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J. E. WELLS, M.A. *Editor.*
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Editorial Notes.

A RESOLUTION is said to have been passed by the School Board of London, Ontario, forbidding teachers to discuss school affairs in the public press. We do not know very well what sins the London teachers have been guilty of that it should be thought necessary to punish them, like naughty school-children, by restricting their liberties and impugning their good sense, but we feel sure that such a regulation is one which no Board has a right to make, and one to which no teacher of spirit will submit.

WE should be glad to receive special contributions for Arbor Day number of the JOURNAL, which will be the number for May 1st. Cannot some of our friends who have had successful experience in the observance of former days, furnish some hints that may be useful to their fellow teachers? Perhaps some can tell us of their success with various shrubs, trees, plants, etc., or describe the means they have found most successful for making and keeping the boys and girls interested in the neatness and beauty of the school grounds and surroundings.

Practical Problems in Arithmetic is still selling very rapidly. It is a work most cordially recommended by practical educationists. It will furnish every teacher in the first, second and third forms with all the arithmetical problems he requires—about 700—well arranged and graded for the respective classes. It is a coming book for these forms. Why should a teacher waste his time and wits in devising arithmetical questions, when for so small a sum he may have a book containing a supply for all time and for all purposes? Send 25 cents to *Grip* Printing and Publishing Co., 28 Front street west, Toronto, and get the book by return mail, post-paid.

THIS issue closes Volume II. of the EDUCATIONAL JOURNAL, and next number will, of course, be the first of Volume III. This is, therefore, an excellent time to subscribe. We are gaining, issue by issue, a clearer insight into the condition of the schools and the wants of our subscribers. We are also, we trust, getting more and more into the confidence of our subscribers. What better service can any teacher who has found our fortnightly visits helpful and stimulating, render to any fellow-teacher who, he may happen to know, does not see the JOURNAL, than to call his attention to it and induce

him to subscribe? We are always glad to send sample copies to any address as requested.

EVERY one who is interested in educational matters in Ontario, and graduates of the University of Toronto, in particular, will join with us in deploring the series of gross personal attacks upon the venerable President of the University, which have appeared in the columns of the *Mail*. We are glad to see that the editor of that paper disclaims all sympathy with his correspondents in the matter, and regrets the bad taste and feeling displayed in the letters. Under the present arrangement the Ontario Government, and its Minister of Education are solely responsible for appointments to the staff of the University, though they have an undoubted right to seek advice wherever they may think fit. We should suppose, however, that these unpleasant incidents would suffice to make clear to all interested, the propriety, if not necessity, of having the nominations to all important educational positions put into the hands of some competent and independent nominating committee.

HAVE you looked into the merits of *School Work and Play*? The Publishers beg again to call the attention of teachers to this new paper for their pupils. The list is creeping up, and our editor receives very many letters of commendation. The paper is every where admitted to be just what the boys and girls want, while the young readers themselves are manifestly eager for the appearance of every succeeding number. But we must have 4,000 additional subscribers before it can be said that this new Canadian paper for Canadian boys and girls is on a safe financial footing. We are trusting to the teachers to put this matter in shape; for we believe they would like to see such a publication circulated among their pupils. A little effort on their part will secure a sufficient number of school clubs to carry success; while their unfortunate indifference to the project will result in its certain failure. We thank those who have already sent clubs. We have admitted, from the first, that we can do nothing without their co-operation; for it is, specifically, a school paper. Its departments are all in that line, and all its contents tend not only to instruction and entertainment, but to help in the direction of school work. We are sparing no pains or expense to make it good, and we again ask our friends of the teaching profession to help us. Look out for No. 7, dated April 5th. In it will be found the first of the juvenile pages, to be hereafter conducted by Mr. J. L. Hughes, the well-known Inspector of Toronto.

READ the report of the Halton Teachers' Association which appears in this issue. The meeting seems to have been an excellent one, as was also that of the West Middlesex Association, which we are obliged to hold over.

IN answer to inquiries by correspondents on the matter referred to in "Question Drawer," in last issue, "Teacher" explains as follows:—

The books mentioned in my letter of Nov. 1st. were (1) Meiklejohn's English Language, published by D. C. Heath & Co, Boston, \$1.80. (2) Fowler's English Language, Harper Bros. N.Y. New Edition, \$2.75. The duty will make the prices about \$2. and \$3.

SEVERAL young lady students of McGill College are pressing the Faculty for permission to engage in the study of medicine, either in separate classes or otherwise. The justice of their claim, and the desirableness of affording women facilities equal to those provided for men in this indispensable department of professional study, are now too obvious and too generally admitted to be easily set aside. The young women are anxiously waiting for the august faculty to solve the problem.

A FRIEND sends us the following information which may be useful to many of our readers:—

Collectors and exchangers of Canadian flora have lacked a check-list since Professor Macoun's Catalogue has been out of print. The want is now supplied by the publication of a new check-list, corrected and complete to date, the work of Mr. James M. Macoun, Ottawa, Botanical Assistant to the Geological and Natural History Survey of Canada. It is based on the Catalogue published by his father some years ago. Every school that has started to make an herbarium should have a copy of this check-list before the edition is exhausted.

THE Toronto School Board has at length been aroused to a sense of duty in connection with the want of school accommodation for the children of the city. At a recent meeting of the Board the report of the Committee on sites and buildings, recommending the erection of new schools and additions to present buildings to the extent of 106 class-rooms, which, at fifty pupils per room, provide school places for an additional 5,060 children, was adopted, and a deputation was appointed to visit some of the leading cities of the United States for the purpose of studying the latest improvements in school architecture.

PROFESSOR FORD, writing from Detroit, gives us, amongst other educational matter, the following interesting item:—

"Some of your people took a worthy interest in the great meeting of our National Educational Association at San Francisco last July, and several Canadian provinces are well represented in the published register of about 8000 attendants. They, and perchance others, will be interested to know that a genuine literary monument of the re-union has been made, in the massive octavo volume of Transactions, now in print, and to be had for the nominal price of one dollar from Prof. J. H. Canfield, Secretary, N. E. A., Law-

rence, Kansas. It is a superb bulletin of the progress and status of education in this country."

Professor Ford wishes us to express his deep regret that "the 'far cry!' as the Scotch would put it, from Detroit to the Pacific Coast last Summer lost him many letters," among which may have been some from Ontario Institutes. This will explain any failure to answer communications. Any letters addressed to him at No. 393 Second Avenue, Detroit, Michigan, at any time, will receive prompt attention.

It is pretty safe to predict that in the better days to come there is nothing on which our wiser descendants will look back with more amazement than at the short-sighted parsimony displayed by their rural ancestors, of this time, in the conduct of the schools for the education of their children. The rural teacher is, as has been well observed by some one, the most important of public servants, and the most unfortunate. He is certainly one of the most poorly paid. It is a Job's comfort to find that our Republican neighbors are no wiser than our own people in this matter. The State Superintendent of Public Instruction in New York, draws a sad picture of the state of affairs in rural sections of that State. Attendance at the crossroads school is irregular, so that much of the teacher's labor is virtually thrown away. The trustees drive hard bargains in regard to his salary. He is usually hired by the term, indeed, the trustees frequently undertake to hire him by the day or week, in order that they may be free to effect a change at any time. There, as here, the number of young persons seeking employment as teachers is very large, and this competition, of course, favors the niggardliness of the trustees.

PROFESSOR MAX MULLER has been making an eloquent defence of the study of the so-called dead languages, literatures and philosophies, in the universities. He deprecates the modernizing tendencies of these utilitarian and iconoclastic times. Those ancient masterpieces are, he maintains, not dead. They live in our modern languages, literatures and philosophies. This is a grand truth, but it seems to prove almost too much. It suggests the query, why not, then, let the modern student get them from these modern sources? We have no disposition, however, to combat Professor Muller's views. The scholar, in pursuit of learning, must needs seek to trace all knowledge to its source. He must keep himself ever in touch with the past. But the great majority of present-day students in our universities are in search not so much of learning as of mental training. Their aim is to secure the fullest possible development of their powers, under such conditions as will best fit them to solve the practical problems, and to engage in the active pursuits of the present day. There will always be an honored work and place for the select few whose lives are devoted to the pursuit of learning for its own sake, but it is too much to ask that all our educational institutions should be moulded with reference to their tastes and needs.

Educational Thought.

MY "CHILDREN."

"Good-bye, my darlings." Then I close the door
Upon the little flock I term my class;
My "Comforters," I call them, and they are,
For what a child's sweet comfort can surpass?

Oft, when I feel as if it were as well
If only life for me might be no more.
When the deep trouble that I cannot quell
Seems heavier, even, than the day before,

Then they come to me with their loving speech,
And make me feel I am not all bereft,
That whilst I have these little ones to teach
They need me, and life still has something left.

Yet, my wee scholars, with your watchful eyes
Bent on my life as on a guiding star,
You cannot even dimly realize
The great responsibility you are.

Every least word and deed of mine you take
As proof of that which you may say and do;
How shall I live that so I may not make
Your lines of right and wrong less clear and true?

How shall I guard my tongue from thoughtless
speech?

How shall I check the too impulsive deed?
Father, I cry to Thee, for Thou can'st teach
The wisdom I so sorely lack, yet need.

They will go forth from me to take their place
Either for good, or ill, in other lives;
Mothers, it may be of a future race.
Help me to fit them to be good men's wives.

Help me, Oh Lord, their opening souls to train
To shun the evil and to choose the good;
Give me to see them, Lord, at last attain
Unto a pure and gentle womanhood!

Then, when in theirs, some other lives are blessed.
May I not feel I have not lived in vain?
Then shall my life-work stand, O Lord, confessed,
And others reap the harvest of my pain.

—*Esperance, in Toronto Mail.*

MENTAL pleasures never cloy; unlike those of the body, they are increased by repetition, approved of by reflection, and strengthened by enjoyment.—*Lacon.*

OUR competitive examinations tend almost entirely to bring to the front those whose minds are the best stored, and many persons therefore have come to the conclusion that by such a course we have obtained for our various services what are termed "the cleverest youths." It does not, however, follow that this result has been obtained. The greatest brain power may actually be low down in the list of a competitive examination in which stored knowledge alone has been requisite. There is a certain advantage to be gained by storing the mind with facts, and some people imagine that a knowledge of these facts indicates an educated and strong mind. It, however, merely proves that the mind has been stored; it does not prove it to have been strengthened.—*Chambers' Journal.*

THE questions that can be asked, and the answers to which constitute the whole body of knowledge, whether science or philosophy, can be reduced to a very few classes. It is possible for a wise teacher in a few years to so question a pupil that all his powers shall be aroused, all the sources of information be opened to him and at his command, and so that he shall possess a method of inquiry himself, which renders his progress swift, certain, and satisfactory. Ten categories will, perhaps, exhaust the list. They are: What? Of what kind? How many? How much? Who? Where? When? How? Why? What then? One who is accustomed to seek an answer to all of these inquiries, to follow "the connection and dependence of ideas till the mind is brought to the source on which it bottoms," is already, in a very large sense, an educated person. He alone is a good teacher, who is not, like Peter Lombard, a "master of sentences," but, like Socrates, a master of questions.—*Thos. J. Morgan in Education.*

Special Papers.

BAIN'S "TEACHING ENGLISH."*

BY W. TYTLER, B. A.

(Concluded from last number.)

OUR author next treats of the *Elements of Style*. This chapter consists of copious illustrations of his method of treating English prose as a school exercise. Extracts are given from Macaulay, Carlyle, and other writers, and a detailed analysis is entered into of the sentence and paragraph structure of these passages.

This is in many respects a very valuable portion of the book, and it might be much more so if the work were arranged on any systematic scheme. Instead of being so arranged, it is taken up in any order, apparently, that happens to suggest itself to the author's mind. Hundreds of sentences are examined with reference both to their internal structure and their position in relation to the context, and one cannot fail to be struck with the prevailing justice of Dr. Bain's criticisms and the reasonableness of his suggestions. Here and there, however, there are confessions of inability to comprehend the reason of certain arrangements and forms of sentences which do more honor to the author's candor than to his acuteness.

These exercises are valuable to the teacher of English as showing in what way a prose passage may be minutely examined and utilized as a lesson in style. They are, however, in my opinion quite unsuitable for a class that has not previously taken up the subject in a systematic way. Their total want of arrangement is likely to have an injurious effect on pupils who are considering the elements of style for the first time.

One of the most prevalent demerits of our teaching in this department is a want of clearly defined system—a haphazard examination of all sorts of points that occupy the attention of the class just as they chance to occur to the teacher's mind. Such a method has its value as a review exercise after the class has become fairly familiar with the classification and nomenclature of the subject, and are able to assign each point as it arises to its proper place in the scheme.

