimes come short in example? We cannot expect our pupils to be better than ourselves. "Like teacher like pupil." Do teachers not sometimes require what might be called muscular obedience? Moral rule brings moral obedience! Moral rule brings moral obedience. Teachers too often allow their feelings to run off with their judgment, and their hand to run off with both. The habit of cuffing or pulling ears cannot be too strongly denounced; by giving way to any such habit we lower ourselves and bring reproach upon our profession. Teachers sometimes forget themselves so far as to call children "youngsters" and "monkeys;" tell pupils to "go home and dig out their ears;" or "go home and soak their heads." All such giving way to rough jokes is vulgar in the extreme. Let us bear in mind that we live in the nineteenth century and not in the ninth. "If we want loyalty we must have royalty;" keep up the tone of our profession, get into love with our work, and so get pupils in love with theirs. Nothing so catching as enthusiasm. One of the first educationists in our Dominion—Principal of Theological College—says, "I tell students we are strong as public teachers in proportion to the force of personal conviction with which we hold and realize the truth delivered—first seize the truth with a firm and overmastering grasp; get it deep down into your own heart and soul, and then speak it, and everybody will listen and be moved thereby." So we will find in our teaching.

Let me sum up in a few maxims that will fasten on the mind and heart of pupils:—"Whatever is worth doing at all is worth doing well." "A place for everything and everything in its place." "Whatever is worth having is worth asking for." "An idle (or empty) brain is the devil's workshop." "Satan finds some mischief still for idle hands to do." Let us remember that the pupils we are now helping to train will soon take our places; they will be the future educationists, rulers, ministers, lawyers, doctors, and voters of our Dominion; nay, more, the future fathers and mothers. I would here just remind our male friends and teachers that, although men are the "lords of creation," women are the moulders of the nation. May we then inspire our boys and girls with a love of knowledge, love of country, love of liberty, love of the Bible, and love of the God of the Bible, and may they never permit the iron grip of oppression, ignorance and superstition to wrest from them these glorious and dearly bought inheritances.

O-U-G-H.

A FRESH HACK AT AN OLD KNOT.

(Enter M. Jean Crapaud, who speaks)

I'm taught p-l-o-u-g-h
Shall be pronounced "plov."
"Zat's easy wen you know," I s y,
"Mon Anglais I'll get through."
My teacher say zat in zat case
O-u-g-h is "oo."
And zen I laugh and say to him,
"Zees Anglais make me cough."
He say, "Not coo, but in zat word
O-u-g-h is 'off.'"
O, sacre bleu!, such varied sounds
Of words make me hiccough!
He say, "Again, mon friend ees wrong!
O-u-g-h is 'up,'"
In hiccough." Zen I cry, "No more,
You make my throat feel rough."
"Non! non!" he cry, "you are not right—
O-u-g-h is 'uff.'"
I say, "I try to speak your words,
I can't pronoz zem though!"
"In time you'll learn, but now you're wrong.
O-u-g-h is 'owe.'"
"I'll try no more. I sall go mad,
I'll drown me in ze lough!"
"But ere you drown yourself," said he,
O-u-g-h is 'ock.'"
He taught no more! I held him fast!
And killed him wiz a rough!

—CHAS. BATTELL LOOMIS.

* Read before the South Wellington Teachers' Convention, at Elora, February, 1889.

Music Department.

All communications for this department may, until further notice, be addressed to A. T. Cringan, 23 Avenue St., Toronto.

TIME.

THE object of Time-exercises at this stage should be :
1st. To develop an appreciation of the regularity of pulses and accents in music.

2nd. To enable pupils to distinguish between tones of one, and two or more pulses in length.

3rd. To train the eye to read the notation of above divisions of rhythm.

EXAMPLES OF METHOD.

Pupils clap hands softly while singing TAA TAA TAA TAA on one tone, at any rate of speed indicated by teacher's pointer. When a change is made to a faster or slower rate of speed, the singing must cease while the teacher counts a few pulses at the rate required.

Vary the exercise by changing the measure frequently. Pupils count ONE, two, ONE, two; or ONE, two, three, ONE, two, three, with emphasis on ONE.

When this has been sufficiently well sung, pupils may be requested to sing Two-pulse-measure or Three-pulse-measure, the teacher simply indicating the rate of movement without giving any special sign for the strong accent.

Short exercises containing few difficulties will be found most useful in training the eye and ear in teaching time.

Write the following exercise on the black-board :

Key D.

a | d :m | s :s | s :m | d :- ||

Question on Measure, Accent, Length of Tones, and Time-names.

Direct pupils to sing to Time-names on one tone; to Sol-fa on one tone, and to Sol-fa in tune. When this has been sung successfully, intimate that a change will be made, and request pupils to watch closely while this is being done. Alter the exercise into

c | d :m | s :- | s :m | d :- ||

Question on alteration. Direct pupils to sing to Time-names and Sol-fa as above. Whenever the exercise has been correctly sung, it should be altered and taught as above. The Time-names may be gradually discontinued as the pupils gain confidence in Sol-fa-ing at sight. The order in which the tones are first given should be preserved throughout (repeated tones excepted), in order that no difficulties of Tune may interfere with the study of Time.

The "unexpected" will be the chief source of difficulty in this form of exercise. It has been said that "the ear remembers and expects." This truism will serve to explain one-half of the difficulties to be met with in teaching music. Let the above exercise be altered into

c | d :m | s :- | m :- | d :- ||

and note the result. It will, almost invariably be noticed that the *m* in third measure will receive one pulse only, and displacement of accent will consequently ensue. The explanation of this is to be found in a comparison of the first two with the last two measures. Every tune, however simple, divides naturally into at least two sections, which should be combined according to a definite rhythmic or melodic form. In the first section of the above exercise we have an example of the rhythm TAA, TAA, TAA, AA, which is followed by a change of rhythm in the second section. In singing this, the ear remembers the rhythm of the first section and expects the same in the second section, hence the surprise and consequent confusion when TAA, AA is met with, instead of TAA, TAA. Exercises of this

sort should be freely used in order that pupils may form the habit of singing what is written for them, regardless of the unexpected.

Examples of exercises to be studied on above plan :—

Ex. 1.—Key D. PRIMARY TWO-PULSE MEASURE.

a. | d :m | s :s | s :m | d :- ||

b. | d :m | s :- | m :- | d :- ||

c. | d :- | m :- | s :m | d :- ||

d. | d :m | s :- | m :- | d :- ||

e. | d :m | s :- | - :m | d :- ||

f. | d :- | - :m | s :m | d :- ||

g. | d :- | m :s | s :m | d :- ||

Ex. 2.—Key D. SECONDARY TWO-PULSE MEASURE.

a. :d | m :- | s :m | d :- | - ||

b. :d | m :m | s :- | s :m | d ||

c. :d | m :- | - :s | m :- | d ||

d. :d | m s | s :- | - :m | d ||

e. :d | m :- | - :m | s :m | d ||

f. :d | m :m | s :- | - :m | d ||

g. :d | m :- | s :- | m :- | d ||

Ex. 3.—Key C. PRIMARY THREE-PULSE MEASURE.

a. | d :d :d | m :m :m | s :s :s | d' :- :- ||

b. | d :- :d | m :- :m | s :- :s | d' :- :- ||

c. | d :d :d | m :- :- | s :s :s | d' :- :- ||

d. | d :d :d | m :- :m | s :- :s | d' :- :- ||

e. | d :- :- | m :m :m | s :- :- | d' :- :- ||

f. | d :- :d | m :m :- | s :s :- | d' :- :- ||

g. | d :d :- | m :- :m | s :s :- | d' :- :- ||

The last example may be written in Secondary Three-pulse Measure by beginning on on the last pulse of the measure and deducting one pulse from the last note, thus :—

a. :d | d :d :d | m :m :m | s :s :s | d' :- :- ||

Where pupils experience a difficulty in singing continued tones, they may be allowed to intensify the vowel sound in each continuation. In this manner a *doh* which is three pulses in length will be sung as *doh-oh-oh*, and *me* as *me-e-e*, etc.

