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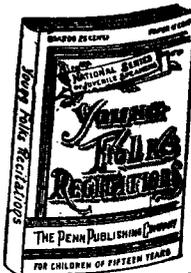
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Vol. VIII.
No. 18.

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Editorial Notes.

At the last meeting of the Senate of the University of Toronto, a statute was passed providing local examinations for candidates who wish to write for specialists' certificates on the May papers of the University of Toronto. Application is to be made to the Minister of Education, who will appoint the presiding examiners and conduct the examinations, the answer papers being, of course, read by the University examiners, and the results reported to the Education Department as heretofore. Any oral or practical examination must, however, be taken at the University. This provision will be a great boon to teachers who are unable to absent themselves from their schools for several weeks, or who can do so only with inconvenience to themselves and their classes. The privilege granted to candidates at the professional examinations is thus extended to those who write at the non-professional examinations.

WE are sorry to find that some typographical and other errors crept into the instalment of Inspector Dearness' article which appeared in the last number. Readers will please make the following corrections:

In second column, third paragraph, "In American cities white children show to great advantage," etc. For "advantage" read *disadvantage*.

About the middle of the fourth column, "the carbon dioxide went up from .3 to .7 or .8 per cent." It should read, "from .03 to .07 or .08 per cent."

We hope that teachers may be induced by Inspector Dearness' article to make a study of the subject of ventilation. It is of great importance to the health and happiness of both teacher and pupils, as well as to the efficiency of the former and the progress of the latter. Many a day is spoiled, and worse than spoiled, for both, by bad air in the schoolroom.

AN American exchange says: "If there ever was a time when the necessity for greater attention to moral instruction seemed imperative, that time is now." The writer then goes on to point out the low state of morals prevailing in political and civic affairs in the republic. We, as Canadians, have been accustomed to thank God that we are not like our neighbors—those poor, corrupt Americans—in these respects. We fear that one who looks impartially and closely into the matter will find small ground for congratulation, much less for boasting, of Canadian superiority. Facts brought to light at Ottawa within the last few years, and, within a few months, in Toronto, as well as those revealed in the courts in almost every contested election, show all too plainly that a low state of political morality prevails in many parts of our own country. Many seem to think that they are not under the same obligation to be honest and truthful and conscientious in dealing with governments and civic corporations as with private individuals. Many who are supposed to be honorable, law-abiding citizens—men and women—seem to think nothing of cheating the Government by smuggling, evading postage regulations, etc. Every teacher should discuss such questions freely with pupils, drawing out their ideas in regard to them, and striving so to educate their consciences that the coming generation may be much more honest and high-minded in both public and private life than the present. To those who are watchful, many good opportunities will

offer, in the incidents of school life, which will make the introduction of such topics easy and natural. There is no limit to the amount of good which can be done in this way by a tactful teacher who has high ideals.

INSPECTOR REAZIN, in his letter in another column, presents a strong case in favor of retaining and perfecting, instead of abolishing, the Public School Leaving Examination. We confess that his arguments and others which will readily suggest themselves to the thoughtful seem to us unanswerable. The one serious objection, so far as we can see, is the increase of work involved for teachers already overworked, as, no doubt, are many in the rural schools, who have to carry on the course single-handed. There is good reason, however, we think, for holding that these examinations will prove to be in the interests even of these teachers, inasmuch as they will constantly tend in the direction of not only their own self-improvement, but of the employment of more assistance, and the increase of salaries. This, though a selfish argument, is one which teachers cannot afford to despise. As Mr. Reazin shows, these examinations merit support on much higher ground. As we have more than once had occasion to say, it has always seemed to us that the fact that the different grades of provincial schools are so closely dovetailed into each other may possibly prove harmful rather than helpful to the interests of the greater number. The first aim of the Public School should clearly be to give the best possible education to those, the great majority, who will never enter the High schools. In like manner, the greatest good of the greatest number will be promoted by shaping the work of the High schools so as to enable them to give the completest course possible for those who will never go beyond these schools. The Public School Leaving Examination is a step, and a long step, in this direction. The day will come when every school numbering more than thirty or forty pupils will have more than a single teacher.