But granting to these critical readings of Dr. Bain the full value to which they are entitled, to what, after all, do they lead? The only practical result, the only thing that the pupil has suggested to him as something to do, is—variation in the arrangement and combination of the components of sentences and paragraphs.

But if it is useful for a student of English to arrange in different order words already supplied, it is certainly just as useful to teach him to supply the words in which to express thoughts that are given to him. It is clear that this is an important part of the school course in English is evidently strongly held by our educational authorities, as a glance at the prescribed High School course will prove.

The papers prepared by the departmental examiners are on the same line. Not only is a dislocated and disarranged sentence given to Third Class candidates to be re-written in good literary form; but they are asked to write a composition on a subject taken from the prose lessons with which they are presumed to be familiar. In other words they are expected to clothe thoughts which are furnished to them, in good English—applying what they have learned of sentence and paragraph construction, and exemplifying the various qualities of style to which their attention has been called, and which the subject of their composition may demand.

On teaching English will not, it is evident, supply the English teacher with what is necessary so far as prose is concerned. This is of less consequence as there are two text-books on this subject—one for junior, and one for advanced forms, which meet his wants.

There is another book treating of the structure of English prose which is exceedingly valuable as a guide to teachers of English. This is *Minto's Manual of English Prose Literature*. Its superiority consists in the fact that the critical examination of standard authors is taken up systematically.

The author first lays down a scheme—one which, it may be remarked, is substantially that adopted by McElroy and also borrows very largely from Minto. This plan covers the whole ground of English prose style, and the divisions and subdivisions are pretty much those adopted by general consent as a logical and proper arrangement of the subject.

The introduction which treats briefly of this division gives in small space a very valuable summary of the leading facts of Rhetorical Analysis so far as relates to Prose. With this fairly mastered, a pupil should be prepared for the critical reading of a prose author. Only he must read him in Minto's method, not in Bain's. Three authors are selected by Minto—DeQuincey, Macaulay and Carlyle. Each of these three great masters of style is considered systematically, following the details of the scheme of analysis. Each has his excellencies and defects pointed out under the various divisions and subdivisions of the elements and qualities of style. That this is a more reasonable and profitable method of study than the take-it-as-it-comes style of Dr. Bain need hardly be said.

We come now to the next great division of the work, *The Emotional Qualities of Style*, occupying nearly half the book.

After referring to some of the more common errors in dealing with poetry he proceeds to a detailed examination of the emotional qualities generally. He next exemplifies these by a critical examination of poetic passages. Byron's "Childe Harold" is taken as an illustration of the poetic use of figures of speech, and the passage on the *Ocean* to illustrate the poetry of the malevolent emotions, Campbell's *Ode to the Rainbow* for poetic qualities generally, and so on.

A glance at the Table of Contents will show the wide scope of his inquiries and the searching nature of his examination. Although this part of his book is far more orderly and systematic than the former, yet here, too, we cannot help noticing his tendency to take things as they come—to depart on the slightest provocation from the schemes which he himself has laid down. The result of this is that the portion treating of "Poetic Qualities generally" is scarcely fitted for a class of beginners.

It is quite evident that if anything satisfactory is to be accomplished in our classes by the critical reading of English poetry, the pupils must be enabled to see for themselves what the qualities of style really are. It is impossible to go over minutely all the poetry prescribed for a year's work, and if it were, and if the pupils were to absorb wholesale the opinions of the English master, what—outside of examination purposes—would be the benefit? If there is to be any reality in this, the pupils must be taught to become critics themselves.

This cannot be done by desultory rambling among all the points of criticism. The work must be systematic and progressive, or the power will be acquired by but few, and these only specially endowed individuals.

It is this part of Dr. Bain's work that has specially attracted the attention of critics, and he has been vigorously attacked for the manner in which he has dealt with the poetic passages he has examined.

The essence of the charge against him is that by such a critical examination, poetry is degraded—its spirit is lost—its virtue is destroyed—it is robbed of all life and beauty and soul; that by such treatment, the poem, instead of fulfilling its legitimate and intended function, of being a source of pleasure and inspiration, becomes a wearisome and repulsive task.

This is no new objection to the critical analysis of poetry, and it is one that on the surface appears to have much force.

But I believe that a closer examination of the subject will convince us that the minute criticism will never destroy the beauty of true poetry—that on the contrary, the more thoroughly we understand the artistic means by which the poet has reached his finest effects, the more deeply shall we be moved by the influences of his verse.

There are many, probably the majority of us, who appreciate poetry in only a feeble and imperfect way. The melody and music of the verse delight our ears, and we remain satisfied with but a dim comprehension of the poet's meaning. It is, I am sure, a common experience, to find, after the lapse of years, during which we have been familiar

with the words of some poem, or stanza of a poem, that we have suddenly awakened to the fact that all the time we understood not at all, or but very imperfectly, the thoughts that the words contained.

If this is the case with persons of mature years, and some familiarity with English poetry, how much more is it likely to be the case with the boys and girls in our schools?

Critical examination of even the simplest poem, close questioning in regard to the ideas contained in it, will soon convince the teacher that the meaning, which to him appears so plain and obvious that it is impossible to miss it, is grasped but partially by those who may be quite familiar with the words, even though at the same time they may to a large extent appreciate its beauty, and be pleased with its melody.

Those of an artistic and poetic nature, who grasp the poet's thought as it were by intuition, are apt to be impatient with their duller brethren who must by slow and painful climbing reach heights which they have attained almost without an effort. It is chiefly from critics of this class that the objections to Dr. Bain's method have come.

It may be granted at once that there is an element of truth in their accusations. Our author does occasionally carry his cold-blooded anatomy to what seems a needless length, and the effect is not always pleasant. Dr. Bain's warmest friends will not claim for him that he possesses any very large share of "celestial fire," or that he views things through that golden atmosphere through which the world shows itself to the poet's eye.

But it may be questioned whether, on that very account, he is not better fitted for work of this kind than one of a more ardent and artistic temperament. Those who possess this are able to grasp at once the beauty and fulness of the thought, and appreciate the harmony of word and thought, and they are apt to be impatient guides to those who have to follow them with slow and painful steps.

But even granting that for the general reader such criticism is repulsive and unnecessary, how is it with school work? The vast majority of both teachers and of pupils are of prosaic natures, and require all the assistance that can be obtained in their search after this power to appreciate and understand the full meaning of a poem.

The only means to reach the desired end seems to be some such method as that recommended and illustrated by our author.

"Poetry is the artistic expression of thought in emotional and rhythmical form."

It is surely a legitimate proceeding to examine a poem with a view to finding whether or not it is artistic, what words and phrases and figures excite our emotions and what emotions they excite—how far the language is melodious—and what arrangement of phonetic elements contributes to its melody.

If poetry is not to be studied in some such way as here indicated, how is it to be studied? What is meant by *critical reading*, if not this?

It is somewhat amusing to notice that Dr. Bain condemns the *conversion of Poetry into Prose* in a school exercise, on pretty much the same grounds on which he himself is condemned for critical methods of analysing poetry. In his unqualified condemnation of the Paraphrasing of Poetry he is in accord with a large number of educational authorities. The objections urged are that it is "repugnant to the aesthetic taste," that it is a degradation of a noble form of expression, etc., etc.

"Turning good poetry into bad prose" is about the kindest thing that is said of it.

It seems to me, however, that on this subject there is something more to be said. These objectors miss what may be admitted to be the only justification of this paraphrasing of poetry—that is, that it is a test of the pupils' knowledge of the poet's meaning. This meaning does not always lie on the surface; and it often happens that readers, especially young readers, are pleased with the melody and rhythm of the poem, and fancy they understand the thoughts which the poet has so felicitously expressed, when, in reality, the pleasure they are conscious of receiving comes from quite a different source.

There is not much good poetry of which it can be said, as was said of Macaulay's prose—"No one ever read a sentence a second time because he did not understand it the first time." In arriving at the poet's meaning, there are difficulties to be

*Read before the Modern Language Association of Ontario.

surmounted. How shall the teacher know that the pupil has conquered the difficulties, that he comprehends what he is studying? The pupil must give the meaning as it appears to him either orally or in writing. This is simply paraphrasing, and I fail to see why it is not a rational and useful exercise.

Time will not allow me to enter into details of the author's treatment of the various poets considered. As a rule I think the ordinary man will agree, in the main, with his remarks, although he may at times shrink from his apparent want of feeling in his treatment of some fine passages. But even in these I believe a closer examination will lead to substantial accord with the critic.

To take an example for which Dr. Bain has been vigorously attacked—his treatment of Shelley's "Ode to a Sky-lark." It is precisely with such an author as Shelley that the young reader, especially, is in danger of being led away by the magnificent imagery—the gorgeous word-painting—the marvellous melody of the verse. To one whose whole soul is steeped in the entrancing delight of such poetry, the accusation of "talking wild" comes like a cold shower-bath—but a shower-bath is an excellent tonic; and the mind may be none the worse for being rudely shaken from its ecstasy and taught to examine more closely the basis on which its fabric of delight is built.

We have high authority for the statement that Shelley is deficient in perspicuity. Take "The Cloud" for instance, try to put in plain words, or even to represent clearly to your own mind what the poet means in some of its magnificent passages.

Poets, like other artists, have to work with imperfect means—language is after all, but an inadequate garment for what they feel. The best is too often a choice between inadequacies; they are bound by many constraints. Is it unduly harsh treatment to point out that in the lines

*"In the glorious lightning
Of the sunken sun,"*

the claims of alliteration and assonance had something to do with the preference of *sunken* to other words which would have more clearly expressed the idea, or that in the line

*"Among the flowers and grass that screen it from
the view,"*

the relative clause at the close is prosaic and deficient in terseness?

The emotional and aesthetic qualities of style are, from their very nature, far less susceptible of systematic treatment than the intellectual qualities. We gladly welcome any method which will give us assistance here. I have read this portion of Dr. Bain's book rather carefully, and I can assure other English teachers that benefit is to be derived from its teaching. One thing must be borne in mind: it is the only book on the list of text-books that gives information on this part of our literature work—the critical reading of poetry—there are doubtless many points on which one and another will differ from the author. Perhaps some at which they will be astonished and even shocked. But at all events, study of the author's method will do one thing for us. It will get us out of the attitude which too many of us assume towards poetry, as well as other works of art, of blind and unquestioning admiration without any clear conception of what makes it admirable—in a word, the mental attitude of the old lady who, while characterizing the sermon as "grand," regarded it not only as absurd but sacrilegious that she should "presume to understand it."

I do not think there is much force in the objection that such criticism of poetry and poetic expedients destroys the effect of beauty and delight which it is designed to produce. There is, it is true, a certain stupid pleasurable wonderment, which even nonsensical jingle may cause if it is only rhythmical and melodious. This, of course, vanishes before any close enquiry, but that can hardly be called an evil. Closely akin to this admiration of what is totally devoid of meaning, is that unreasoning and undoubting delight in poetry that is beautiful in form and delightful in sound, with but a faint idea of its real meaning. A calm and critical examination will soon dispel such a state of mind, and if the poem is really worthy of admiration, will replace this languid satisfaction with a far fuller and nobler delight.

The results of our examination of the book may be summarized in a word or two.

So far as concerns the Higher English Teaching of Dr. Bain, we may say that while it is undoubtedly useful and interesting, it falls far short of what is required in our High Schools and Institutes. The lessons in the critical reading of prose are highly suggestive and fitted to be of great assistance to the teacher if they are regarded as merely supplemental to some systematic and regular method such as that of Minto or McIlroy. The most valuable part of the work is that which relates to poetic criticism. Here the teacher of English will find valuable aid, especially in view of the fact that this is almost the only guide which he finds available in this most difficult and yet most delightful portion of the literature course.

Hints and Helps.

HOW TO SECURE ATTENTION.

BY THOMAS STEELE.

THE following synopsis of this suggestive paper, read before the East Middlesex Association, is taken from the report in the London *Advertiser*.