No life

Can be pure in its purpose and strong in its strife,
And all life not be purer and stronger thereby.

"WHAT boots it, then, in what splendid colonnades he wearies his packhorses, in what shady park he strolls, how many lots he owns next to the Forum, how many palaces he has purchased? No bad man is happy."—JUVENAL.

English Department.

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

ENTRANCE LITERATURE.

EDINBURGH AFTER FLODDEN.

BY R. L.

BEFORE beginning the study of this piece spend some time on the author. Tell the scholars that you wish them to find out as much as they can about him. If possible, get the scholars deeply interested in him as a man. Our object in teaching literature is to give children a pleasure in reading, and the power of picking out what is beautiful in the books they read. If only you can get your pupils interested in the author you will have very little difficulty in interesting them in what the author says.

James IV. and Flodden Field should be described by the teacher as vividly as possible. "Marmion" will be a great help to him in getting up this description. As the present poem is almost entirely a description of the effect of the death of James and the disaster at Flodden on the people of Edinburgh, a child is not likely to be able to appreciate the poem unless he is perfectly familiar with both occurrences.

The simplicity and vigor of this extract makes it a very suitable one for young students. The teacher will notice that almost every stanza contains a vivid word picture. These should be dwelt upon by him. The scholars should be asked to point them out and try to put them in their own words. Sometimes the teacher might substitute a word of his own for one in the poem and get scholars to tell which they would prefer, and why they would prefer it.

I. "News of Battle."—Notice how full of energy and excitement this expression is. How quickly by its use the author carries us back to the state of Edinburgh on that memorable morning after the battle of Flodden, nearly 400 years ago. Into the first eight lines of this piece the poet has breathed a spirit of joyousness and confidence. Observe how the author makes the people use "news of triumph" as synonymous with news of battle.

In the lines that follow there is a gradual transition from exultation to fear. The fiery beacons seen the night before upon the hill tops are regarded by the citizens as heralds of a bloody battle. Macauley's "Armada" gives a very animated description of the lighting of these signal fires. The atmospheric phenomenon—called the Northern lights—so common in Canada, is represented by the poet as an addition to the anxiety of the superstitious townspeople. According to his graphic description, their eyes saw in it a supernatural display (so fearful that the sky trembled in terror), made to celebrate the entrance of departed heroes into the spirit world.

II. After these recollections the confidence of the citizens gives place to an intense dread of some threatening calamity. Notice the eager anxiety expressed in the lines,

"Warder—warder! open quickly,
Man—is this a time to wait?"

The poet skilfully places the agonized hurry of the crowd in contrast with the slow swinging of the city gate. Get scholars to see that in the expression, "a murmur long and loud," by the alliteration of "l" and "m," and by the repetition of long vowels, the poet makes this line resemble in sound the murmur he is describing.

"Bursts from out the bending crowd."—The crowd is swaying backward and forward in its eagerness to catch a glimpse of the messenger. "Bursts" strongly impresses us with a sense of the deep feeling of the crowd. "From out," represents the murmur as coming from the whole crowd as from one man.

Throughout this poem a very effective use is made of suspense. The reader has been forced to wait a long time before he sees the messenger, and he will have to wait much longer before he hears

the message. Have pupils explain as well as they can the purpose that suspense serves in literature.

Mark how the author, in his description of Randolph Murray,

“And his weary steed is wounded
And his cheek is pale and wan,”

employs the connective “and” to detract from the energy of the lines, thus making them more in keeping with Murray’s condition. Their languidness is made still more noticeable by being placed in contrast with the energetic interrogation at the end of the verse.

III. In this verse observe how suggestive of the people’s eager longing for news of the battle are their numberless confused questions, so many that it would be impossible for Randolph to answer them. All through the poem the silent despair of Murray is placed in strong contrast with the tumultuous grief of the people.

IV. “Like a corpse the grisly warrior.”—This description is very expressive of Murray’s deep grief. He had probably been riding along perfectly unconscious of the sobs and shrieks around him until now.

“Then he lifts his riven banner
And the asker’s voice is dumb.”

The Edinburgh people knew that their soldiers held their banner almost sacred and would willingly yield up their lives before they would see it desecrated by the English. When Randolph help up the “riven” blood-stained banner, it told them too plainly that all was lost and they feared to know the particulars.

V. Notice the change of metre with the change of subject. In this verse we have the kind and hopeful address of the king given to the burgers before the departure for Flodden. It forms a break in the saddest part of the piece, following the verse in which the lifting of the banner discloses the result of Flodden field to the people. As a momentary gleam of sunshine makes a cave appear darker than it did before, so the poet by transporting us to the time when James, full of hope and strength, takes leave of the fathers, makes us feel the time he has just described more miserable. The kind discourse of King James also gives us a better knowledge of his character, and therefore makes us better able to sympathize with the people in their loss.

“Than that the foot of foreign foe.”—The alliteration of “f” in this line expresses very forcibly James’ hatred for foreign invaders.

The word “trample” is highly descriptive of the sacking of a defenceless Scottish town in those days by a victorious English army.

VI. Observe how the effect of the intense grief of the soldier is heightened by the mention of things we are little disposed to connect with tears or grief, the corselet and the mailed hand.

“And all of them were fathers,
And their sons were with the king.”

Notice the pathos of these lines.

VII. “Of ancient name and knightly fame and chivalrous degree.”—These epithets should be explained thoroughly to the class by the teacher. Few things are more full of beauty and poetry than knighthood and chivalry. It is easy to awaken the interest of almost every boy or girl in them.

VIII. “However sharp they be.”—However capable they may be of giving pain by cutting the feelings as a knife cuts the body.

“Woe is written on thy visage. Death is looking from thy face.”—The second line though very forcible is little more than a strengthened repetition of the first. The Provost thinks the man appeared as though the spirit of Death had entered him and was “looking from his face,” an idea very horrible for the body of a living man to be Death’s abode but very suggestive of the dreadful things he was about to disclose.

IX. “Right bitter was the agony that wrung that soldier proud.”—Notice the force of “wrung.” The whole being of the soldier seems wringed with pain as he attempts to tell his tidings.

“One by one they fell around it.”—Observe the tantalizing slowness of the approach of the death here described.

“Else be sure I had not brought it from the field of dark despair.”—If honor were the only reason for bringing the flag away Randolph would never have left the field, but would have died protecting it. “From the field of dark despair.” Notice the strength of this line.

“Never yet was royal banner steeped in such a costly dye.”—Randolph’s excessive grief makes him use words out of their literal sense. The banner was stained with blood not steeped in it.

There is a kind of ascending climax in the verse closing in the last line.

X. In the first line the repetition of “woe” is very striking as if the poet’s means of expressing the intense agony of grief fail him and he is forced to use the word he used before. It will also be noticed that the poet in describing the effects of Murray’s tidings uses exclamative and very elliptical sentences as more expressive of deep feeling and more energetic.

“Oh the blackest day for Scotland that she ever knew before.”—Obtain from class why the poet has made this sentence so markedly ungrammatical.

“Surely some have ‘scaped the Southron.” The alteration of the “s” adds greatly to our sense of the hatred the Scotch bore to the English destroyer.

XI. Notice the contrast between the wild grief of last verse and the cold certainty of this.

“Till the oak that fell last winter
Shall uprear its shattered stem.

The impossibility of a return of those slain on the battle field is here very strongly asserted.

The end of this sad piece is full of pathos. Try to obtain from the scholars wherein this last verse is pathetic.

The teacher may help the scholars greatly to grasp the spirit of this animated poem by reading it aloud himself and having the scholars read it. Generally we are much more impressed with what is read to us than by what we read ourselves, if the person reading is fairly skilful.

QUESTIONS AND ANSWERS.

KINDLY answer the following questions which are found in the High School Grammar, page 122 and 123, in the next issue of the EDUCATIONAL JOURNAL.