English.

All articles and communications intended for this department should be addressed to the ENGLISH EDITOR, EDUCATIONAL JOURNAL, Room 5, 11½ Richmond Street West, Toronto.

WORDS IN —ED.

Words in *-ed* present difficulties to the elementary pupil which should be removed by the intelligent teacher through a slight digression into historical grammar. Nor should the teacher be afraid of these digressions. They alone can render intelligible the phenomena of living speech, which formal grammar is powerless to explain.

We have words in *-ed* falling into four classes :

(1) The words in which the *-ed* is not a true suffix, but only part of the suffix, or part of a compounded word, as in "kindred," from *kin (cyn)*, *ræd-en*, condition; "hatred," etc.; or "Alfred," from *Ælf*, *elf*, *ræd*, counsel = wise in counsel.

(2) The true suffixal use, with past tenses of weak verbs, "leap-ed," "mov-ed," etc. Here will be noted the tendency to contract the *-ed* to *t*. (a) When the past tense shows a short vowel, as distinguished from the long vowel of the present — creep, crept; sleep, slept; leap, leapt (if we shorten the vowel), or leaped (if we keep it long). (b) With verbs ending in *-d*, send, sent, gird, girt, etc. Some forms show the contracted form in the verb, and the preservation of the older and fuller form in the corresponding participial adjectives, as blest, blessed; curst, cursed; beloved (v'd), beloved; learnt, learned.

(3) The third class of words in *-ed* contains the perfect participles of weak verbs, subject, like certain groups of weak past tenses, to contraction to *tt*.

(4) Lastly, there is a class of adjectives in *-ed*, which are the chief source of trouble in treating words in *-ed*. It was possible, even in a very early stage of our language, to made adjectives in *-ed* directly from nouns, as *hringed*, furnished with rings, from *hring*, ring. (Compare the Latin *caudatus*, having a tail, from *cauda*, tail. The Latin *-tus* is, of course, the exact equivalent of the English perfect participle *-ed*, both going back to the same root.) When an adjective preceded the noun the adjective + noun could become an adjective without any suffix, as *heard-heart sole*, hard-heart-ed people; but in the end these adjectives have been almost lost from the language. Relics of them are to be seen in expressions like "a ten-foot pole," "a six-foot man." The reason these expressions have been given up, or almost given up, is that the number of adjectives, originally perfect participles of verbs having equivalent nouns, was very large. For example, the noun "fence" has a corresponding verb "fence," and a "fenc-ed field" is the natural form for the adjective to assume on the basis of the participial form, "the field is fenced." Countless instances of this could be given, with nouns and verbs like "house," "thatch," "dust," "water," etc. The frequent use of participles from denominative verbs (that is, those like "fence," derived at once from nouns) as adjectives set up a feeling that participial forms (the termination *-ed*) should be given to all adjectives from nouns. Thus expressions like "the hard-edge sword," "the hard-heart folk," became "the hard-edged sword," "the hard-hearted folk," etc.

Coleridge was curiously wrong in his view of these formations from nouns. "I regret," he says, "to see that vile and barbarous vocable *talented* stealing out of the newspapers into the leading reviews

and most respectable publications of the day. Why not *shillinged*, *farthinged*, *tenpenced*, etc.? The formation of a participle passive from a noun is a license that nothing but a very peculiar felicity can excuse. If mere convenience is to justify such attempts upon the idiom, you cannot stop till the language becomes, in the proper sense of the word, corrupt. Most of these pieces of slang come from America."—S. T. COLERIDGE, *Table Talk*, July 8, 1832.

It is, finally, necessary to notice the value of the termination *-ed* in the adjectives formed from nouns, as against the perfect participles that have attained some limited circulation as adjectives. If we take the noun and verb "hook," we might speak of "a hooked fish," in the sense of fish that has been caught; but when Milton wrote

"The hooked chariot stood
Unstained with hostile blood,"

he meant simply "supplied with hooks or sickles at the axles." In the first case, the passive sense of the perfect participle is predominant; in the second, the noun has become an adjective by the addition of *-ed* to denote "possessing the quality of," "having the characteristics of," "provided with," etc.