"There are two kinds of attention, negative and positive, the one a delusion the other a reality." Without positive attention there can be no teaching. The physical comforts of the school should receive great consideration. The school-room should be properly heated, seated, lighted and ventilated. Every evening the teacher should prepare his method of presenting the subjects of instruction for the following day. Time-tables will not secure positive attention any more than forcing, demanding, scolding, beseeching or coaxing. There should be a well-arranged code of questioning. Neither look nor gesture should indicate from what pupil an answer is expected. The pupil should never be named before the question is put. The questions should be well distributed and given to the inattentive. Variety of questioning and change of manner on the teacher's part are great means of securing the attention of the class pupils. Excellent means of arousing the mental attention and the curiosity of the pupils will be found in the teachings of such subjects as music, calisthenics, drawing, mental arithmetic and reproduction of interesting stories related by the teacher. In assigning a literature lesson, the pupils may be required to devise several thoughtful questions on the subject-matter. This will strengthen the habit of attention by requiring them to closely scrutinize the selection. The teacher should be terribly in earnest, self-possessed, and should avoid speaking in irritable tones. He must regard the physical conditions of his pupils. The weak and the strong cannot be treated alike. The timid should be encouraged, spoken to gently and subjected to question tests they can answer. The forward pupils who have a natural, acute aptitude to answer should be brought down to attention and sharply rebuked when opportunity presents. Praise should be given to the slow ones and upon them should be bestowed all extra time. Means should be taken to stir up the knaves and backsliders by speaking in quiet, earnest tones. The teacher should stand sidewise when writing upon the blackboard, keeping one eye on the class and one on the pupils. The pupils should not be allowed to go out and come in at random, and whispering should be mitigated if possible, if not driven beyond the pale of the school-room. They should be allowed frequent change of posture and ever and anon a march around the room. Mechanical expedients may be resorted to to arouse the youthful curiosity. Several of such were here pointed out. Mr. Steele next dealt with the two prominent elements on the teacher's part to secure attention, viz., sympathy and magnetism. "A public speaker or teacher without sympathy and magnetism cannot hope to be successful. Magnetism may be cultivated by every teacher. We must teach, and think while teaching; we must have energy, sympathy, large hearts, educated minds and great stores of information. We must see in childhood something more than mere troublesome little creatures always asking questions. Through their strong individuality some teachers can win the attention of the most inattentive. We can all be sympathetic and magnetic, and being that, the day shall surely come when years from now, full-fledged

childhood and full-fledged manhood will point back with every feeling of pride, pleasure and satisfaction to the beloved memories of their faithful teachers who now, as always, are shaping and moulding the destinies of this great Canada of ours."

Mr. Dearness highly complimented Mr. Steele upon his excellent address, and asked him to explain his method of teaching a reading lesson. This he did, saying that questioning so as to retain the continued attention of the class was the great secret.

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.

NOTES ON ENTRANCE LITERATURE.

"THE HERITAGE."

BY MISS M. E. HENDERSON, ASSISTANT, OSHAWA HIGH SCHOOL.

IF this poem be read without comment, by the teacher or by the class, the pupil may be inclined to think that the orthodox teaching of the poet is to under-rate the advantages of riches.

He may think, too, that poets teach that poverty, as a condition of life, is a virtue, and that a monopoly of the more kindly and generous sympathies is the inheritance of poverty.

No pupil sees the advantages of poverty, and, though he may answer "by the book," he is more than likely to make a mental reservation to the opposite effect.

The teacher will find it necessary to guard against this misapprehension, and the pupil may be led to learn from the poem itself, as well as from actual observation, that the absorbing interest of the rich man in his various enterprises, has a tendency to diminish the zest of his enjoyment, and to blunt the keen edge of his sympathy, whereas constant familiarity with want, and experience of the suffering which often accompanies poverty, make the poor man more alive to the needs of others of his class.

Then, too, we must not forget to teach that poverty, as a condition of life, has been ennobled by "Him, who, though He was rich, for our sake became poor, that we, through His poverty, might be made rich."

The inheritance of the rich man's son, as given in lines 1-21 may first be considered.

Ask the pupils what the son of the rich man is likely to inherit, as lands, buildings of brick and of stone, gold. They will then be prepared to consider the less desirable adjuncts to his inheritance.

4. "And tender flesh that fears the cold." A question as to the quality of flesh which the rich man's son inherits, will probably elicit the answer that the flesh is not of a peculiarly gentle mould, but that it shrinks from the cold simply because the amount of energy necessary to bring the muscles into play, and to send the blood coursing through the veins, is not exerted.

5. "Nor dares to wear a garment old." The rich man's son is not expected to brave public opinion by wearing a meaner garment than his social position would appear to warrant. He does not know the luxury of wearing old clothes.

7. "To hold in fee." To hold in inalienable possession. To have the entire disposal, without condition or restriction.

8. "Cares." The anxieties that may disturb the peace of mind of the rich man's son.

9-10. The financial condition of the bank may be unsound, the rich man's property may be destroyed by fire.

10. Notice the alliterative effect in this line.

10. As a breath of wind destroys a bubble, in the storm of some financial crisis the rich man's shares of railway stock, or mining shares, may prove valueless.

11. "Hardly." With difficulty.

12. "A living that would serve his turn." A living that would satisfy his cravings.

15. "Wants." He possesses more needs than the poor man, for those things the latter has been accustomed to consider luxuries, the rich man's son views as every-day necessities.

16. "Dainty fare." Delicate food. The accuracy of the picture will be observed if the pupil be asked what conditions have to be satisfied in order that plain food may be relished.

17. "Sated." Satiated, over-filled.

"Pants." Labored breathing, palpitations.

18. "Toiling hinds." Hard-working peasants.

18. The brown arms, bared for work, are contrasted with the soft, white, idle hands of the rich man's son.

19. "And wearies in his easy-chair." Grows tired of having nothing to do. *Ennuï* is a not uncommon condition of the rich.

Now ask the pupils to give an inventory of the rich man's inheritance.

The pupil will readily see that the poet has made out a strong case for the opposite side of the picture by giving, as the things inherited by the rich man's son: Gold, brick, lands, useless hands, contemptible flesh, a sort of moral cowardice which prevents him from knowing the luxury of doing as he pleases, anxieties, never-satisfied desires, and weariness.

Now the inheritance of poverty, a life of labor, as given in lines 22-42, may be considered.

23. "Strong muscles and a firm spirit."

24. A vigorous body, and a still more vigorous spirit of self-reliance.

25-26. "King of two hands, he does his part
In every useful toil and art."

The only possessions over which he exercises authority are his two hands, which obey his will.

30. "Wishes o'erjoyed with humble things." Desires which simple things will satisfy.

31. "A rank adjudged by toil-worn merit." A social position achieved by his own effort, or granted as his desert through toil.

32. "Content that from employment springs." Every pupil has, at some time, experienced the sense of satisfaction and contentment which arises from the performance of duty.

33. "A heart that in his labor sings." His work is performed cheerfully.

37. "A patience learned of being poor." The condition of poverty affords scope for the exercise of patience.

38. Courage to endure sorrow if it come. Fortitude.

39-40. "A fellow-feeling that is sure
To make the outcast bless his door."

A broad charity and a generous sympathy which gladden the heart of the homeless.

Here one is reminded of Goldsmith's picture of the country parson:

"Thus, to relieve the wretched was his pride."

Ask the pupils to give an inventory of the poor man's inheritance. The most important elements are: A vigorous frame, a courageous spirit, hands able to do their part in every useful occupation, easily satisfied desires, a recognized social position, cheerfulness, patience and sympathy.

The poet has made out a strong case for the poor man, and the nobleness of the inheritance makes us feel that, in this instance, the law of compensation holds good. Lines 43-49 may be taken as a codicil to the will by the terms of which the rich man's son receives his inheritance, and a new value is given to his heritage.

43-44. "Level-equal." Though the rich man is not obliged to toil daily, there is work for him in the exercise of that broad charity which is, or should be, the luxury of the rich.

47. "This is the best crop from thy lands." Thy lands can not yield a better harvest than that which results in the sowing broadcast of good.

48-49. To enjoy so glorious a privilege of doing good to others as the rich man's son possesses, is a heritage that makes amends for the cares which accompany wealth.

50-56. In these lines an additional value is given to the poor man's heritage.

50. Do not despise thy lowly lot.

51-52. Worse than toil of body is that *ennui* which affects a rich man with nothing to do.

53. Honest labor causes the face to glow with the satisfaction that arises from the consciousness of duty accomplished.

54. The rest of a laboring man is sweet and soothing.

55-56. Surely, if the poor man enjoys peace of mind, repose of body, and a countenance in which

the nobleness of the soul shines, the hardships of his lot are atoned for.

57-58. Death, the great leveller, who knocks with impartial hand at the palaces of the great and the cottages of the poor, gives to the son of the rich man and of the poor man alike an equal inheritance, "though storied urn and animated bust" adorn the tomb of the one, while the other "rests his head upon the lap of earth," where

"Some frail memorial still erected nigh,
With uncouth rhymes and shapeless sculpture
decked,
Implores the passing tribute of a sigh."

60. "Tithe-claim." The document by which the claim to anything is proved.

Prove your claim to the *deeds* by which you hold in fee your heritage.

62-63. To hold such an inheritance as that which you possess as the children of God, is well worth a life-time of toil and kindly deeds.

A biographical sketch of James Russell Lowell is given on page 205, Fourth Reader.

The metre employed in the poem is the Iambic Tetrameter:—

The ri'ch | man's so'n | iñhe'r | its lan'ds
v — | v — | v — | v —

In lines 22, 24, 29, 31, 36, 38, an additional syllable is found.

DORA.

THE study of this poem will enable the teacher to do good service to his class by strengthening their sympathies, and teaching them to place a proper value upon family relationships, and also in encouraging them to regard the conscientious scruples of others. The story is told so simply that a child may understand it and appreciate it; and yet it is so delicately pathetic that the teacher himself must be affected by it as he teaches it. The story naturally divides into eight parts: introduction: the father's proposal, the son's rebellion, Dora's obedience to the command, the death of William, the plan of Dora, the immediate result. With a little guidance the class will be able to divide the poem into these parts. It will be found a good exercise also to ask the pupils to suggest titles for the seven paragraphs of the poem indicated by what a printer would call indentations. After the poem has been read it will be found advantageous to enquire whether "Mary" or "William" would not have been a better title than "Dora," and why not. This discussion will naturally lead to an enquiry as to the traits of character of the two men and the two women,—an enquiry which will suggest the further question whether their acts are all within the bounds of probability. It will be of much interest to the class to decide whether the conduct of the child is natural, and whether he would be likely to have so much influence upon his grandfather.

Perhaps one of the best ways to test whether the class has grasped the interest of the selection is to enquire in what spirit or feeling certain of its lines are uttered. After this has been decided the class should read individually, and also simultaneously, the passages under consideration. The following will repay study in this way: "take her for your wife," "by my life I will not marry Dora." "Consider, William." "My will is law." "let me take the boy," "Whose child is that?" "Do with me as you will." "But go you hence," "My uncle took the boy," "He shall not have the boy." "May he never know the troubles I have gone through." "Kiss me, my children."

Music Department.

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

IN previous papers, the introduction only of the various topics contained in the first three steps, has been treated. This course was rendered necessary, by the fact that many of our readers had been experimenting with the Tonic-sol-fa system, and were enquiring for hints as to further procedure. In order to assist all to make further progress, it was thought advisable to introduce the

introductory lessons of the primary steps as rapidly as possible. The introduction of a first subject only occurs at intervals, and daily drill must succeed every such introduction. As the time available for teaching music is necessarily short, it will be our endeavor to assist the teacher to make the best possible use of it, by giving examples of methods of drilling in all the various topics.

Drill for Junior 1st Book Classes.

MODULATOR.

Use a first step modulator, which contains only the tones *d m s* and their octaves. If you have not already procured one of the printed step modulators, an excellent substitute can be made by writing the names of the tones in colors on the blackboard. If blackboard space is scarce, a movable modulator can be made of black Bristol-board, with letters cut from colored surface paper, and pasted on. The colors are, *doh*—red; *me*—yellow; and *soh*—bright blue.

m'
d'
s
m
d
s
m

DRILL.

Always sing the keynote as a pattern to your class, and do not commence drill until it has been imitated in correct time by all.

Do not allow your pupils to sing with you.

Never sing with your pupils.

Avoid repetition where possible.

If pupils experience a difficulty in singing any tone, do not tell them that they are singing too high or too low, but appeal to their sense of mental effect by questioning, was that bright enough for *soh*? Did you sing that firmly enough for *doh*? Point definitely to the note you intend should be sung, and move the pointer rapidly to the following note.

Do not allow pupils to sing any tone until you have indicated it. A neglect of this rule will cause confusion and induce carelessness and inattention. Pupils will anticipate, but they must be trained to sing the intervals indicated by the teacher, not those which they expect. If a pupil should persist in this, either through carelessness, or eagerness, it will be advisable to request him to stop singing for a little. When one voice sings a wrong tone in advance of the others, they are almost certain to follow, unless accustomed to singing with certainty.

HAVE AN AIM.

Have some definite object in view while conducting modulator drill. Some teachers simply let the pointer wander up and down as fancy may dictate. This is, unquestionably, wrong. The object of the drill should be: 1st, to familiarize the pupils with the mental effect of the tones, irrespective of the interval by which they are approached. 2nd, To enable the pupils to gain a clear mental conception of each tone, and to sing them in any desired combination. 3rd, To give confidence and certainty in points where a weakness has been displayed.