I. Pluralize, when possible, the following, stating the principal involved: caiman, habeas corpus, louis d’or, decorum, laudanum, asparagus.

II. Discuss the following formations with respect to number: vermicelli, poultry.

III. Discuss the peculiarities of number in the following: He has no objections. I was in his favors. I will requite your loves. Break not your sleeps for that.—J. D.

SIR,—By answering these questions through the JOURNAL you will confer a favor on A DOMINIE.

IV. “Trial by Combat,” High school Reader, page 179.

What is meant by “the Diamond of the Desert?”

V. “The Bard,” page 115, III. 3.

To what historical personages does the poet refer in this verse “The verse ——— endless night?”

VI. “The Cloud,” page 220, verse 3.

What is the reference in “the back of my sailing rack?”

PLEASE answer the following question through the columns of the EDUCATIONAL JOURNAL, and oblige.

VII. What are the Literature Selections for the July, 1890, Third Class Examination?—J. R.

DEAR SIR,—Will you, if possible, answer the following questions in your next issue; if not, later?

VIII. “Resignation,” page 105.

How are the last two lines of stanza II. connected in sense with the two preceding lines?

IX. Give a good clear explanation of stanzas III. and IV.

How is heaven like a “cloister?”

Explain stanza XI.

The notes on “Song of the River” were so ad-

mirable, and I appreciated them so much that I cannot refrain from thanking you.—H. S.

SIR,—I am very much pleased with your JOURNAL and educational work in general. Would you please answer this question through the EDUCATIONAL JOURNAL.

XII. What is the grammatical value of the inflections of “seek,” “seeking,” “sought,” of “love” and “loving?”—AN INQUIRER AND CO-WORKER.

PLEASE answer this in the EDUCATIONAL JOURNAL as soon as possible.

XIII. Where are the “Golden Isles” mentioned by Tennyson in “Enoch Arden.”—S. J. W.

ANSWERS.

I. “Caimans.” (Not a compound of “men.”) “Habeas Corpus.” (If any plural form arise it will be “Habeas Corpuses.”) “Louis d’or;” “decorums.” (Not commonly used in plural form.) “Laudanums.” (Plural form is seldom used, and only to denote varieties of the article.) “Asparagus.” (We have never seen the plural form, which would be in English “asparaguses.”)

II. “Vermicelli” is an Italian plural of “Vermicello,” and means literally “little worms.” “Poultry.” A singular collective form from “poult pullet.” The *ry* may be seen in “yeomanry,” “cavalry.”

III. These plural forms are all uncommon, but are yet justifiable as indicating instances, occasions, or examples, of the abstract quality denoted.

IV. An oasis in the desert.

V. The first three lines refer to Spenser, the fourth, fifth and sixth to Shakespeare, the seventh and eighth to Milton, the ninth and tenth to Milton’s poetical successors.

VI. The cloud is by Shelley supposed to be an invisible spirit or existence inhabiting the visible material shape generally called cloud. In this case before us the invisible spirit, *i.e.*, the real cloud, is supposed to be using the material visible shape as a means of locomotion, as a “sailing rack,” as it were. The idea is that the sun rises above (leaps on the back of) the cloud (my “sailing rack.”) That this is the poet’s idea is evident from the last stanza,

“For after the rain, when with never a stain,
The pavilion of heaven is bare,
I silently laugh at my own cenotaph.”

VII. The list of Literature selections for 1890 has not yet been announced.

VIII. “Rachel, weeping for her children, refused to be comforted,” is a Biblical expression indicative of universal sorrow. (Compare “the air is full of farewells, etc.”) “Sorrow.” See Jeremiah xxxii. 15, and Matthew ii. 17.

IX. The poet’s thought is that although these afflictions are universal they are not accidental, but are brought about by a God who is too wise to err and too good to be unkind. The idea that even the darkest and saddest afflictions are blessings in disguise is emphasized by Verse IV.

X. Heaven is regarded as a place of education, a school free from all noise and bustle, and therefore characterized by the peace and quiet that are a necessity of steady, permanent growth.

XI. The stanza seems plain in its meaning. The child mourned by the poet is supposed not to have died, but merely to have entered a better school. She is looked upon as growing and developing into a beautiful maiden adorned with the grace of a celestial being, and expressing by the brightness of her face the beauty of her perfected character.

TIME is a fiction and limits not fate.
Thought alone is eternal. Time thralls it in vain.
For the thought that springs upward and yearns to regain

The pure source of spirit, there is no Too Late.

MAN can not make, but may ennoble, fate,
By nobly bearing it.

“IT makes much difference whether you are good or wish to seem so.”—MARTIAL.

Hints and Helps.

SCHOOL-ROOM IMPROVEMENTS.

BY BEBB.

"ON one of four corners, where two roads cross each other, is a little red frame building, surrounded by a very, very dilapidated board fence, and reached by a tumble-down gate and a very much broken walk. Open the door, and you will find yourself in a room about twenty feet by twenty-five feet, and nine feet high, or perhaps a little larger. There are three windows on each side, on which hang torn, faded green print blinds, which I presume were bought at auction about fifteen years ago. Across the front of the room, and along three feet on each side, are black-boards, or dark grey, at least, and above all, from one end of the room to the other, is a rusty old pipe, at one end of which is a rustier (if it were possible) stove and drum. Next, maps as old as the world, almost, are hung around the room. In one corner is an old desk and a chair." So writes a friend on taking charge of a school. I may add, the desk and chair probably overlook a number of rows of straight-backed, uncomfortable forms, and too many teachers know there is no exaggeration in the whole.

And that is the place where forty or fifty fresh, beautiful child-natures at once are to imbibe ideas that by-and-by will make them noble men and women.

A few years ago I was very well acquainted with one of those rooms, and it may be that some teacher may find some of my plans useful.

Arbor Day was hailed with delight, and the work done that day but paved the way for many good things,—new fence, gates neatly painted, maps, platform, black-board, and pipes. They did not come all at once; some months usually passed between each donation, as if the trustees were waiting to see what effect each would have—but we worked in interim.

At a Public School Examination, I selected Lesson XXX. for the class in Part II., and they, knowing the end in view, did it justice. Don't imagine that I previously post my pupils for examination by having certain lessons prepared.

As each fresh defect was considered, one of our trustees, our township reeve, interspersed the lesson with, "Well, well!" "Oh!" "That is fearful!" much to the merriment of the little folks. Thus that lesson mended our roof, plastered holes in the ceiling, got new hooks for the boys' and girls' wraps, and actually led in the new stove-pipes.

One early October evening, after four, I held a meeting of the boys and girls, and gave them a short exhortation on, "We must brighten up our school-room." The result of that was that pictures of all descriptions poured in, pieces of paste-board, etc. These I assorted, choosing the best. Each one was pasted to a piece of brown paper of a similar size, and laid aside till dry. That year the cedars were laden with beautiful clusters of yellowish-brown cones (I have never seen so many since). The pupils gathered for me a large basket of the branchlets with their clusters. These I securely fastened with worsted round the border of the pictures, making a decidedly pretty frame when plenty of green was interspersed, and they remained so till summer came. The pictures consisted of the title pages of *The British Workman*, *Pleasant Hours*, and *The Band of Hope*, and several premiums given with certain papers, "Young Canada," "The Roll Call," "Queen Victoria," "Prince of Wales," and "Little Nell."

Wall pockets were manufactured from the following articles: Pasteboard, silver paper, little pictures, scraps of velvet or cloth. These were filled with bouquets of oats, barley, wheat, yeast plant (a white everlasting found plentifully on roadsides), and dried grasses of several varieties.

Cardboard, red or blue, cut in oblongs, eight inches by twenty inches, furnished the background for mottoes, "Press On," "Persevere," "Be Patient," etc. The letters were formed of the cedar cones strung on fine woollen thread.

Then we voted that the faded blinds must go, so we put together our five-cents and pennies, and

(Continued on page 62.)