This distinction of the perfect participle in *-ed*, the perfect participle in *-ed* in adjectival conjunctions, and the adjective in *-ed* from nouns, with the above connotation, will be clear by an examination of the force of the *-ed* words in the following examples :

"I may justly say with the hook-nosed fellow of Rome there, Cæsar, I came, I saw, I overcame."—*Shakespeare II., Henry IV., iv. 3.*

"A booted judge shall try his cause,
Not by the statute, but by martial laws."
—*Dryden.*

"Tooth'd briars, sharp furzes, prickly gors, and thorns."—*Shakespeare, "Tempest," iv. 1.*

"O sleep, it is a gentle thing,
Beloved from pole to pole."
—*Coleridge.*

"Gat-tothed (toothed) was she, soothly for to seye (say)."—*Chaucer.*

The landed gentry and moneyed classes must stand together.

"By the margin, willow-veil'd,
Slide the heavy barges, trail'd
By slow horses; and unhail'd
The shallop flitteth, silken-sail'd,
Skimming down to Camelot."
—*Tennyson.*

"And thro' the field the road runs by,
To many-tower'd Camelot."
—*Tennyson.*

"His broad, clear brow in sunlight glow'd;
On burnished hooves his war-horse trod."
—*Tennyson.*

"If I prove honey-mouthed, let my tongue blister."—*Shakespeare.*

"The Lord Strutts have been possessed of a very great landed estate, well-conditioned, wooded, and watered."—*Arbuthnot.*

"We left behind the painted buoy
That tosses at the harbor-mouth;
And madly danced our hearts with joy,
As fast we fled to the south."
—*Tennyson.*

"The bee, with honied thigh,
That at her flowery work doth sing"
—*Milton.*

"The silk, star-broider'd, coverlid
Unto her limbs itself doth mould
Languidly ever; and, amid
Her full black ringlets downward roll'd,
Glow forth each softly-shadow'd arm
With bracelets of the diamond bright."
—*Tennyson.*

CORRESPONDENCE.

W. J. B.—"A man came up whom they knew to be *John*." "John" is the predicate noun after the infinitive "be." The case is objective in agreement with "whom"—"they knew whom to be John." In "She is to be *queen*," "queen" is predicate nominative after the verb "is to be." (The rule is, as usually stated, the verb "to be" takes the same case after it as before it. In the first case, the predicate appositive "John" had relation to the object pronoun "whom"; in the second sentence, "is" requires the nominative case, so that the predicate appositive "queen" is nominative.) "A canoe came *bounding* down the rapids, filled with warriors"; "bounding" is the present participle, qualifying "canoe," but really used with verbs of motion, like "come," "go," "run," etc., as an adverbial modifier of the principal verb; "filled" is the perfect participle, modifying "canoe."

E. G.—"That," in "He said that he would go," is a subordinate conjunction, joining the subordinate sentence, "he would go," to the principal clause, "he said." "We used to gather flowers"; "gather" is the infinitive verb, depending by means of the preposition to the principal verb "used." Say, "More than one principle *have* been adopted," the idea of plurality in "more than one" is the justification. The best book to use in connection with the P. S. Grammar is the H. S. Grammar in theory, and any of the Readers for practical exercises. You might consult Libby's Exercises (Copp, Clark Co.).

R. F.—

"He tasted love with half his mind,
Nor ever drank the inviolate spring
Where nighest heaven, who first could fling
This bitter seed among mankind.

"That could the dead, whose dying eyes
Were closed with wail, resume their life,
They would but find in child and wife
An iron welcome when they rise."

The analysis will be clearer if I first paraphrase. "He who first threw the bitter seed among mankind (the seed being the thought of stanza 2) could never have known thorough love, could never have drunk at the perfect spring of love in the place that it rises nearest heaven." The two stanzas form one compound-complex sentence, made up of the two principal co-ordinate clauses, "He . . . mind," and "ever . . . heaven"; the adjectival clause defining "he," "who first could fling . . . mankind"; the noun clause, in apposition with seed, "that they would find in wife and child an iron welcome." This noun clause has dependent modifiers, first the conditional adverbial clause, "could the dead resume their life," which itself has the dependent modifying adjectival clause, describing "dead," "whose dying eyes were closed with wail"; and, 2nd, the adverbial clause of time, modifying "would find"; "when they came." The phrase "where nighest heaven," which I have regarded as an adverbial clause, restricting the notion "drank the spring," may be regarded, of course, as it is, as a contracted adverbial clause, "(spring) where it is nighest heaven."