Examples of Method.

DRILL ON SOH.

Teacher sounds *doh* about pitch of D. Pupils imitate softly. Question on the mental effect of *soh*. Give * hand sign for *soh*. Teacher sings *d m d*; *s m d*; *m m d*; *d m m*; *m d m*. After singing each group of three tones, give hand sign for *soh*, indicating that pupils will sing *soh*. In this exercise they confine their attention to the tone being studied, and become familiar with its mental effect. Now point phrases similar to the following:—*d s m s d*'s *d' s m d s m d*'s, making *soh* predominate. Change key to G, and practice as follows, avoiding upper *doh* (*d'*):—*d s m d s s*, *d m s s m d s s*, *s s m d*.

DRILL ON ME.

The intervals *d' m* and *s, m* are the most difficult of the first step. Prepare by questioning on mental effect and singing from hand-signs as for *soh*. Practice key D—*d m m d s m m s d' m m d m m s d' m m d' m d' m s d*. Change key to F or G. Practice *d m m s m m d s, m m s d m s m, m d s, m d*.

* For *doh* extend the clenched hand in front, with palm downwards. For *soh* the right hand is held straight in front of the teacher, fingers close together, but not folded, palm to the left, and thumb lying flat on top. For *me*, extend the open hand as for *soh*, but turn the palm downwards.

Examination Papers.

EAST MIDDLESEX AND KENT PROMOTION AND REVIEW EXAMINATION.

NOVEMBER, 1888.

COMPOSITION.

SECOND TO THIRD CLASS.

Time, 1¼ Hours.

INSIST on neat, legible writing, and complete sentences. One mark off for every mistake in spelling.

1. "I will not go to school," said little Tommy. "I will stay out in the fields."

Write the above statement in the following way; supply the ellipses:—

— Tommy said he — not — to —, but that — — stay out — — —.

2. The crow asked Tommy who told him that birds could not wear clothes, and directed him to look at the fine black suit he, the crow, was wearing.

Write this statement in the following way; supply the ellipses:—

"Who — you that — can't — —?" said — —. "Look at the — — — I am — —."

3. Finish these counting exercises:—

- One leaf, two —, three —.
- One mouse, two —, three —.
- One woman, two —, three —.
- One chimney, two —, three —.
- One church, two —, three —.

4. Put the following in the usual form of a four line stanza of poetry:—

Little bird with bosom red, welcome to my humble shed,
daily near my table steal, while I eat my scanty meal.

5. Past the woman so old and gray,
Hastened the children on their way,
Down the street with laughter and shout,
Glad in the freedom of school "let out,"
Nor offered a helping hand to her,
So meek, so timid, afraid to stir
Lest the carriage wheels should knock her down.

Tell in your own words the part of the story, no more and no less, given in the lines quoted above.

6. Write a short composition about the blackboard, the sentences to be taken in the following order of topics:—

In what part of the room is the blackboard,
What made of,
How used by teacher,
How used by pupils.
What is used to mark on blackboard,
Why would not charcoal do.

LITERATURE.

SECOND TO THIRD CLASS.

Time, 1¼ Hours.

WRITE the answers of these questions in complete sentences, with books open.

1. From "The Boy and the Chipmonk," page 26.

"I always fed him at the same place and about the same time of day, taking good care that the dog was not near and no one about but myself."

(a) Where and when did the boy feed "Tommy?" Why?

(b) What did he do so that Tommy should not be frightened?

(c) What was the result of this treatment?

(d) What was the difference between the way in which the boy in the picture (page 24) treated the chipmonk, and the way in which the boy with the gun treated it?

(e) Which way do you think was better; give your reasons.

2. From "A Reindeer Drive," page 38.

"Uncle George," said Frank, "did you ever see a reindeer?"

"Yes, Frank," replied Uncle George.

(a) Who is the speaker in the first sentence? Who in the second?

(b) Write the first question in your own words, using the word "he" instead of "you."

(c) How many times was Uncle George thrown out of the sledge?

(d) Why was the twilight described as Arctic twilight? page 41.

(e) What is twilight?

(f) How many times in the day does it occur?

(g) How can we infer that Uncle George meant the evening twilight in this paragraph?

3. Short extract at foot of page 165.

(a) How could you show that kindness to animals is a cause that lacks assistance?

(b) What does the author mean by saying he lives for the wrongs that need resistance?

(c) Tell three or more wrongs that need resistance.

(d) What is living for the future?

(e) How can one live for those who know him and love him?

4. Short extract at foot of page 181.

The qualities of a gentleman are gentleness, politeness, wisdom, generosity, honesty, and bravery.

Write the above sentence, arranging the qualities in the same order in which they are mentioned in the extract in the book.

5. Write the meaning of *dathe*, line 2, page 157.

" " " *mead*, " 3, " "

" " " *crest*, " 13, " "

" " " *brood*, " 28, " "

" " " *brood*, " 24, " 158.

" " " *wanes*, " 6, " 159.

UNIVERSITY OF TORONTO ANNUAL EXAMINATIONS, 1888.

JUNIOR MATRICULATION.

CHEMISTRY.

ARTS: PASS. MEDICINE: HONORS.

Examiner—ANTHONY MCGILL, B.A.: B.Sc.

NOTE.—Candidates for Honors and Scholarships will take ALL the questions. Other candidates will take 5 to 8 inclusive, and any TWO of questions 1 to 4.

1. (a) What is meant by ordinary combustion?

(b) Turpentine has the composition $C_{10}H_{16}$. Find the total weight of product when 10 grammes of turpentine is burned in air.

(c) Describe, and explain by an equation, the phenomena which occur when a piece of blotting paper, wetted with turpentine, is plunged into a vessel containing chlorine.

2. (a) Describe, and explain by equations, any two different modes which you have used (or seen used) for preparing hydrogen.

(b) Calculate the weight of materials which would be required to generate 100 litres of hydrogen (standard temperature and pressure) by the first of them.

3. (a) Describe the physical properties and allotropic modifications of the elements sulphur and phosphorus.

(b) Compare, as fully as you can, the compounds of sulphur with those of oxygen; and the compounds of phosphorus with those of nitrogen.

4. (a) Enunciate Dulong & Petit's Law.

(b) Define the terms *equivalent* and *atomic weight*.

(c) The equivalents of Magnesium, Phosphorus and Silver are respectively, 12, 10.34, and 108. The specific heats of these elements are 0.2475, 0.174 and 0.057 respectively. Determine their atomic weight; giving full work.

5. A mixture of ammonium chloride with quicklime is heated in one test-tube, and a mixture of common salt with sulphuric acid in another. Describe fully what will happen when the tubes are brought near each other, mouth to mouth, and explain all chemical changes by equations.

6. Three test tubes contain respectively, (a) sulphur (b) potassium chlorate, (c) mercuric oxide. Describe minutely all changes, *physical or chemical*, which will occur on heating gradually to near a red heat.

7. What would you expect to occur in the following cases? Give reasons for your answers, with explanatory equations:—

(a) A mixture of charcoal powder and potassium nitrate is heated in a test tube.

(b) A bottle is filled with a solution of chlorine in water, and closely stoppered. It is then exposed to bright light.

(c) An iron tube, containing iron filings, is strongly heated, and steam passed through it.

(d) A piece of phosphorus is suspended in a glass tube containing 100 c.c. air, and standing in water.

8. A gas, produced by acting upon copper filings with moderately strong nitric acid, is collected over water. After thorough washing with water, the insoluble gas is mixed in certain proportion with oxygen, and the product is found to be quite soluble in water.

(a) Describe all the physical and chemical changes which occur in the experiments referred to.

(b) In what proportions by volume and also by weight must the first gas and oxygen be mixed in order to the production of the soluble gas referred to.

School-Room Methods.

ARITHMETIC AND THE REASONING FACULTY.

BY W. A. M'INTYRE, B.A., NORMAL SCHOOL, MANITOBA.

(Concluded.)

THERE is another error frequently made by children in expressing results. The following will illustrate:

Question—How many bushels of wheat weigh as much as 30 bushels of oats?

Solution—

If 1 bushel of oats weighs 34 lbs,
30 bushels will weigh 34

30

1020 lbs.

If 1 bushel of wheat weigh 60 lbs,
Then in 1020 lbs there are 60) 1020

17 bushels.

The error here is in mixing the mechanical part of the work with the logical. It may be avoided by writing the mechanical portion of the work to the left hand of the slate and the logical to the right. Thus:

34	
30	If 1 bushel oats weighs 34 lbs.,
—	30 bushels will weigh 30 times 34 lbs.,
1020	or 1020 lbs.
	If 60 lbs. wheat make 1 bushel,
60)1020	1020 lbs. wheat will make 17 bushels.

17

Again the benefits derived from arithmetical teaching are lessened by faulty questioning. Who has not heard, at some time or another, on questions like the above, something as follows: "If 1 bushel oats weighs 34 lbs., then 30 bushels will weigh 30 times as much, won't they? Now, how much is 30 times 34? 1020, isn't it?" etc. It is needless to comment on such questioning.

And, now, to return to the manufacture of problems, let me suggest that the children be encouraged to do much of it. There is no part of Arithmetic in which they will become so thoroughly interested as in this, and there are no questions they would rather attempt to solve than those of their companions. Among the best problems I ever saw in Arithmetic, Algebra, Euclid and Mensuration, were those manufactured by children. Is there anything wrong in it? I am convinced that a child derives as much benefit from manufacturing a problem as from solving one. Is this a case in which "reproduction is a necessary part of the knowing act?"

As regards accuracy and speed in the mechanical operations, teachers should remember that much more can be accomplished by systematic daily drill of a few minutes, than by inserting large numbers in the problems involving reason. It will always pay to separate the mechanical and the logical, excepting in the final stages. And this daily drill in the operations of the simple rules should be persisted in throughout the whole school course. If the children go out of our schools unable to add and multiply, the work done in the lower standards is often severely criticized, while

the fault lies in the fact that the senior standards have failed to continue the drill that was so persistently given in the junior classes. It is nothing wonderful to find that pupils in many of the lower standards are far more rapid and accurate than those of the High School.

The following lesson will illustrate the methods advocated in the paper:

The teacher comes before the class, and, after some practice in the simple rules, which has the effect of rousing every child to activity, proposes the following *two-step* question. It is the first of the kind ever given to the class.

"If I give 12 crayons to 3 boys, what should I give to 5 boys at the same rate?"

Many of the class fail to do the question, and of those who work it some are wrong. The teacher selects one of the many who cannot do it, gives him the box of crayons, and asks him to try to find out. After a few minutes all hands are up, and the pupil with the box is seen to take 12 crayons and give 4 to each of 3 boys. He then halts for a few minutes. The teacher repeats the question, and out come 8 crayons more, and these are divided between other two boys. Immediately the pupil answers, "twenty crayons." The following dialogue then ensues:

"How did you find that out?"

"I multiplied 4 crayons by 5."

"Why did you do that?"

"Because there are 5 boys, and each boy has 4 crayons."

"How do you know each boy should have 4 crayons?"

"Because 3 boys have 12 crayons, and therefore 1 boy should have 12 crayons ÷ 3."

"How do you divide 12 crayons by 3?"

"I should have said each boy has $\frac{1}{3}$ of 12 crayons."

"Very good; now explain the whole question."

"Well, if I give 12 crayons to 3 boys, I must give $\frac{1}{3}$ of 12 crayons, or 4 crayons to each boy. At that rate, 5 boys will receive 5 times 4 crayons, or 20 crayons."

The teacher then proceeds with other questions of similar kind, introducing occasionally a *two-step* question of another type, so that the children will not work according to rule. The questions of the same type are somewhat as follows:

"If 8 boys earn 96 cents in an hour, what will 10 boys earn in the same time?"

"If 12 bbls. of apples cost \$36, what will 97 bbls. cost?"

(Here the children use the slates to do some of the calculating.)

"What will 37 cows cost, if 16 cows cost \$192?" (Here the wording adds a new difficulty. The children are asked to use slates in calculating, and to express results in writing.) As taken from a slate the result was as follows:

16)	192	
	\$12	
	37	If 16 cows cost \$192,
		1 cow will cost $\frac{1}{16}$ of \$192, or \$12.
	84	∴ 37 cows will cost 37 times \$12, or \$444
	36	
	\$444	

METHODS OF TEACHING MATHEMATICS.