59. Solve $6x^4 - 35x^3 + 62x^2 - 35x + 6 = 0$.
 SOLUTION 1. The factors of the absolute term 6 are 1, 2, 3, 6. Trying these in order by synthetic division we find $x - 2$ and $x - 3$ are factors, and the resulting quotient, $6x^2 - 5x + 1$, splits into $3x - 1$ and $2x - 1$. Thus the roots are $+2, +3, \frac{1}{2}$ and $\frac{1}{3}$.

SOLUTION 2. Divide through by $6x^2$ and arrange thus $\frac{1}{2}(x^2 + \frac{1}{x}) - \frac{5}{6}(x + \frac{1}{x}) + 1 = 0$. Add $\frac{1}{2}$ and subtract $\frac{1}{3}$ and clear of fractions.

$$6(x^2 + 2 + \frac{1}{x}) - 35(x + \frac{1}{x}) + 50 = 0.$$

$\therefore x + \frac{1}{x} = \frac{1}{2}$ or $\frac{5}{6}$. Solving these two quadratics we get as before $3x = 1, x = 3, 2x = 1, \text{ or } x = 2$.

60. Find the effect of adding the same quantity to both terms of a ratio. Employ your results to compare the values of the fractions $\frac{2}{3}, \frac{4}{5}, \frac{6}{7}, \frac{8}{9}$ and $\frac{1}{2}, \frac{3}{4}, \frac{5}{6}, \frac{7}{8}$.

Book work. A proper fraction is increased in value by adding the same quantity to both terms.

1st case: $\frac{483}{483} = \frac{519}{519}, \therefore \frac{483-86}{483} < \frac{519-86}{519}$.

2nd case: $\frac{3731}{4568} < \frac{3731+67}{4568+67}$ and still $< \frac{3731+67}{4568+60}$.

i. e. $> \frac{3798}{4628}$, since the fraction is increased in value by decreasing the denominator.

3rd case: $\frac{796}{799} = 1 - \frac{3}{799} = 1 - \frac{1}{266\frac{1}{3}} = F_1$ say

$$\frac{799}{804} = 1 - \frac{5}{804} = 1 - \frac{1}{160\frac{4}{5}} = F_2$$

But $(1 \div 266\frac{1}{3}) < (1 \div 160\frac{4}{5})$
 $\therefore F_1 > F_2$

61. Sum the series $1^2 + 3^2 + 5^2 + \text{etc. to } n \text{ terms.}$

SOLUTION. 1, 9, 25, 49, etc.
 8 16, 24
 8 8
 0

$$\therefore s = \left\{ 1 + \frac{n-1}{2} \cdot 8 + \frac{(n-1)(n-2)}{2 \cdot 3} \cdot 8 \right\} = \frac{n}{3} (4n^2 - 1)$$

62. Sum the series $1^3 + 3^3 + 5^3 + \text{etc., to } n \text{ terms.}$

SOLUTION. 1, 27, 125, 343, 729
 26, 98, 218, 386
 72, 120, 168
 48, 48
 0

$$\therefore s = n \left\{ 1 + \frac{n-1}{2} \cdot 26 + \frac{(n-1)(n-2)}{2 \cdot 3} \cdot 72 + \frac{(n-1)(n-2)(n-3)}{2 \cdot 3 \cdot 4} \cdot 48 \right\}$$

63. Sum to n terms $1 \cdot 2 \cdot 1 + 3 \cdot 4 \cdot 4 + 5 \cdot 6 \cdot 9 + 7 \cdot 8 \cdot 16 + n$.

SOLUTION. The n th term is $(2n-1) \cdot 2n \cdot n^2$, that is $4n^4 - 2n^3$. Thus the series is equal to $4(1^4 + 2^4 + 3^4 + \text{etc., } n \text{ terms}) - 2(1^3 + 2^3 + 3^3 + \text{etc., } n \text{ terms})$

$$= \frac{1}{5} n(n+1)(2n+1)(3n^2 + 3n - 1) - \frac{1}{2} n^2(n+1)^2$$

$$= \frac{1}{10} n(n+1)(24n^3 + 21n^2 - 11n - 4)$$

64. A ditch 120 rods long runs through pure sand and pure clay. If it were all sand A could dig it in 30 days and B in 24. But if it were all clay A could dig it in 40 days and B in 60. However, A begins at the clay end and B at the sand end at the same time, and they finish in 17 days. Find how many rods of clay were in the course.

SOLUTION. A can dig 4 of sand, or 3 of clay
 B " " 5 " " 2 " "

Now if B spent the whole 17 days in sand, he would do 85 rods, leaving 35 rods for A, who could do this at his slowest rate in less than 12 days, leaving him idle nearly 5 days. This shows that B must not spend all his time in sand, but must also do some of the clay. Now when they begin they are approaching at the rate of 8 rods a day; and after B enters the clay they approach at 5 rods a day. Let x = the number of days @ 8 rods a day. $\therefore 17 - x$ = number @ 5 rods a day.

$$\therefore 8x + (17 - x)5 = 120 \therefore x = 11\frac{1}{3} \text{ days; } 17 - x = 5\frac{2}{3} \text{ days.}$$

Thus A works 17 days in clay @ 3 = 51 rods
 B " " 5\frac{1}{3} " " @ 2 = 10\frac{2}{3} = 61\frac{2}{3} clay.
 B " " 11\frac{1}{3} " " sand @ 5 = 58\frac{1}{3} sand.
 120 rods in all.

65. Solve $x^2 - 8 = \sqrt{x^2 + 36x + 84}$. Why do not all the roots satisfy the equation? Is there any equation these roots will satisfy?

SOLUTION. Square and add $8x^2 - 48$ to both sides then $x^4 - 8x^2 + 16 = 9x^2 + 36x + 36$

$$\therefore x^2 - 4 = \pm(3x + 6)$$

i. e. $x^2 + 3x + 2 = 0 = (x + 1)(x + 2)$;

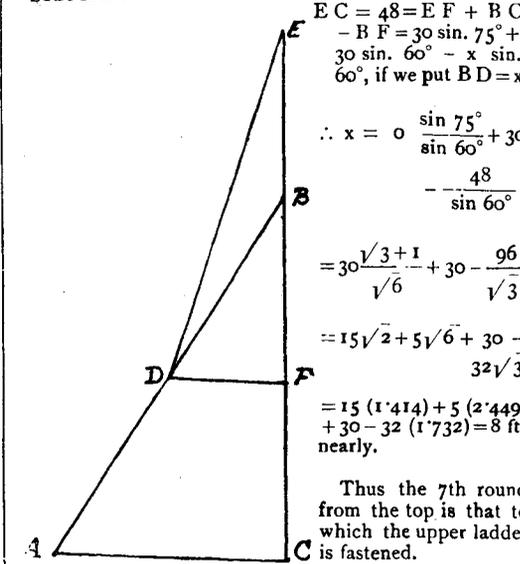
or, $x^2 - 3x - 10 = 0 = (x - 5)(x + 2)$, thus the roots are $-1, -2, -2$ and 5 . Of these only 5 will apply to the given equation; the others would make $x^2 - 8$ negative and thus be incompatible with the dexter member which is positive. The other roots belong to the conjunct equation, $8 - x^2 = \sqrt{x^2 + 36x + 84}$. It is to be observed that $x^4 - 16x^2 + 64$ is the square of $x^2 - 8$ and also of $8 - x^2$, so that when we solve the equation after squaring we obtain the roots of the equation given and also those of the conjunct equation as given above.

66. How many cubic inches of iron are there in a garden roller which is half-an-inch thick, with outer circumference $5\frac{1}{2}$ feet, and width $3\frac{1}{2}$ feet?

SOLUTION. Outer circumference = 66 in. \therefore radius = $33 \div 2 = 10\frac{1}{2}$ in. \therefore inner radius = $9\frac{1}{2}$ in. Hence solidity of iron = $\frac{2}{3} (4\frac{1}{2} - 2\frac{1}{2}) \times 42 = 2640$ cubic inches.