"Mind" (line 1) is objective, governed by "with"; "half" is an adjective, modifying mind; "nor" (line 2) is a conjunction, uniting the co-ordinate principal sentences of line 1 and line 2; "ever" is an adverb, modifying "drank"; "where" is a relative adverb, introducing the dependent phrase (or contracted clause), (it is) "nighest heaven," the whole limiting adverbially the notion "drank the spring"; "who" (line 3) is a relative pronoun, antecedent is "he" (line 1), subject of "fling"; "that" (line 5) is a conjunction, connecting the noun "seed" with its explanatory noun clause "they would find . . . an iron welcome"; "but" is strictly a preposition in such constructions as this, governing the infinitive "find"; the preposition force, however, to-day is slighter than the phrasal bond of "would find," so that its value is rather adverbial (= only).

If teaching were a profession and education a science, and positions permanent and well-paid, educational papers of the right sort would be in constant demand. There would be no necessity for urging their circulation. The very existence of the teacher would depend upon his books and his periodicals. The educational world can only wait and work for a better day. Of its coming there can be no doubt.—*New York School Journal.*

Hints and Helps.

SECOND READER, PAGE 83, "THE SQUIRREL."

IN AND BETWEEN THE LINES.

BY "FIG."

1. Who is supposed to be speaking in this poem?
What is the subject of his talk?
Distinguish between his summer home and his winter home.
In this respect, how does he differ from "Sir Robin"?
Is he a braggart? Give reasons for your answer.
When does he live at ease? How?
What work has he to do?
What fun does he have?
What singers has he all night?
What singers has he all the summer long?
Who are his companions in the tree?
How does he furnish up his house?
Describe his cap and coat? Why are they said to be cosy?
2. Is this a good lesson for a book for Canadian boys and girls? Give reasons for your answer.
3. What is an owl and a bat? Why say they mope?
When does he tease them? How? Why?
What does each do when teased?
Why is the bat afraid of the cat and the owl not afraid?
4. What is the busy bee doing? How does he hum?
Why say he is fat?
5. What are "tempests"? Why say they are cruel?
Explain the difference between sleet, snow, and hail.
Why does he put his tail about his feet? What other animal do you know that does this?
6. Why repeat merry in the first line?
7. In Canada where do the squirrel, the wren, and the mouse stay during the winter?
8. What lesson do you learn from what this lesson tells about the (1) squirrel, (2) bee, (3) winter, (4) summer, (5) tempest, (6) the coat, (7) the owl and the bat?
9. Who is the author of this poem?
In what country does he live?
What is his work?
What position does he occupy?

N.B.—These questions are intended merely to suggest the kind of questions it is desirable for a teacher to ask, not as a set for a single lesson or examination.

CULTURE IN TEACHERS.

Inseparably connected with love of study, knowledge of child-nature, and practical methods of teaching, there must be in the complete equipment of the teacher's professional spirit that essential qualification most aptly called culture. Culture is that instinctive feeling of refinement and delicacy which leads every true teacher to treat each child courteously, kindly, in a genuine manly and womanly way. This is made up of two parts, *morals* and *manners*. Professors and teachers are sometimes guilty of lack of good manners in their schoolrooms toward their pupils, who would be heartily ashamed if charged with the same offence in society. The long hours passed in contact with teachers by pupils in the earliest and most impressive years fill their memories with the manners, good, bad, or indifferent, which subsequent training finds it difficult or impossible wholly to erase; the fine courtesy, gentle learning, kindly look, voice and manner of teachers are never lost on the tender tablets of a child's conception.—*Charles R. Skinner.*

A DEVICE TO PROMOTE READING.