PROFESSOR HENRY C. KING, of Oberlin College, has been writing for the *Ohio Educational Monthly* some "Impressions From a Visitation of Forty Ohio High Schools." Under the head of "Methods of Teaching," are the following suggestive remarks in regard to Mathematics:—

"The Commission of New England Colleges are agreed that the subject in which, on the whole, the students coming to them are least prepared is Mathematics. We may hope that, whatever the present reason for this fact, the fact itself will soon cease to be, by widespread use of better books and better methods. I believe that the old methods are going. The day when a class in geometry can have every figure put on the board for them, lettered exactly as in the book, can study almost aloud up to the minute of individual recitation, and with a finger in the book, recite memoriter what they have tried to learn, without a single question

to test their real knowledge of the theorem, and with never an application of the principle, is gone. *Good-speed to its going.* The day, when a recitation in Algebra consisted simply in using a good part of the hour in putting laboriously on the board the examples already done, and employing the remaining time in a so-called explanation of these same problems, in which none of the class, except the one reciting, had any interest (because they had already satisfactorily solved them), and he no interest that was visible,—*that day too is gone.* This plan—that favored the shirk and discounted the faithful student, that failed even in the one thing which it was supposed to do to make clear the two or three difficult problems that most of the class did not have or understand, and so really needed explanation—this plan is dead or dying. May it rest in peace.

Many Ohio teachers, certainly, have learned something better. They have learned that to follow a difficult piece of work in its doing, is much more helpful than to see it, and hear it gone over, after it is done. And so the teacher himself, or a pupil appointed, takes up the two or three problems really needing explanation, and works them out before the class, as far as may be, by suggestion from the class itself; or the whole class is sent to the board at once (for this should always be possible), and, under the direction and explanation of the teacher, solve simultaneously the problem. After the few specially difficult problems that all are interested in are thus disposed of, and the principles have been thus thoroughly brought out, the teacher chooses one or two other problems which all perhaps have solved, to illustrate, in a similar way, a neater, briefer method than those the students have probably used. And then he makes the remaining time count religiously either in class board-drill on previous demonstrations, or in new work. This new work either goes on in the author used, or better (if there is time), is brought in from other authors. Some schools are doing more than as many again examples as are in the book used. One teacher has cut up a number of old algebras to obtain problems, numbered and classified them, and pasted them on heavy paper or on card-board, to distribute singly to her students, for this new work in the hour. These problems for work in the hour should be many rather than difficult. *Long persistent practice* in the actual handling of the algebraic quantities and processes is the great desideratum—facility comes in no other way. Exercise and examination manuals are also of use here. These teachers grade their students by the actual amount of work done, not by the simple fact of their having done or failed to do a single problem during the recitation.

It is a sign of the times that some of the newer text-books in geometry contain 500, 600, or even 700 well-selected and carefully graded original exercises, not so difficult at the start as to discourage the student, but cultivating mathematical insight, giving fresh appreciation of the formal work, and real power in applying geometric principles. This work is the true test of the student's mastery of geometry; and is rapidly coming into prominence in teaching. Spencer's *Inventional Geometry* is used to advantage by some in this work.

The teacher of to-day aims to keep the attention of all on all the work, by various devices: having a pupil demonstrate a different theorem from the one he put on the board; stopping a student in the midst of a demonstration and calling another to go on from the point reached; asking for the line of proof of a theorem, to be stated in general without a figure. He calls attention to the logical connection of the proposition, asks for new proof of the theorem and of the converse proposition, and of the theorem on which the present proof depends; gives class board-drill, as in algebra, especially in the constructions and original exercises; and does not try to do too much of it himself.

Some schools have divided the work in algebra and geometry, coming back to each subject after some intermission, they believe to advantage. Others review topically, near the end of the course, by examination papers, and original exercises, all the important processes and principles, after having previously completed the work in arithmetic, algebra and geometry. They believe that this return to the work, with increased experience and maturer minds, brings a double gain. Some are

using written work, considerably, in geometry; others are making their examinations largely new work; others agree heartily with Dr. Harris that much work often done in so-called higher arithmetic would much better be done in connection with algebra and geometry; and on the other hand, others would bring mental arithmetic into algebra. The tendency—one can hardly doubt its wisdom—is toward parallel work in these studies instead of a distinct separation of them.—*Ohio Educational Monthly.*

A LESSON IN FRACTIONS.

(REPORTED).

"I WANT you to think of this," said Miss L., writing $\frac{1}{2}$ on the board. Now I shall give you each a fraction and let you tell me how much smaller or larger yours is than the one I gave you all to think of."

As each pupil gave the required difference the others pronounced on the correctness of the statement.

Now you may each choose a fraction and tell us how much less than $\frac{1}{2}$ it is and we will tell you what it is. Henry?

My fraction is $\frac{1}{3}$ less than $\frac{1}{2}$.

Annie, what is Henry's fraction?

Henry's fraction is $\frac{1}{7}$.

This exercise went around the class once and then discs of red card-board about five inches across, divided by heavy lines into fifths and by light lines into tenths, were distributed, with scissors, and with the order: "Cut on the heavy lines." As the children cut theirs the teacher cut hers and all worked quickly. (An instance of manual training assisting head work.)

Into what have you divided your discs, class?

Into fifths.

Cut on the light lines. What have you now?

Tenths.

What is this? (Holding up one-fifth.)

That is one-fifth.

Put enough tenths together to make it. How many does it take?

It takes two-tenths to make one-fifth.

What then is the best name for two-tenths?

The best name for two-tenths is one-fifth.

Put enough together to make two-fifths.

How many does it take? What is the best name for four-tenths?

The best name for four-tenths is two-fifths.

(In the same way the best name for six and eight tenths were taught.)

Put five-tenths together. What do they make?

Five-tenths make one-half.

What is the best name for five-tenths?

The best name for five tenths is one-half.

Show me, in tenths, one-half—work quickly; $\frac{3}{5}$, $\frac{1}{2}$, $\frac{2}{5}$, $\frac{3}{10}$. Make one-fifth as many times as you can. What does $\frac{9}{10}$ contain besides one-half?

Four-tenths.

Best name?

Two-fifths.

Nine-tenths then is equal to—?

Nine-tenths is equal to one-half and two-fifths.

Seven-tenths?

Seven-tenths equals $\frac{1}{2}$ and $\frac{2}{10}$.

Or—? Tell me in fifths.

Seven-tenths equals $\frac{3}{5}$ and $\frac{1}{10}$.

Lay your pieces together in a little pile and tell me how many tenths you took to make $\frac{1}{2}$; $\frac{1}{3}$; $\frac{2}{3}$; $\frac{4}{5}$; $\frac{3}{5}$.

In $\frac{9}{10}$ how many fifths? What can you make out of $\frac{9}{10}$?

A bottle has $\frac{3}{10}$ of a quart of vinegar in it. How many times could I take out half a quart?

I need $1\frac{1}{2}$ yds. of cloth for a sacque. I have $1\frac{1}{2}$ yds. How much shall I buy?

Two boys run a ten minute race. One goes $\frac{1}{2}$ of a mile. The other is one-third of a mile behind. How far does he run?

You may each tell me in a whisper. Right, Elsie! Right! Right! Robert may tell aloud.

Five-twelfths of a mile.

Oh, no! Susie, tell him.

Seven-twelfths of a mile.

I spend $\frac{1}{2}$ of a dollar. You spend $\frac{1}{3}$. Who spends most?

I have a piece of ribbon from which I use $\frac{3}{4}$ of a yard. I have $\frac{1}{2}$ of a yard left. How long was the ribbon before I cut it?—*Popular Educator.*

BUSINESS NOTICES.

WE desire to secure the service of one active, reliable member of every Teachers' Association, who will undertake to represent the JOURNAL at Conventions, on commission. Apply as soon as possible, with note from Inspector or President. In cases where arrangements are already in existence, no reply will be expected, as they will not be interfered with.

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. Give us an opportunity to make your operations known to the whole body of Teachers, all of whom take an interest in what concerns the profession. Also, please send us a summary of proceedings.

TEACHERS' INSTITUTES.

WELLAND, April 17 and 18.

Grenville and No. 3 Leeds, at Prescott, April 17 and 18.

Oxford, at Woodstock, April 17 and 18.

Mr. Inspector Tilley will attend the first of the above meetings, and Mr. W. Houston the second. In each case the visiting inspector will deliver a lecture on the evening of the first day. A concert will be given by pupils at Woodstock on the evening of April 17th.

Editorial.

TORONTO, APRIL 1, 1889.

IS POETRY DECLINING?

WE do not ask the question in relation to the wide, wide world. That would be too ambitious a theme to attempt in the small space at our disposal for such a subject. The query has been suggested to us and we now state it in reference to our own country, to Canada. Is it true that amongst the people—let us be more definite still and say the young people of Canada, there is less susceptibility to the influence of poetry, less appreciation of its power than there ought to be in this age of the world's history, and at this stage of our own civilization and intelligence? Nay, that is still too large a question. Is it true, then, that the Canadian young man and young woman of to-day has less of the spirit of poetry—that spirit which can hardly stir the soul without exalting and refining the whole nature, than the young man and woman of say, the last generation? Not even to the question as thus narrowed and conditioned shall we attempt to find a categorical answer. We merely throw it out and a few thoughts in connection with it for our readers to think about. How much delight do the readers of the EDUCATIONAL JOURNAL—and they surely if any class, ought to keep their natures open on the spiritual side—for instance, take in communing with the singers and seers of our own and other countries—our own and other times? How many of them have their favorite poets—genuine poets, we mean, not mere

rhyesters—to whose pages they go constantly for pleasure and inspiration during their hours of leisure?

We have said "singers and seers of our own country." This is not exactly a slip. Canada is yet too young and too much occupied with the grosser issues in the battle of life to have made for herself much of a record in the higher walks of literature. Yet even Canada has its "singers," and singers with a good deal of melody in their souls. Whether it has its poetic "seers" or not, we shall not now undertake to say. It is often said, and the reproach is, we fear, not wholly unmerited, that we—the men and women of average intelligence and culture—do not know them, and consequently do not appreciate them as we should. Is it true of Canada that the prophet is without honor in his own country?

A little work lately from the English press, compiled by one of these Canadian singers, is before us as we write and suggests these queries. It is "Poems of Wild Life," selected and edited by Charles G. D. Roberts, M. A., Professor of English and French Literature in Kings College, Windsor, Nova Scotia. Mr. Roberts is doubtless known to many of our readers as a writer whose productions have met with acceptance in literary circles at home and abroad. Some of his poetry ranks considerably above the average, and should be familiar to all who take an interest in Canadian literature and believe in fostering it.

The character of Mr. Roberts' little book is sufficiently indicated by the title, though its scope and limitations are not. He makes no attempt at completeness in his collections and selections. To have done so would have been to make his work ponderous and costly, instead of as now, a neat and compact little volume for the table or the pocket. He has concerned himself mainly with that "characteristically modern verse which is kindled where the outposts of an elaborate and highly self-conscious civilization come in contact with crude humanity and primitive nature." The prince of all wild-life poets of the class indicated is, he thinks, Joaquin Miller, the Poet of the Sierras, "an American of the Americans, to whom the Old World hearkens with delight, but whom the New World eyes askance." Mr. Roberts, we must confess, surprises us a little by saying that "English critics place Miller in the front rank of American singers," while "American critics on the other hand, though granting him, not over willingly, a measure of genius, will allow him no such standing as an equality with Longfellow or with Lowell." Most of our readers would, probably, agree in this case, with the American rather than the English critics. The charm of Miller's subjects and style is, nevertheless, undeniable and often great.

Into such questions we need not enter. Our main purpose is just now, two fold. First, we would warn our readers against the mistake into which teachers, in common with many others, are liable to fall, of confining their reading too ex-

clusively to solid, periodical, or light literature, to the exclusion of the poetical element. There is undoubtedly that in poetry of a high order which appeals to a part of our nature which responds to no other touch, and the cultivation of which is essential to the symmetrical development of the higher faculties of the soul. Connected with this we thought we might render a service in calling attention to this selection, by one of our own best poets, from the writings of those who have dealt most effectively with the class of subjects indicated—a class which may be supposed to possess a special interest for Canadian readers. The "Poems of Wild Life" contain selections from nearly thirty writers, including such names as Bryant, Duvar, Robert MacKay, Miller, Stedman, Maurice Thompson, and Whitman. Not one of the least recommendations of the selections is the fact that reasonable prominence is given to Canadian poets. Miss Machar, Charles Mair, Charles Sangster, and Mr. Roberts himself are well represented.

We had intended to make a few quotations but find we have room for but the following, which are the closing stanzas from Mr. Robert's "How the Mohawks set out for Medoctec." When the invading Mohawks captured the outlying Melicite village of Madawaska, they spared two squaws to guide them down to the main Melicite town of Medoctec, below Grand Falls. The squaws steered themselves and their captors over the falls. The tired Mohawk warriors are asleep dreaming not of danger as they approach the falls.

"But—the river's sudden speed!
How the ghost-grey shores recede!
And the tearless pilots hear
A muttering voice creep near.

"A tremor! The blanched leap,
The warriors start from sleep.
Faints in the sudden glare
The cry of their swift despair.