67. A ladder 30 ft. long stands against a wall so as to form one half of an equilateral triangle. A certain distance up this ladder a second ladder, also 30 feet long is fastened so as to form an isosceles triangle with the wall and the first ladder, and just reach a window 48 feet from the ground. Each ladder has the rounds about a foot apart. Find the round of the first ladder, counting from the top, to which the second ladder is fastened by its lower end.

SOLUTION.



$$EC = 48 = EF + FC$$

$$- BF = 30 \sin 75^\circ + 30 \sin 60^\circ - x \sin 60^\circ, \text{ if we put } BD = x$$

$$\therefore x = 0 \frac{\sin 75^\circ}{\sin 60^\circ} + 30 - \frac{48}{\sin 60^\circ}$$

$$= 30 \frac{\sqrt{3+1}}{\sqrt{6}} + 30 - \frac{96}{\sqrt{3}}$$

$$= 15\sqrt{2} + 5\sqrt{6} + 30 - 32\sqrt{3}$$

$$= 15(1.414) + 5(2.449) + 30 - 32(1.732) = 8 \text{ ft. nearly.}$$

Thus the 7th round from the top is that to which the upper ladder is fastened.

68. $y^2 + z^2 - x(y+z) = a$
 $z^2 + x^2 - y(z+x) = b$
 $x^2 + y^2 - z(x+y) = c$

Put R, S and $M = x^2 + y^2 + z^2; x+y+z; xy+yz+zx$. Also R_1, S_1 and $M_1 = a^2 + b^2 + c^2; a+b+c; ab+bc+ca$.

The equations then become $R - Sx = a; R - Sy = b; R - Sz = c$. Adding $3R - S^2 = S_1$, or $2(R - M) = S_1$

Squaring the equations and adding them $R_1 = 3R^2 + RS^2 = RS_1; \therefore R = R_1 \div S_1$

Hence $3 \frac{R_1}{S_1} - S^2 = S_1$
 $\therefore S^2 = \frac{2S_1 (R_1 - M_1)}{S_1^2} = 2(a^2 + b^2 + c^2 - 3abc) \div S_1^2$
 $= \frac{p^2}{S_1^2}$, suppose; $\therefore S = p \div S_1$

But from (1) $a = \frac{R_1}{S_1} - \frac{px}{S_1}$
 $\therefore px = R_1 - S_1 a = a^2 + b^2 + c^2 - a(a+b+c)$
 $= b^2 + c^2 - a(b+c)$
 $\therefore x = \sqrt{b^2 + c^2 - ab - ca} \div \sqrt{2(a^2 + b^2 + c^2 - 3abc)}$

And y and z may be written down by symmetry.

See McLellan's and Glashan's *Algebraic Analysis, Part I.*, for another method of solution.

CORRESPONDENCE.

We have a large budget of letters on hand, chiefly from Ontario and Manitoba. We will attend to these as soon as possible, but the numerous requests from our readers show clearly that the matter of the present issue will prove acceptable to a large circle of our friends who are preparing for the July examinations. In the next issue will appear a short article on *Modern Geometry*, and, if possible, answers to the many kind friends who have favored us with questions and solutions. May their number increase. Friends, this is the season to push the claims of the JOURNAL and double the circulation.

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.

We desire to repeat our request that Inspectors and Secretaries of Associations send us programmes of their forthcoming Conventions as soon as issued. We wish to make announcements of such Conventions, with somewhat fuller particulars than may be found in a Departmental list. Moreover, as this list contains only the names of Inspectorates in which Teachers' Institutes are held, a great many Conventions of Teachers, not being upon the list, are unknown to us, and unannounced.

TEACHERS' INSTITUTES.

1. North Essex, at Windsor, May 31st and June 1st.
2. South Essex, at Amherstburg, June 5th, 6th and 7th.
3. Ontario, at Beaverton, June 6th and 7th.
4. Algoma, at Sault Ste. Marie, June 13th and 14th.
5. " at Little Current, June 20th and 21st.

Entertainment on evening of first day in connection with Nos. 1 and 2. Mr. W. Houston, M.A., Parliamentary Librarian, will attend Nos. 3, 4, and 5, and will in each case deliver a lecture on the evening of the first day.

We have no announcements of any other conventions for June.

Editorial.

TORONTO, JUNE 1, 1889.

THE MATRICULATION QUESTION.

It will be fresh in the memory of our readers that Rev. Principal Grant, of Queen's University, addressing the Council of that institution in February last, made some trenchant criticisms on the present standard and methods of examination for matriculation in Ontario universities, with special reference to the course which the University of Toronto has pursued in the matter. To use his own words, he pointed out that:—"All our universities now accept the same subjects and hold their examinations at the same time and in the same places; that our (Queen's) assimilation to the standard of Toronto University—made in the interest of the High school teachers—had obliged us to lower our pass, as regards percentage and at least one subject; that, to ensure complete uniformity, a common board and common examiners are needed; and that our overtures to the Senate of Toronto for a conference to secure these had been disregarded."

Principal Grant returns to the subject in another address to the Council, delivered on the 28th ult. He notices various criticisms touching the present examinations for matriculation; shows by comparison with Yale and Harvard the decided inferiority of our Canadian standards; points out that the remedy which first suggests itself as the natural one, viz., common action by the Universities, has been used effectively in Massachusetts, where Harvard, by far the most important University in the State, did not disdain to ask and secure the co-operation of the other institutions with a view to promote the study of English in the secondary schools, and for other purposes; that similar co-opera-

tion in Ontario is prevented by the attitude of the Provincial University, the Senate of which has not even yet answered an official letter addressed to it on the subject by Queen's University, in 1886, and that this action, or rather inaction of the Provincial University blocks the way to improvement not only in other universities but "in the whole educational system from top to bottom." Principal Grant then goes on to approve the plan advocated by Professor Dupuis, in 1886, that of substituting for the present July matriculation examinations, a "leaving" or final examination for the High schools and Collegiate institutes.

We should gladly treat of each of the important topics suggested at length, but the limits of our space will not admit of full discussion. A few remarks may, however, be in order.

In the first place we cannot refrain from a renewed expression of regret at the apparent indifference of the University of Toronto to educational reform, at its apparent unwillingness to act in concert with the other universities in a matter of common interest, and of undeniable importance to the cause of higher education in the Province, and, above all, at the singular and apparently studied discourtesy with which its authorities and Senate have received the overtures of Queen's. The result seems to be, as Principal Grant points out, that the other Universities, "having adopted the Matriculation of Toronto, are at its mercy. Whether it prescribes good, bad or indifferent standards, protest avails nothing," a result which, it must be confessed, goes far to justify the caustic inference that "the Legislature having given it a position that enables it to take that attitude," it "seems to be more zealous for itself than for the end for which it was established," so that, like an established Church, "it disdains dissent and becomes sectarian where it ought to be catholic." We commend Principal Grant's arraignment to the many alumni of the Provincial University amongst our readers. We feel sure that most of them appreciate the situation and will do their utmost to lift their Alma Mater out of the deep rut in which established institutions of the kind are so prone to run.

We cannot but agree to some extent with a criticism to which Principal Grant replies. A twenty-five per cent standard of admission is indeed both "miserable" and absurd. If the examination questions are, as they ought to be, of such a kind as a well qualified candidate may fairly be expected to answer, a twenty-five per cent. standard must be designed to admit those who, by all laws of efficiency, ought not to be admitted. No professor can do effective work with a class of students whose acquirements are so unequal that they have to be marked on a gamut of 25 to 100. The twenty-five per cent. man—assuming always the fairness of the examination—has no right to be in the same class with a seventy-five per cent. man. But we are forced by experience and observation to admit that we attach very little value to the nominal percentage required in any examination as a criterion of

efficiency or a means of comparison, so much depends on the kind of examiner who sets the questions and values the answers. We have sometimes been forced to smile at the tone of conscious superiority in which visitors from American institutions have sought to crush our poor Canadian schools with the assurance that in those with which they are connected no student could pass who failed to reach at least seventy-five, or perhaps ninety per cent., as if that statement were the end of all controversy. All this is, however, as Principal Grant says, a matter of detail, and we are by no means sure that the seventy-five per cent. scale may not be the better one.