"And the captives' death-chant shrills,
But afar, remote from ills,
Quiet under the quiet skies
The Melicite village lies."

"APPLIED PSYCHOLOGY."*

VERY much is being said and written in these days in regard to the value of the study of Psychology, in its relation to the teaching profession. Theoretically, it is easy to make out a strong case in its favor. To say, for instance, that, in order to be master of his profession, that is, to be truly skilful in the work of training and developing the young mind, the teacher must have a thorough knowledge, so far as that is attainable, of the structure and modes of working of that mind, is to utter what is at least next door to a truism. What are the faculties of the child-mind? What the natural order of their development? What the conditions under which that development is found to be most healthful and rapid? What are scientifically indicated as the legitimate motive forces, and how can they be most effectively

* APPLIED PSYCHOLOGY.—An Introduction to the Principles and Practice of Education. By J. A. McLellan, M.A., LL.D. The Copp, Clark Company, Limited, 1889.

applied to stimulate to that vigorous and sustained activity without which healthy development is impossible? These and similar questions are obviously among the first that present themselves to the intelligent teacher, as he sets about his arduous but lofty task. True, he may not in all cases have been trained to analyze, define and classify in any systematic manner, the questions that thus force themselves upon his attention. But, if he is in the highest, or in any true sense, a teacher, some such questions as these he must ask and answer, in some shape, however unscientific, before he can feel himself at all fitted for his work.

Many, no doubt, have proved themselves very successful teachers, who have never set themselves to the systematic study of psychology. They may, perhaps, be scarcely conscious of recognizing any relation between that analysis and classification of the mental faculties and their functions which is the chief factor in psychological study and their daily duties in the class-room. Nevertheless, we make bold to say that investigation of the methods used by such teachers would make it clear that they had, by dint of close observation and careful experiment, possessed themselves of much practical and useful knowledge of the science of mind, in its substance and reality. This is not to say that the process would not have been greatly facilitated, and their work made easier and still more successful, had they been able to follow more strictly scientific methods and to avail themselves more freely of the results of the study and experience of others.

Having said so much, we are bound to admit that many of the works on psychology which are to be found on pedagogic book-lists, and which are recommended to the attention of teachers, have seemed to us very illy adapted to aid the average teacher in his work. We do not wonder that the teacher who has not had the advantage of a course in Metaphysics at College or University, is apt to turn, with an involuntary shudder, from the long-drawn-out, dry-as-dust refinements of metaphysical specialists. In the long list of standard psychological treatises, having, or supposed to have, special reference to the needs of the teaching profession, the number which are likely to prove of real use to the ordinary public school teacher, might probably be counted on the fingers of one hand, without exhausting the digits. We are not sure, in fact, that we should be going too far were we to say that the profession was still waiting for the appearance of a first-class manual of "Applied Psychology."

Without, however, going so far, or pretending to be familiar with all the best books which have been written on the subject we may frankly say that, in our opinion, the book before us goes far towards supplying just what the earnest, industrious teacher needs. We have not yet had time to examine the work as a whole, but we have turned to various divisions and sub-divisions of the subject, and have been delighted with the clearness of analysis, the simplicity of

statement, and the adaptation to practical use, which we have invariably found. The manner in which educational principles are deduced from each topic as it comes up for discussion, and the ready illustrations and concrete examples which are to be found on almost every page are admirable. We have not space to describe or discuss these and other features of the work at length, or to justify our words by quotations. Nor is it necessary to do so. Dr. McLellan's powers of lucid statement and apt illustration are well known to most of our readers, and we have no doubt very many of them will soon examine and test the book for themselves. To such it will be no blemish but an added merit, to find much, as we dare say they may, with which they are already familiar in the Institute lectures to which they may have from time to time listened. They will now be able to review those discussions at leisure in the printed page, and find what must have necessarily been given in fractional if not fragmentary parts on the platform presented in the order and completeness of a logical system.

If we have dwelt at greater length than is our custom on a single book, we have done so partly because of the very high opinion we have formed of the merits of the work for practical educational purposes, and partly because of our fear that, for the reasons indicated, too many teachers may be led by former disappointments to form wrong conceptions of the character and scope of the work, and so to deprive themselves of a valuable source of help now for the first time brought within their reach.

Book Reviews, Notices, Etc.

Cooking and Sewing: Songs and Recitations. For Schools and Entertainments. Edited by Mrs. J. B. Romer.

These bright and lively songs have been written by some of the best song writers, and are set to college and other popular airs. Price, fifty cents.

The Teachers' Psychology. A Treatise on the Intellectual Faculties, the Order of their Growth, and the Corresponding Series of Studies by which they are Educated. By A. S. Welch, Professor of Psychology, Iowa Agricultural College. New York and Chicago: E. L. Kellogg & Co. Cloth, 12mo, 300 pp. \$1.25.

In this book Prof. Welch undertakes to deal with mind-unfolding, as exhibited in the school-room. He shows what is meant by attending, memorizing, judging, abstracting, imagining, classifying, etc., as it is done by the pupil over his text-books. Each of these operations is clearly explained and illustrated. A most valuable part of the book is its application to practical education. How to train these powers that deal with the concept—that is the question? There must be exercises to train the mind to *gather, store, divide, abstract, build, group, connect, and derive* concepts. The author shows what studies do this appropriately, and where there are mistakes made in the selection of studies. The book will prove a valuable one to the teacher who wishes to know the structure of the mind and the way to minister to its growth.

P. Vergilii Maronis Aeneidos, Lib. II. Edited with Vocabulary, for the use of schools, by T. E. Page, M.A., Assistant Master at Charterhouse. London: MacMillan & Co.

This little book is another of the series of "Elementary Classics" in course of publication by MacMillan & Co.

Lamartine's Jeanne d'Arc. Edited with Notes and a Vocabulary, by Albert Barrere, Professor, Royal Military Academy, Woolwich, England. Boston: D. C. Heath & Co.

A useful edition for school or study.

Promissory Notes or Drafts. What a Business Man Should Know Regarding Them. By J. W. Johnson, F.C.A. Published by Ontario Business College, Belleville.

This is a second edition of this useful pamphlet, which first appeared in the columns of the EDUCATIONAL JOURNAL. New and valuable matter has been added to this edition. The work is well adapted to be useful to Commercial Masters in High Schools, as well as to business men everywhere.

Charming Songs for Little Warblers. A collection of seventy-eight songs, arranged for the piano-forte or harmonium. Culled from the children's music of every land. By George Gill. Boston School Supply Company, 15 Bromfield Street.

The intention of this little book, to supply a selection of simple and attractive melodies for ordinary occasions, has been, we think, admirably carried out. It is well adapted to aid in the educational work of infant school, home and nursery.

Primary Writing. By Mara L. Pratt. Boston: Eastern Educational Bureau. Price, 15 cents.

This is an ingenious method of teaching the elements of penmanship to young children. Many primary teachers will, we dare say, find it extremely useful, saving them much time and trouble, and producing better results than the ordinary methods.

Elementary Chemical Technics. By George N. Cross, A.M., Principal of the Robinson Female Seminary. 123 pages. Cloth. Price, \$1.25. Boston: Eastern Educational Bureau.

The opening chapter of this useful book contains complete practical directions for the construction and equipment of laboratories at a very moderate cost. Another chapter contains directions for the making of almost every piece of apparatus needed in an ordinary school-room in chemistry. Another is devoted to glass working, etc. A convenient reference book for teachers of chemistry.

Goethe's Torquato Tasso. Edited for the use of students, by Calvin Thomas, Professor of Germanic Languages and Literature, in the University of Michigan. Boston: D. C. Heath & Co.

This book is not intended for beginners in German, but for such readers as have already become familiar with the every-day facts of the language. The notes are therefore few in number, and deal only with what is exceptional or peculiar. The introduction is full, the volume well printed and neatly bound.

Sonnenschein's Cyclopedia of Education. A handbook of reference on all subjects connected with education, (its history, theory, and practice), comprising articles by eminent Educational Specialists. The whole arranged and edited by Alfred Ewen Fletcher. Syracuse, N. Y.: C. W. Bar-dun, Publisher. London: Swan, Sonnenschein & Co., 1889.

This work is a boon to the teaching profession, and to all who have to do with the history and work of education. The aim of the work is clearly indicated by the title, and its scope is modestly described by the editor, who says that the contributors have sought to give a telescopic rather than a microscopic view of the educational facts and questions discussed, and to bring their purely pedagogic features into clear outline. We have turned up a number of articles on various subjects and have been very favorably impressed with the clear, succinct and interesting manner in which the subjects are treated, in accordance with the rules thus laid down. A carefully compiled Bibliography of pedagogy, which does not, however, include notices of living persons, is given as an appendix. This excellent book, or a similar one—we know none similar—should have a place on every teacher's bookshelf.

LANGUAGES and mathematics can no more satisfy the cravings of the mind, than the knife and fork and balance for weighing meat can satisfy the stomach.—*Johannon.*

Mathematics.

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

SPECIAL PROBLEMS AND SOLUTIONS.

No. 1.—By T. P. HALL, B.A., Woodstock College.

A, B and C start together round a field whose perimeter is p . A goes a miles, B, b miles, and C, c miles per hour. When will they first be together again?

N.B.—Problems similar to this are occasionally found in papers on Arithmetic, and most Arithmetics give a wrong method of working them.

SOLUTION. Let x =required time, and let a =highest rate of speed; then ax, bx, cx are the numbers of miles travelled in x hours respectively. Thus we have the equations:

(1) $ax - bx = mp$; (2) $ax - cx = np$, then m and n are integers, and the smallest integers that will satisfy the two equations.

(1) \div (2) gives $a - b : a - c = m : n$. Now m and n are the smallest integers possible when they are prime to each other. Let k be the H.C.F. of $a - b, a - c$, so that $a - b = km, a - c = kn$. \therefore from (1) $x = mp \div (a - b) = p \div k$. Thus we derive the RULE:—To find the time of meeting: subtract the other rates from the highest, and divide the perimeter by the H.C.F. of these differences.

For four travellers we should similarly obtain $a - b : a - c : a - d = m : n : q$ and as above $x = p \div k$.

EXAMPLE.—If $p = 17, a = 20, b = 13, c = 6$; then $k = 7$, and $x = 2\frac{1}{2}$. So that A would travel $20 \times 2\frac{1}{2} = 48\frac{1}{2}$ miles, B, $31\frac{1}{2}$ miles, and C, $14\frac{1}{2}$ miles.

No. 2.—By S. C. BRACE, ESQ., Philadelphia.

What rate per cent. of interest will be received on the investment by purchasing an $r = 6\%$ Bond at a premium of $p = \$33$, par value of Bond $b = \$100$, having $t = 15$ years to run, and interest payable semi-annually by coupons?

Solution by B. F. BURLERSON, Oneida Castle, N. Y.

The purchaser of the Bond has made an investment of $\$133$, to run 15 years. He expects to receive $\$100$, at least, of this principal, when the bond matures. If any part of the $\$33$ premium were paid previous to the time of the maturity of the Bond, we should be required to find the rate per cent. received, not on the investment, but on a fluctuating principal, for a constant time. The payments, too, would be indefinite, as equal or unequal ones might be made semi-annually. Therefore, it is to be presumed that the entire principal, $\$133$, is to remain invested for 15 years. A certain portion of each coupon must be set aside (at the maturity of such coupon) as a sinking fund for the re-imbursement of the premium paid when the Bond matures. The balance of the coupon must be the semi-annual interest received on the investment. This interest divided by the investment is the rate per cent. of semi-annual interest received by the investor. With respect to the re-investment of the net proceeds of each coupon, the problem has nothing whatever to do. Such net proceeds may be invested, hoarded, or squandered by the bond-holder. At the maturity of the Bond, the holder will receive all of his investment, in the face value of the Bond and in his sinking-fund deposits. No specious reasoning can controvert these facts.

On what basis the tables (used by brokers, bankers, and financiers in general) purporting to give the rate per cent. on the investment when bonds are purchased at a premium, are constructed, no one seems to know. The sinking-fund deposits may draw interest, either simple, or compound; or they may lie idle—just as the depositor prefers. Hence there are three cases to this problem, which may be condensed into two, viz.: (1) When the sinking-fund deposits are invested at a certain rate of simple interest; and (2) When the sinking-fund deposits are invested at a certain rate of compound interest.

CASE FIRST.