If the proper conditions could be attained, we are inclined to the opinion, after having given considerable thought to the matter, that the proposed "leaving" High school examination would better effect the object in view, than the present matriculation examination. In the first place it would give scope for the practical application of the principle, which nearly every educator will endorse, that the judgment and record of the teacher should enter, as an important factor, into the result of every examination. Every teaching institution should examine its own pupils, or should at least have a voice in determining the standings of its own students, as the result of examination. The only use of the matriculation examination to the university is to enable it to assure itself that the student seeking entrance is intellectually qualified to enter upon one of its prescribed courses, and to do the work required of its students. Most professors of experience will, we venture to assert, admit that the certificate of a competent High school staff would be a better guarantee of such fitness than the results of an examination by the average university examiner can possibly afford. A classification, into which the reports of a competent Board of Examiners and those of the High school staff entered as joint factors would, in our opinion, afford the best possible basis of admission to the universities, and the latter would be thereby left free to give undivided attention to their own proper work.

An argument in favor of the "leaving" examination which is, in our view, not second in weight to that touching its usefulness as affording a standard for entrance to universities, is that based upon its fitness as the culmination of the High school course, and a goal for its students. Something of this kind is already supplied by the certificates given by some of the best of these institutions to pupils who have completed the full course. Such certificates won as the result of an examination, and accepted as an equivalent to matriculation, would carry an increased value, and stimulate many who now stop short of the full course, to persevere to the end. That, in itself, would be a great advantage to the country and to the work of the secondary schools of which the country is so justly proud.

We quite agree with Principal Grant that the Board of Examiners needed for the successful working out of such a system, should include

men in whom the whole country would have confidence, and should be responsible to the public and open to criticism. They should be, as all examiners should be, practical educators. But we very much doubt whether such men either would be willing, or ought to be expected, to do this arduous work for nothing. That is, however, another question, though a very important one, of detail.

Of the crying need that the standard of matriculation into Canadian universities should be raised very considerably, we have previously spoken. That need is obvious and undeniable. Principal Grant's comparison with Yale sets it in a very clear light. Some further observations we should like to make, especially with reference to the proper place of English in any improved standard, must be reserved for another occasion.

DR. RYERSON'S STATUE.

THE statue of the late Dr. Ryerson, which has been so long in course of preparation, has been set up on the Normal School grounds, and was unveiled, with appropriate ceremonies, on the 24th ult. The Minister of Education presided, and delivered an opening address, showing clearly and forcibly the great services rendered by Dr. Ryerson to popular education in the Province, and the debt of gratitude due him.

The ceremony of unveiling was performed by Sir Alexander Campbell, the Lieutenant-Governor, who said that he thought no pleasanter duty could fall to the lot of any Lieutenant-Governor than that of assisting in honoring one of the Province's noblest men.

At the close of the ceremony of unveiling, Dr. J. George Hodgins was called upon, and read an interesting paper, entitled "An Historical Retrospect," in which he reviewed the progress of education in Ontario. This was followed by addresses by Mr. McQueen, who spoke on behalf of the Teachers' Association of Ontario, and Alderman McMillan, as Acting Mayor of the city. Addresses were delivered also by Hon. John Macdonald, Rev. Dr. Burwash, Rev. Wm. Clarke, and Dr. T. H. Rand, representing respectively, Toronto, Victoria, Trinity and McMaster Universities.

We understand that a memorial volume will be published, to commemorate the event. This will, no doubt, contain the speech of the Minister of Education, Dr. Hodgins' paper, and the other addresses delivered on the occasion.

The statue is of bronze, nine feet six inches in height, and stands upon a pedestal of New Brunswick granite, ten feet six inches high. It represents Dr. Ryerson in the attitude of addressing an audience in the cause of education. The head is turned a little to the right, with the lips slightly parted, and with the massive brow and flowing locks, gives a correct and forcible expression, in harmony with the action of the advanced arm and firm position of the right leg. The proportions of the figure are very well kept

through the ample folds of the Doctor's gown, which in their various lines, lend richness and interest to the work, and take away the stiffness of the modern costume. The left hand is raised nearly to the breast, and in it is grasped a book. A little to the left and rear of the figure stands a short pedestal bearing three books, carelessly laid one upon another; and on one of the panels of the pedestal is the arms of the Department of Education. Dignity of bearing, repose and action, and distinct force of character, eminent qualities in the personality of the late doctor, mark the expression of the figure; and it is evident that no pains have been spared by the artist, Mr. Hamilton McCarthy, in the modelling of the details of both statue and pedestal. The statue stands in a commanding position in the Normal School grounds. It will add a new object of interest to the many attractions which these grounds present to teachers and others visiting the Department.

SCIENTIFIC TEMPERANCE.

THE Report of the Committee on Temperance, presented at the late meeting of the Synod of the Presbyterian Church at Bowmanville, contained the following suggestive sentence:

"The repeal of the Scott Act may not, under present circumstances, be a retrograde movement, but it is very significant that almost all, if not quite all, of the sessions in counties that have returned to the license system report 'change for the worse,' and agree in attributing it to the repeal of the Scott Act."

It is quite possible, as here suggested, that the Scott Act may have done its work in the counties in which it has been repealed and that the time had come for it to give place, in order that something better may follow. But the friends of temperance—and that phrase will, we feel sure, include every reader of the EDUCATIONAL JOURNAL—must feel that a double obligation rests upon them, in consequence of that repeal. It will never do to let the last state of the country be worse than the first. "Change for the worse," is sure to follow unless strenuous efforts are put forth to bring about change for the better.

One of the best, perhaps the very best means of effecting this change for the better, of laying broad and deep the foundations of a reform that shall be universal and permanent, is the careful education of the young in regard to the effects of alcoholic stimulants. This is pre-eminently a work for the teachers. It would be their duty as true men and women and good citizens in any case, it is now made their official duty by the action of the Education Department, to see that the school children of Ontario do not grow up in ignorance, where accurate knowledge is of the highest importance to their future well-being, physically, socially and morally. In regard to this matter the Presbyterian Synod adopted the following resolution:

"That we express satisfaction that the Minister of Education has decided to allow value for examination in the Public schools on the subject of Scientific Temperance, which we believe to be the best means of securing faithful, constant instruction in these important principles; and, further, that the Synod again urge ministers and people to use all diligence, that the authorized text-book on this subject be introduced into every Public school."

Other religious and philanthropic bodies will no doubt take the same ground. And the teachers of Ontario will not fail, we feel sure, to use all their influence to carry out the design of the Department and the recommendation of the best citizens, that the effects of alcohol upon the human system be scientifically taught in every school. No child in Ontario should be permitted to grow up and go out into the world of temptation and struggle without having been taught the whole scientific truth in regard to this matter. Let but one generation receive this instruction, and go forth with intelligent conceptions of the nature and consequences of the liquor habit, and the strong drink problem will have been satisfactorily solved.

EDITORIAL NOTES.

WE regret to find that reports of the East Lambton and the Lanark and Addington Teachers' Associations, which are in type, are unavoidably crowded out of this number. These, with others coming to hand, will appear in next issue.

THE attention of our readers is directed to the advertisement, in another column, of the Niagara-on-the-Lake Assembly. Special classes in music will be conducted by Mr. Alex. T. Cringan, the editor of our Music Department, and a bonus will be given by the Provincial Education Department, to all students who attend the requisite number of lessons, and pass the prescribed examination for certificates in music and drawing.