Let R_s = the rate per cent. of simple interest received semi-annually on each sinking-fund deposit, A = the amount of each sinking-fund deposit, and r = the required rate per cent. of simple interest received semi-annually on the investment; then we have, by adding the amounts of the sinking-fund deposits,

$$[(2T - 1)AR_s + (2T - 2)AR_s + \dots + AR_s] + 2TA, = 2T^2AR_s - TAR_s + 2TA = P.$$

$$\therefore A = \frac{P}{[(2T - 1)R_s + 2T]} \dots (1).$$

Hence the required rate per cent. of simple interest received semi-annually on the investment becomes

$$r = \left[\frac{BR}{2} - \frac{P}{[(2T - 1)R_s + 2T]} \right] \div (B + P) \dots (2).$$

RULE.—Multiply twice the number of years it takes the Bond to mature, less one year, by the rate per cent. received semi-annually on the sinking-fund deposits; add 2. to the product, and multiply the sum by the number of years it takes the Bond to mature; divide the premium by this product, and subtract the quotient from the value of a coupon; and divide the remainder by the price paid for the Bond, and the quotient is the rate per cent. of simple interest received semi-annually on the investment.

APPLICATIONS OF RULE.

When $R_s = 0$ the sinking-fund deposits draw no interest; and according to our formulated Rule, we have:

$$\text{If } R_s = 0, r = \left[\frac{BR}{2} - \frac{P}{2T} \right] = 1\frac{1}{2}\%.$$

Similarly when $R_s = 2\frac{1}{2}\%$, $r = 1\frac{11}{16}\%$, and when $R_s = 3\%$, $r = 1\frac{13}{16}\%$.

CASE SECOND.

Let R_c = the rate per cent. of compound interest received semi-annually on each sinking-fund deposit; then representing $(2T - 1)$ by m , $(2T - 2)$ by n , and adding the amounts of the sinking-fund deposits, we have the geometrical series.

$$[(1 + R_c)^m + (1 + R_c)^n + \dots + (1 + R_c) + 1]A, = \frac{[(1 + R_c)^{2T} - 1]A}{R_c} = P.$$

$$\therefore A = \frac{PR_c}{(1 + R_c)^{2T} - 1} \dots (3).$$

Hence the required rate per cent. of compound interest received semi-annually on the investment becomes

$$r = \left[\frac{BR}{2} - \frac{PR_c}{(1 + R_c)^{2T} - 1} \right] \div (B + P) \dots (4).$$

RULE.—Divide the interest on the premium for six months, at the rate per cent. received on the sinking-fund deposits, by the compound interest on one dollar, compounded semi-annually, at the rate per cent. received on the sinking-fund deposits for the time it takes the Bond to mature; subtract the quotient from the value of a coupon; and divide the remainder by the price paid for the Bond, and the quotient is the rate per cent. of semi-annual compound interest received on the investment.

APPLICATIONS OF RULE.

When $R_c = 2\frac{1}{2}\%$, $r = 1.69048\%$, and when $R_c = 3\%$, $r = 1.73411\%$.

REMARKS.

Special results obtained from either of these Rules agree exactly with results given in "Packard's Commercial Arithmetic," page 234.—*New England Journal of Education*.

SOLUTIONS TO PROBLEMS IN MARCH NUMBER.

24. By W. PRENDERGAST, B.A., Chatham Collegiate Institute.

Let P = monthly instalment. The amount of all the instalments at $\frac{5}{2}\%$ per month for six months = $\$250$. Let $R = 100\frac{5}{2} \div 100$.

N.B.—Of course to take $\frac{5}{2}\%$ per month as identical with 5% per annum is only "commercially" correct. Thus we have:

$$P \{ R^6 + R^5 + R^4 + R^3 + R^2 + R \} = \$250, \text{ from which}$$

$$P R (R^6 - 1) \div (R - 1) = 250. \text{ Substituting for } R \text{ and reducing we get } P = \$41.64.$$

25. By T. C. DOIDGE, University College, Toronto.

Let x = number to be taken from 1st cask, $\therefore 8 - x$ = number from 2nd. Hence the equation:

$$\frac{3}{8}x + \frac{2}{7}(8 - x) = 2, \text{ whence } x = 4\frac{1}{2}; \text{ and } 3\frac{1}{2} \text{ is the number from 2nd. Solved also by MR. PRENDERGAST and others.}$$

26. By MR. PRENDERGAST.

Let x = number drawn off each time, then $256 - x$ are left after 1st draught, \therefore when x gallons of water are added to this, the wine = $(256 - x) \div 256$ th part of the mixture, and $\therefore x$ gallons of this mixture contain x times $(256 - x) \div 256$ gallons of wine. The remainder of wine is then after the 2nd draught = $(256 - x) - \left\{ (256 - x) \div 256 \right\} x = (256 - x)^2 \div 256$. Similarly after the 4th draught, the remainder of wine is $(256 - x)^4 \div 256^3 = 81$ gallons; or $(256 - x)^4 = 3^4 \times 2^24$, whence $256 - x = 3 \times 2^6 = 192$; and $x = 64$ gallons.

Solved also by MR. DOIDGE.

N.B.—"The general problem" is similar to this:

From a vessel containing a gallons of wine, b gallons are drawn off and the vessel filled up with water. This is repeated n times; find the amount of wine remaining. After 1st draught $a - b$ gallons of wine remain: after the 2nd draught $(a - b)^2 \div a$; after the 3rd

$(a - b)^3 \div a^2$; etc., etc.; after the n th draught $(a - b)^n \div a^{n-1}$ gallons of wine remain.—EDITOR.

27. By MR. PRENDERGAST.

The interest at which the discount is to be calculated is not given; but 7% agrees with the answer in the book.

Now $\frac{63}{100} \times 7$, or $\$4\frac{41}{100}$ is deducted from every $\$100$ for discount, and a certain other amount for exchange. Thus $\$100$ face value sells for $\$100 - \frac{63}{100} - \text{exchange} = \$98\frac{37}{100} - \text{exchange}$. But $\$2660$ sells for $\$2,570.89$, or $\$100$ for $\$96\frac{3}{10}$; hence

$$\$98\frac{37}{100} - \text{exchange} = \$96\frac{3}{10}, \text{ or exchange} = 2\frac{1}{10}\%.$$

N.B.—No. 2, paper III, page 239, H. Smith's Arithmetic is exactly similar.

28. By WM. HICKLING, Phelpsston, Ont.

At the death of the widow, son got $\frac{1}{3}$ and daughter $\frac{2}{3}$, the shares then were $\frac{1}{7}$ and $\frac{1}{6}$. \therefore daughter's gain = $\frac{1}{3}$ th of $\$4,000 = \$133\frac{1}{3}$.

30. By MR. PRENDERGAST.

The ends contain $6\frac{3}{8}$ cubic feet of iron, and the sides $26\frac{3}{8}$ cubic feet, total $33\frac{3}{8}$ cubic feet of iron, and this will have to displace $33\frac{3}{8} \times 7\frac{3}{4}$ cubic feet of water = $258\frac{3}{8}$ cubic feet of water. Let p = perp. depth immersed. we get the equation:

$$(258\frac{3}{8} \div 40) \div (16 \times 10) = p \div 20, \text{ whence } p = 9\frac{1}{8} \text{ inches.}$$

N.B.—The iron is so thin that it does not seem worth while to take both outside and inside measurements in finding the solidity of iron.

34. BY THE SAME.

Amount of $\$2,200$ for 21 years @ $R\%$ must = sum of amounts of $\$200$ for 20 years, for 19 years, etc.; i.e. reckoning simple interest.

$$2200 \times 21R \div 100 = (200R \div 100) \{ 20 + 19 + \text{etc.} \} + 200$$

$$\text{Whence } 42R = 200, R = 4\frac{1}{3}\% \text{ simple interest.}$$

At compound interest: Let $x = 1 + R$, and the equation is $200(x^{21} - 1) \div (x - 1) = 2,200R^{21}$, a very interesting equation to solve.

35. In every leap year in which February 1st falls on Sunday, that month will have five Sundays. The interval between these years is 28 years, or 7 leap years. The last two were 1852 and 1880. The next would be 1908 were it not for the fact that 1900 is not a leap year, so that February 1, 1908, will be on Saturday; 1912 will, however, be the seventh leap year from 1880.

36. By MR. DOIDGE.

555×3 and 555×5 , or 1665 and 2,775 are the numbers.

37. BY THE SAME.

Every odd number is of the form $2n + 1$, and $(2n + 1)^2 \div 8 = (4n^2 + 4n) \div 8 + \frac{1}{2}$; $n(n + 1) \div 2 + \frac{1}{2}$

Now n is odd: $\therefore n + 1$ is even, and the remainder is 1. Similarly for other even powers of $(2n - 1)$. Solved generally also by W. P.

38. By W. P.

["Less than 1,000" should read "less than 100"]—ED. Let $16x = 1st \text{ No.}$, $16y = 2nd \text{ No.}$: $\therefore 16xy = 192$; $xy = 12$

Now $12 = 12 \times 1, 6 \times 2, 3 \times 4$. The second pair gives 48 and 64.

39. By W. P.

Since a, b, c are in G. P., $b^2 = ac$. Let $n = a^x = b^y = c^z$: $\therefore \frac{y}{x} = \frac{1}{z} + \frac{1}{z}$, or $y = 2xz \div (x + 2)$, $i. e.$ x, y, z are in H. P.

40. Let x = No. of oxen required, y = grass on one acre, z = amount produced on one acre per week. Then a oxen eat $b(y + mz)$ in m weeks.

$\therefore 1$ ox eats $b(y + mz) \div ma$ in 1 week, from first condition. But from 2nd condition, by similar reasoning, 1 ox eats $e(y + pz) \div px$. Thus we get the equations:

$$\frac{b}{ma}(y + mz) = \frac{d}{nc}(y + nz) = \frac{e}{px}(g + pz). \text{ Eliminating from these } y \text{ and } z \text{ we find:}$$

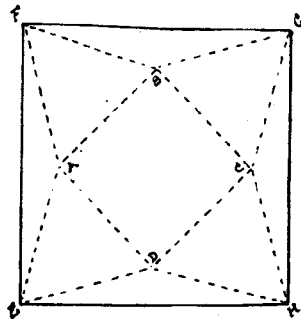
$$x = \frac{m - p}{m - n} \frac{nce}{fd} \frac{n - p}{m - n} \frac{mae}{pb} = \frac{e}{p} \left\{ \frac{m - p}{m - n} \frac{nc}{d} - \text{etc.} \right\}$$

41. By MR. DOIDGE.

N.B.—The triangles are all equilateral and A, B, C, D and E, F, G, H are squares.

A B C D square, F A B, B C G, D C A and E A D triangles described externally on the sides.

The angles A F B, B G C, D A C and D E A are each 60° . E A D = 60° , D A B =



90°, F A B = 60° ∴ E A F = 150°; since all the angles around the point A = 360° ∴ A E F + E F A = 30°; since E A = A F each of the angles A E F and E F A is 15°. In the same way B F G = 15° ∴ E F A + A F B + B F G or E F G = 15° + 60° + 15° = 90°. In similar manner the angles at G, H and E are 90°, ∴ E F G H is rectangular. Again H D and D E = F A and A E and the angles H D E and E A F being equal (each 150°) ∴ H E = E F ∴ the figure E F G H is equilateral ∴ it is a square.

Similarly when the triangles are described inside the square.

42. By W. P.

$$\text{If } BC^2 < 4AD^2 \\ 4BD^2 < 4AD^2; \quad BD < AD$$

angle B A D < angle A B D. Hence the vertical angle A < the sum of the two equal angles and ∴ < 2 right angles.

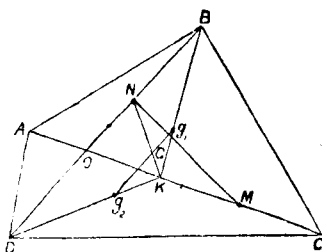
(2.) If $BC^2 > 4AD^2$, we may show in the same way that A is an obtuse or a right angle.

43. PROFESSOR ABINASH BASU.

A B C D is a quadrilateral, and O the point of intersection of A C and B D. From C O cut off C M equal to A O, and from B O cut off B N equal to D O. Prove that the centroid of the quadrilateral coincides with that of the triangle O M N.

SOLUTION by ROSA H. WHATHAM, B.A.; SARAH MARKS, B.Sc., and others.

Let K be the mid-point of A C; g_1, g_2 the centroids of triangles A B C, A D C. Join g_1, g_2 ; then g_1, g_2 is parallel to B D. Join N K, meeting g_1, g_2 in G; therefore G is centroid of O M N. Now



$$g_1G = \frac{1}{3}BN = \frac{1}{3}DO, \\ g_2G = \frac{1}{3}DN = \frac{1}{3}BO; \\ \therefore g_1G : g_2G = DO : BO \\ = \triangle ADC : \triangle ABC,$$

therefore G is the centroid of the quadrilateral, therefore centroids of the quadrilateral and the triangle O M N coincide.

CORRESPONDENCE.