THE two new books issued by the publishers of the JOURNAL are fast becoming favorites with the teachers. They are *Practical Problems* (700 in *Arithmetic*," and "*One Hundred Lessons* (400 exercises,) in *English Composition*." These are distinctively teachers' books, designed to assist by furnishing properly graded exercises in their respective subjects. Why a teacher should spend his time and waste his energies in devising problems and exercises in these subjects, when he can have books giving him all he requires for so small a figure, it would be difficult to explain. A teacher's time and effort are too valuable for such waste. Send 25 cents to Grip Printing & Publishing Co., 26 Front street, west, Toronto, and get a copy of either of these books. Or, to be well furnished for exercises in these subjects, order them both.

(Continued from page 59.)

bought twelve yards of six-cent cotton and nine yards of Turkey-red, from which I made six blinds and six curtains. The latter were drawn at the top, and looped up in the centre.

The blinds require washing perhaps once in six months. The girls crocheted bright-colored yards of chain-stitch finished with tassels to tie up the blinds.

As the decorations faded, we had them removed and replaced with something new.

Pictures, framed with a narrow binding of Turkey-red or blue, are quite pretty. Of course none of this work was allowed to interfere with school duties.

The pupils were always interested and active, and the effect was at once perceptible mentally and morally, and never once was anything pulled down or in any way marred.

Patience and work were required, but the pupils enjoyed it all so much, as did likewise their teacher, that the labor was not grudgingly given.

Some of the parents have even declared that they were sorry their school-days were past; but how I should like to have a few of them for a few days, and we should surely say good-bye to our uncomfortable seats.

"POLLY, YOU TALK TOO MUCH."

BY MACK SAUBA.

"I DON'T see why I can not make my pupils understand that subject," said a seventh grade teacher to me one day. "I've explained and explained it, over and over!"

"That is the trouble, precisely," was the reply.

"What do you mean?"

"You explain too much. What they need is not explanation, but work. Too much talking soon puts them in the condition of young robins;—when you chirp, they settle back and open their mouths to permit you—and really, it is quite kind on their part—to poke the food which you have gathered down their helpless throats. You can not make them strong by continually doing their work for them. As well try to train a race-horse by hitching him to a post, with a bundle of oats at his nose, where he can watch you cantering around the course, doing his practice for him."

Make thinkers and workers of your pupils, and not meal-sacks to receive the grist as you grind it out.

Much talking is not much teaching.—*Indiana School Journal.*

OBSTINACY.

BY M. C. H.

A CHILD who refuses to obey a command is not necessarily an *obstinate* child, even though the refusal be persistent. Much may be passing in his mind, the half of which, if we could but know, would make us blush for our criticism on his conduct.

Fear, one of the most demoralizing and uncontrollable of human passions, may, unknown to us, have gained such a mastery over the child's will, that his refusal to exert that will in the right direction may be a case of inability, *not* obstinacy. Children dread and suffer so much of which they say nothing, that we lose sight of one of their strongest incentives to action.

The brain of a little child is not always quick to act, and a certain thought or idea may be lodged so firmly in it, that a temporary paralysis may take place in that portion—a paralysis which is only aggravated and increased by forcible attempts to overcome it.

The most trying cases of obstinacy may frequently be successfully treated by diverting the child's thoughts from the unpleasant subject. Talk with him on something of interest to him, until the mind has been turned into a new channel, and then suddenly but quietly repeat the disregarded order. It will probably be obeyed. If this plan does not succeed, if there is still a determination to disobey, look for some motive for such refusal to yield to authority, and an unsuspected childish fear or dread will generally account for it.

The writer, after some years experience with little children, has found that *gentleness* and care-

ful looking into hidden causes are the true and successful ways of dealing with this common trait of childhood.

If we could always realize how *strong* we are in our *gentleness*, how great an amount of struggle and disappointment in our discipline would melt away—how truly powerful we should become in our management of the little ones. Truly the Psalmist says,

"Thy gentleness hath made me great."

—*Popular Educator.*

TACT IN GOVERNING.

TACT does not treat an entire class to a five-minute scold simply because one pupil has not done his work.

When one boy is noisy or frivolous, tact does not attract the attention of a dozen industrious ones by administering a rasping reproof. Tact, having learned that silence is the surest cure for disorder, fixes his eye on the culprit and quietly waits for him.

During change of classes or at any other odd moments, Tact never lets go the reins, for he well knows the value of an ounce of prevention.

Tact has few rules, but those he has are strictly enforced.

Tact makes conviction the foundation of obedience, but strengthens this obedience by proper authority. "Underneath his silken glove there rests the hand of steel."

Tact studies the good points of his pupils, and always aims to touch the lever that puts into operation the best that is in the boy; and as carefully avoids all unnecessary conflict with the bad that may be in him.

Tact always does himself as much as he demands of his pupils. Puts neat work on the black-board, never lounges, always speaks distinctly.

Tact accords the same respect to his pupils' rights as he expects for his own.

Tact is constantly increasing his knowledge of the subject taught and improving his methods of presenting them. He thus brings live blood into every recitation, and does much toward removing the dull monotony that is likely to accompany routine work.

Tact puts himself in good humor by taking note that the great body of his boys and girls are earnest, studious, and well-disposed. This keeps him from wasting nerve and patience in fretting over the one dull, lazy, or refractory boy that is pretty sure to be found in every school.—*School News.*

TALKS WITH TEACHERS.

BY THE AUTHOR OF "PRESTON PAPERS"

WHAT?

HAVING decided *why* you are in the ranks, let us see, next, *what* you are accomplishing in the fields that await the march of well-disciplined soldiery. Are you teaching text-book literature only? Merely what your contract or your fixed programme calls for? Then let me whisper something in your ear: Contracts are of two kinds, expressed and implied, and the law holds each equally as valid as the other, and that your liability on one is no greater than on the other. This allows of no shirking any duty which you ought to take up, with respect to the highest spiritual, mental, moral and physical well being and advancement of the pupils committed to your care. Are you doing this, or do you—if you see a besetting sin, a weakness, an excrescence—seek to remedy that which your position as teacher implies you can remedy?

Are you cultivating in your pupils habits of obedience, punctuality, courtesy, neatness, self-respect, self-reliance, kindness, reverence, attention, and love for their p'aymates? Are you teaching them practical, every-day lessons in caring for their bodies, their tempers, their souls, along with their minds? Are you teaching them the value of cheerfulness, of regular habits, of purity of thought and language? The danger of vile or even tainted associates and literature? Are you opening their eyes to the "great miracles that go on in silence around" you, or has your own heart never been "awed" thereby? Are you teaching them

confidence in you and sympathy with each other? Courage for the right, and fear, scorn and hate of evil? Are you building character for, with, and before them?

These are questions of vital importance to all concerned in your contract, either as parties thereto or that may be affected thereby. Consider them before you enter upon another. "Yea, let your meditations be upon them day and night," until the answers are satisfactory to your quickened conscience.—*Southwestern Journal of Education.*

School-Room Methods.

LANGUAGE LESSONS.

FOR every grade of pupils there must be selected appropriate subjects on which they can express their thoughts. Suppose the teacher has a school of forty pupils arranged in four classes, D, C, B, A. Here is an outline of the work for each class:

D. These are in the First Reader.

1. They will copy 10 words in columns from their readers.

2. Select a word and put on the blackboard, as "dog," and let them write 10 sentences.

3. Select some "idiom" as "I saw——" and put it on the blackboard, and let them write out 10 sentences.

This will give some idea of the work this class may do. It should be different day by day.

C. This class is in the Second Reader.

The course planned for the D class may be pursued by the teacher with this class, except it will be more advanced.

1. Copy 10 words from the Reader in columns.

2. Write 5 words beginning with *m*, etc.

3. Write 5 words each with *o* in it, etc.

4. Write a story of 20 words about your father.

5. Write the names of 5 things you now see.

B. This class is in the Third Reader.

1. Write a piece of 25 words about an apple.

2. Write what you saw at church.

3. Write any piece of poetry you know by heart.

4. Copy in columns, 25 words from the Reader.

5. Write the names of all the scholars you know.

A. This class has the Fourth Reader.

It will pursue somewhat the same course as the B class, writing short pieces on subjects assigned, copying words, etc. In addition to this, they should learn to *classify words*. Rule strips of paper as below. These can be pinned to the top of a sheet of paper.