44. G. E. H., Kingsville, asks for solutions of No. 11, page 259, and No. 143, page 274, H. Smith's Arithmetic.

47. W. J. B., Swinton, requests solutions of Nos. 18, 24 and 25, page 136, Ex. xvii, Robertson & Birchard's Algebra. He also sends the following for

50. SOLUTION: Find the instalment required to pay off \$1,000, in five annual instalments, principal and interest together. Compound interest @ 10% per annum.

These correspondents neglected our standing rule that the "problems" as well as the references must be sent in order to secure attention.

MISS ROSE MCGEE, a pupil of Parry Sound Public School, sends an accurate solution of No. 8, in February number.

MR. C. F. S. CHAPMAN, St. James, Man., solves No. 4 in February number, by making C's work for one day the unit of comparison, and the analysis is well suited to a junior class.

51. RUSTICUS proposes the following: Bought property for \$500, to be paid with simple interest in 10 years, in 10 equal annual payments. The principal and interest amount to \$850. Find (1) the rate of interest; (2) the amount of each annual instalment.

The solution of the II. and III. class Algebra papers, of 1888, will appear in May number. The Editor would be glad to hear from all teachers who are studying the First C. course, so that he may be guided in respect to their wishes as far as possible. Our correspondents have done nobly this year, and we wish them all success. Do not forget to mention the JOURNAL at your Convention, nor to keep the Editor posted in regard to any difficulties that you may meet. Let us make the JOURNAL worthily represent the profession and the imperishable work it is doing for this country and for culture and civilization.

THE teacher should observe closely the results of his plans and note where they are successful and where a failure, and should govern his future accordingly. Let him review each evening the work of the day and try to find a mistake he has made, and resolve to do better the next day.—G. Dallas Lind.

Educational Meetings.

HALTON TEACHERS' ASSOCIATION.

(Condensed from Georgetown Herald.)

THIS Association met at Milton, on Thursday, February 28th. About sixty-five or seventy teachers were in attendance. On

THURSDAY MORNING,

The President, Mr. Gray, occupied the chair. Mr. Deacon led in prayer, after which the minutes of last Convention were read and approved. The Treasurer's report was read. The Librarian reported that during the year fifty-three professional works had been read by the teachers, and eight new ones had been added to the library.

Mr. Deacon next brought up the matter of educational papers, and earnestly urged every teacher in the county to take, at least, one of the many good professional journals. He owned that it had a depressing effect upon him to hear any teacher acknowledge to not taking any. Every teacher ought to know just both what and how his brethren are doing. He cannot hope to contain within himself the sum of all good methods and principles, and if he does not read, he will soon get behind the times.

A short discussion followed on "Economy of Time" in the school-room, led by Messrs. Stingle, Norton, Shortill, Deacon and Gray.

AFTERNOON.

Mr. Deacon spoke on temperance and hygiene. He called attention to the necessity of obtaining a thorough change of air at recess, by opening doors and windows, and of securing proper light by means of blinds etc.

Teachers should themselves buy the temperance text-book and teach the subject as there found, but their pupils should not be asked to get the book. They should act with wisdom and carefully avoid anything that would create strife in their sections.

The question of the "Teacher's Preparation for the Class Room" was discussed by Miss Bastedo in a well written paper. The writer held that every earnest teacher must and will prepare himself for the special work of each day. Among the questions to be answered by all desiring to make the most of any particular lesson are: Have I done my best to prepare the lesson for presentation? How can I best arouse the interest of the class in it? Is there anything transpiring in the world around us that I can bring to bear upon it to increase their interest? Will what I am going to teach be of practical value to fit them for life?

Mr. Tilley then taught a class in Grammar. He first said that subjects bringing into play the natural activities of the child are the most interesting and, therefore, the most easily taught; but grammar, which brings into play thought only, is hard to teach. Mr. Tilley, however, by his easy, natural method of illustration, sustained the liveliest interest in his class throughout the whole lesson.

The first step is to teach the use of words in sentences. Placing a sentence on the board, by skilful questioning he taught that every word has some office or use, that in reality most words are the servants of some other words. Classification is the second step. Pupils were easily led to see that all words naturally fall into classes according to their use. Inflection is the third stage. Make the teaching objective and the following must be the order:—1. Present the subject, or teach the thing through the thing itself. 2. Lead the pupils to see the use of it. 3. Investigate (a) as to form, (b) as to operation. 4. Generalize. 5. Apply the conclusions.

Mr. James A. McNivin next read his paper on the "Benefits of Securing Attention in School," and seldom has a better been given before the Convention. The subject was treated most exhaustively. He showed that if the teacher would perform his highest function he must train his pupils to habits of attention. This is necessary that they may be successful, both in the school and in the world beyond it. Illustrations were given of great men who ascribed their greatness solely to their power of concentrating their attention upon what was before them.

EVENING.

Mr. Tilley lectured in the Methodist church, his subject being "Successful Life." He showed that

to be successful in the highest degree, there must be no such false sentiment in either the nation or the individual as that honest labor is degrading; that all must be willing to work unceasingly with either hand or brain; that as soon as the nation or the individual begins to despise labor and to seek for luxury, that moment their fall begins.

FRIDAY MORNING.

Mr. R. N. Shorthill outlined an excellent method of teaching "Practical Composition." The lesson provoked considerable discussion and many expressions of approval. By question and answer he drew from his class all they knew of the subject—"Lacrosse." Wherever their knowledge was lacking he supplied the information. At the close this outline appeared on the board, the divisions to correspond with the paragraphs of the composition when written:—

1. The game; (a) players, (b) name, (c) national.
2. The players; (a) players, (b) name, (c) position, (d) costume, (e) skill.
3. Necessaries; (a) sticks, (b) ball, (c) grounds, (d) goals, (e) flag-posts, (f) umpire, (g) referee.
4. Amusement; (a) exciting, (b) team play.

Mr. Tilley took for his next subject, "The Principles of Education." He traced the origin of the "Theory of Education" from the practice of it, and showed that that theory is the most perfect which approaches most nearly the operations of nature in development. Development of mental power should be the main object, and this development can come only as a result of a person's own effort. Nature furnishes (1) the faculty, (2) the material, and (3) the occasion for the use of 1 and 2 in the development of both mind and body. By understanding the science of education, the teacher is enabled to place before his pupils the right kind and the right amount of work to direct their labors, to encourage them and to make the circumstances favorable for the doing.

AFTERNOON.

Miss Pringle gave a carefully prepared paper on "Life in the School Room," in which she dwelt upon the importance of keeping the room neat and tidy, upon the refining and educating effect of pictures and flowers in the room, and urged the teachers to try in this way to counteract the evil influences to which so many pupils are exposed.

Mr. Tilley's last paper was on "Professional Fellowship." In opening, he paid a tribute to the unselfishness of teachers in general. In all the five years of his work among them the burden of their cry had been, "How shall we best fit ourselves to make our work the most effective?" Teachers should be united very closely in bonds of fellowship, and be very sensitive about criticizing one another adversely, or of under-bidding for situations. For the evil of low salaries they are themselves largely to blame. The profession is being overcrowded and large numbers of the best teachers are yearly leaving it. In fact, in every seven years, the entire staff in Ontario is changed. For this, also, teachers are to blame, because they have encouraged students to take the teachers' course. The training of teachers in all rural schools should be discouraged, because it cannot be done without injury to the rest of the school.

RESOLUTIONS.

The following resolutions, carried unanimously, speak for themselves:—

Moved by J. H. Bradley seconded by Henry Husband, that this Association desires to place on record their regret at the recent loss to the profession in the death of Dr. Young. The universal homage paid to his great abilities and profound scholarship makes it unnecessary to say more than to acknowledge our appreciation of the importance of his labors in the cause of education in our province.

Moved by J. H. Bradley seconded by Theo. Norton, that the members of the Halton County Teachers' Association desire to place on record their regret at the sudden and unexpected death of a fellow-worker and enthusiastic member of the teaching profession, Mr. C. R. Bonham. His services in connection with the Association were of such a character as to warrant us in expecting for him a career of great usefulness in his chosen profession. We desire further to bear testimony to his moral worth and integrity of character and to extend to his sorrowing parents our heartfelt sympathy in their time of severe trial.

AYRE'S ORTHOEPIST AND CORRECT PRONUNCIATION.

HENRY A. FORD, A.M., DETROIT.

IN the last number of your truly EDUCATIONAL JOURNAL, which has just reached my hands and has been read at once with much interest and satisfaction, I observe an inquiry in the department of "Questions and Answers," which seems to me of more than ordinary importance; and I beg leave to add a few lines to your brief reply. 'The querist desires to know whether Ayre's "Orthoepist" is a reputable authority; and the implication obviously is that if so he wishes to adopt it as his hand-book of pronunciation. This betokens an intelligence and enterprise, and a true professional spirit, not altogether common among teachers, at least on this side of the line. With most of them but a moment's conversation will disclose the fact that they have no standards, or have studied them but indifferently. Even in the use of what may be considered professional words, those habitually in the talk of the common schools, the Queen's (or President's) English is sadly strained. So frequently recurring words as geography, geometry, equation, potion, and the like, are often mispronounced. About ten years ago I became so impressed with prevailing deficiencies that I adopted as a regular exercise in the institutes I conduct or instruct, an hour or less in "professional orthoepy." And now I am brought to the confession that my list of words for this purpose, a quite extended one, is derived from Mr. Ayre's "Orthoepist." I used for some years the excellent little Boston book of "Three Thousand Words Liable to be Mispronounced," and as they appeared became familiar with Phye's and other manuals; but after full comparison and annotation of differences I settled upon Ayre's as probably the best.

1. It rests not only upon the great American standards, but cites freely the English authorities, Walker, Smart, Cooley, Cull, and the rest.

2. It has frequent and admirable, though brief, discussions of a pronunciation. These add sensibly to the pleasure and profit with which I regularly read the book throughout every few months.

3. The writer has the courage and the sense to recognize the fact that books of language do not give the law to language, but derive laws from best usage. He has taken speech as he finds it in the use of our best talkers and most classic orators, and so far, and rightly, discounts the future as to allow pronunciation not yet warranted by the books. Apparatus, acoustic and some other words, even orthoepy itself, are found one way in the books and another in the almost universal usage of the scholars as well as the people. I think this good judgment and true independence a very admirable feature of the book.

4. It gives more words (about 3,300 in all) than most of the others, and includes many needed proper names.

Pray excuse the unexpected length of this treatment. But a small hand-book is so ready and convenient, as against the cumbersome "unabridged" dictionaries, that I have thought pretty full remarks might be justified. Permit me to add that other little books, by the gentleman calling himself "Alfred Ayres," (a prominent New Yorker of some prominence, who does not care to publish his name) "The Verbalist," concerning the correct choice of words; "The Mentor," a book of decorum and good manners, and other practical manuals, are likewise useful.

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Sufferers from catarrhal troubles should carefully read the above.

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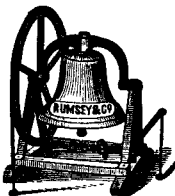
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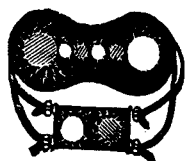
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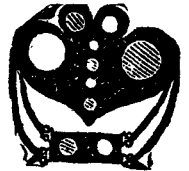
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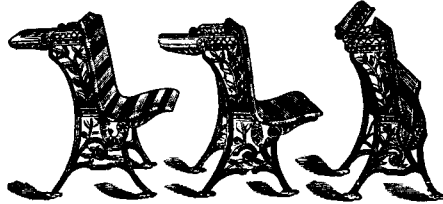
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JULY, 1889.

1. Clouds, Rains, and Rivers.....	pp. 54—59
2. The Death of the Flowers.....	" 67—68
3. From "The Deserted Village".....	" 80—83
4. The Battle of Bannockburn.....	" 84—90
5. Flow Gently, Sweet Afton.....	" 98

6. Resignation.....	pp. 105—106
7. Lead, Kindly Light.....	" 145
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15. The Forsaken Mermaid.....	" 298—302

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1. The Short Extracts.....	(List given on page 8.)
2. I'll Find a Way or Make It.....	pp. 22
3. The Bells of Shandon.....	" 51—52
4. To Mary in Heaven.....	" 97—98
5. Ring Out Wild Bells.....	" 121—122
6. Lady Clare.....	" 128—130
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8. Before Sedan.....	" 199
9. The Three Fishers.....	" 220
10. Riding Together.....	" 231—232
11. Edinburgh after Flodden.....	" 277—281
12. The Forsaken Mermaid.....	" 298—302

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Agriculture.—The text-book is not yet ready, there will be no paper set at the July examination. NOTE.—It is very probable that after December 1st there will be but one entrance examination yearly, viz., at mid-

TORONTO, January, 1889.

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