Noun.	Pronoun	Verb.	Adj.	Ad.	Prep.	Conj.	Inter.
soldier	his	discharged	a	not			
shot			farewell				

1. The sentence, "Not a soldier discharged his farewell shot," will be classified in this way. The strip on which "Noun," etc., are written, can be removed and used again on another piece.

2. Selecting synonyms, for example, give "distant." They will bring in *far, remote, inaccessible, yonder*, etc.

3. This class should learn ten good pieces of poetry during the year at least. These should be learned, and the reasons why they are good pointed out.

4. They should read from the standard authors.

5. They should know about the great writers.

6. They should write, from time to time, on subjects that they have studied up with care.—*The School Journal.*

HOW TO TEACH DECIMALS.

BY WM. M. GIFFIN, NEWARK, N.J.

WE have learned that a hundred is made up of ten equal parts, each of which is a ten, and that ten is made up of ten equal parts, each of which is

LOOK over your sample copy of *School Work and Play*. Read the circular, with offers for clubs, and do what you can to secure a club for your schools.

CATARRH, CATARRHAL DEAFNESS, HAY FEVER.

A NEW HOME TREATMENT.

SUFFERERS are not generally aware that these diseases are contagious, or that they are due to the presence of living parasites in the lining membrane of the nose and eustachian tubes. Microscopic research, however, has proved this to be a fact, and the result is that a simple remedy has been formulated whereby catarrh, catarrhal deafness and hay fever are permanently cured in from one to three simple applications made at home by the patient once in two weeks. N.B.—For catarrhal discharges peculiar to females (whites) this remedy is a specific. A pamphlet explaining this new treatment is sent on receipt of ten cents by A. H. Dixon & Son, 303 West King St., Toronto, Canada.—*Scientific American*.

Sufferers from catarrhal troubles should carefully read the above.

PRACTICAL BUSINESS EDUCATION.

We would call the attention of our readers to the important announcement of the Toronto Business College, now entering upon its sixth year with larger prospects than ever. The advantages offered are well worthy of notice. Everything that goes to give a sound business training is taught, as is practically shown by the number of graduates who fill responsible positions throughout the Dominion generally. The staff of teachers in charge is a good one, and is composed of men of tact and ability, who are competent to expound what they profess. Their aim is to develop not only a certain amount of routine business education, but to prepare the student for that important duty which business life demands. A new college bank has been added to the practical department, and everything to make that important branch as much business-like as possible to the students. Telegraphy, shorthand, and all English branches are also taught there by able and experienced teachers.

Special rates are offered to teachers and students during the summer, and arrangements to accommodate 300 are completed. The college is situated at the corner of Yonge and Shuter Sts. Circulars, with complete information, will be mailed free to all by addressing the Manager.

To Teachers!

Your Committee have pleasure in announcing that they have completed arrangements with the CANADIAN PACIFIC RAILWAY for a Summer Vacation trip to Victoria, B.C., and return, for \$80.00, and to Banff Hot Springs and return for \$60.00, from any point in Ontario.

THE TRIP embraces a variety and grandeur of scenery that no other possesses, and enables one to become familiar with the unlimited stretch of agricultural territory, grazing lands, mountain and river resources of the great North-West and British Columbia.

TICKETS good to start July 10th to 20th, to reach Banff Hot Springs or Victoria, B.C., until July 30th, and for return until September 30th, can be purchased from any agent of the Canadian Pacific or Grand Trunk Railways, from any Station in Ontario, at above rates, on presentation of certificates signed by Jno. Munro or Archibald MacMurchy.

STOP-OVER privileges will be granted on tickets in both directions, within their time limits, for the going and returning journeys respectively. In the Mountains, Banff and Glacier present very attractive features, and would well repay a stop-over of a few days.

ROUTES.—Passengers have a choice of Routes, either via Rail or via Owen Sound or Sault Ste. Marie and Lake Steamer. They may go by any of these routes and return by either of the others, should they so request at time of purchase. Passengers ticketed by the Rail

Route or the Lake Route from Sault Ste. Marie will travel via the Northern and North-Western Division of the Grand Trunk Railway between Toronto and North Bay, but from Stations east of Sharbot Lake and Kingston passengers may go via Carleton Junction and the Canadian Pacific Railway Main Line. Those desiring to return from Victoria by the Northern Pacific Railway and Sault Ste. Marie, thence Lake or Rail, may purchase tickets enabling them to do so for \$90.00.

SLEEPERS.—The cost of sleeping accommodation for double berth, which may be occupied by two persons, is as follows:—Ottawa to Vancouver, \$20.00; Toronto to Vancouver, \$18.50; Port Arthur to Vancouver, \$15.00; Ottawa to Banff, \$14.00; Toronto to Banff, \$14.00; Port Arthur to Banff, \$9.00. Via Lake Route, meals and berths are included on Canadian Pacific Railway Steamships.

TOURISTS' SLEEPERS.—Should 25 or more not desiring First Class Sleeper agree to travel together throughout the trip in both directions, a Tourist Sleeper (unupholstered, but fitted with mattresses, pillows, blankets, curtains, towels, etc.), in charge of a competent porter, will be placed at their disposal at a cost of \$10 per berth for the round trip to Vancouver. Any persons desiring such accommodation are requested to communicate with either of the undersigned, stating their going and returning route.

It is very desirable that those teachers who intend accompanying the excursion should communicate with the undersigned at as early a date as possible, advising date they will start, so that arrangements can be made for sufficient accommodation. Certificates will be mailed them on receipt of application.

ARCHIBALD MacMURCHY,
254 Sherbourne St., Toronto.

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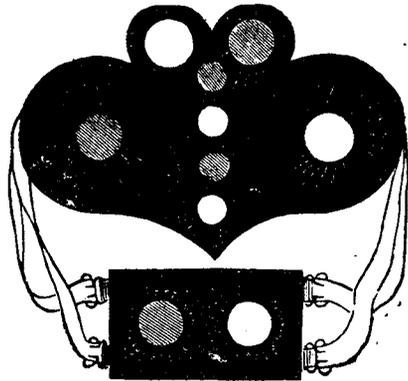
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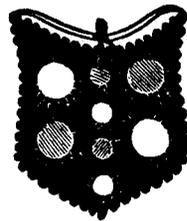
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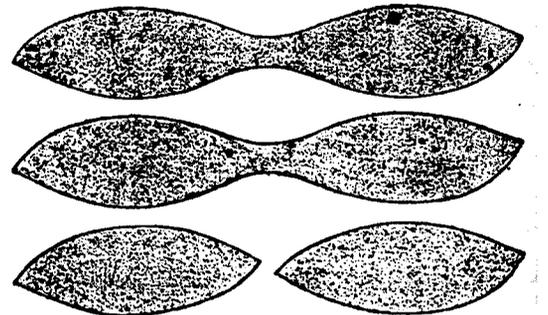
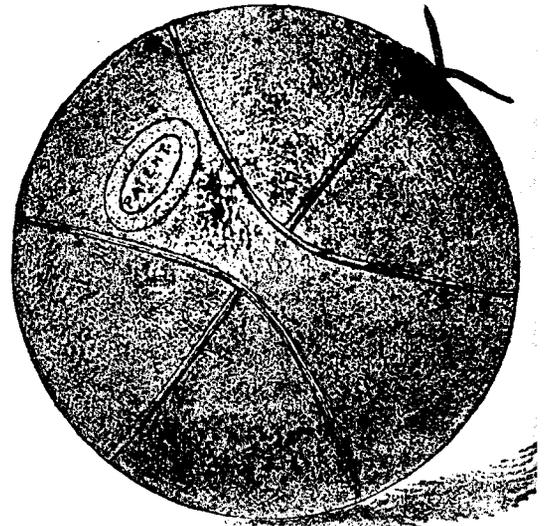
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