A school superintendent was asked how he managed to advance his pupils in all their studies so much more rapidly than his predecessor had done. His reply is worthy of special note: "I make it a point to bring them along as rapidly as possible in reading. In the primary grades I give

more time to this exercise than is customary in other schools, and I persuade or entice the pupils of the higher grades to read books, newspapers, and magazines, anything wholesome that will give them practice, and at the same time instruct them. Every day we spend from fifteen to twenty minutes asking and answering questions about what we have read. To excite curiosity, we post the most important caption lines from the columns of the newspapers. The next morning nearly every one of the older scholars is prepared to give particulars on the subject of the previous day's bulletins. If I can get our scholars to read, it is easy to induce them to study; by as much as they become more expert in reading, so much is the labor of pursuing their other studies reduced, and their enjoyment heightened."—*Chicago Inter-Ocean.*

SHE TRUSTED HIM.

One of Boston's bright school teachers had a boy come into her class from the next lower grade, who had the worst reputation of any boy in school. His behavior was so tricky and disobedient that he had always been put into a seat directly in front of the teacher's desk, where he could conveniently be watched.

His reputation had preceded him, but the new teacher had her own ideas as to how recalcitrant boys should be treated. On the very first day she said: "Now, Thomas, they tell me you are a bad boy, and need to be watched. I don't believe it. I like your looks, and I am going to trust you. Your seat will be at the back of the room, end seat, the fourth row from the wall.

That was all she said. Thomas went to his seat dumbfounded. He had never in his life been put upon his honor before, and the new experience overcame him. From the very first he proved one of the best and most industrious pupils in the school; and not long ago his teacher gave him a good-conduct prize of a jack-knife.

Yesterday she was going down one of the streets not far from the school when suddenly she noticed Thomas among a small crowd of street gamins. He saw her, too, and immediately took off his hat, and called out, his face beaming with a glad grin: "Hello, Miss E—, nice day."

The other boys laughed at him. "Well," said he, "she's the best friend I ever had, and I'm going to take my hat off every time I see her."—*Boston Herald.*

For Friday Afternoon.

EACH SEASON IS THE BEST.

BY ANGELOUQUE DE LANDE.

'Twas spring, and in the grassy fields
The children gathered flowers,
The violet and the mayflowers sweet,
Hiding in leafy bowers;
They watched the fishes in the brook,
The robins in their nest,
The lambs that in the meadow played,
And said, "The spring is best."

Then summer came, the rose's breath
Made fragrant all the air;
To grandpa's farm the children went,
To spend vacation there;
They fed the chickens, spread the hay,
Each busy little guest,
And said, "The spring is beautiful,
But summer time is best."

Autumn's ripe fruits, and golden grain,
And nuts were stored away,
To grandma's house the children came
Early Thanksgiving Day;
And when they gathered round the fire
With laughter, song, and jest,
They talked of all the harvest brought,
And said, "The autumn's best."

Cold winter came, and quickly spread
Its carpet soft and white,
The children brought their skates and sleds,
And shouted with delight;
Around the Christmas tree they sang
Of Him who children blessed,
And said, while silvery joy bells rang,
"Old winter is the best."

—*American Teacher.*

School-Room Methods

COMMON SCHOOL ARITHMETIC.

BY A. E. WINSHIP.

SUBTRACTION.—By the time that addition has fairly begun the subtraction is under way. Counting backward by 2's, 3's, etc., was practically subtraction, but in a very diluted form. But when the requirement is made that from 31 the child subtract by 3's, the subtraction becomes a matter of business.

- From 32 subtract by 3's.
- From 41 subtract by 4's.
- From 42 subtract by 4's.
- From 43 subtract by 4's.
- From 51, 52, 53, and 54 subtract in turn 5.
- From 61, 62, 63, 64, 65, subtract in turn 6.
- From 71, 72, 73, 74, 75, 76, subtract in turn 7.
- From 81, 82, 83, 84, 85, 86, 87, subtract in turn 8.
- From 91, 92, 93, 94, 95, 96, 97, subtract in turn 9.
- Take all desirable time, blending it with addition.

WRITTEN SUBTRACTION.—There is nothing very difficult in written subtraction if the teacher explains with some care what is to be done when a figure in the minuend is smaller than the same order in the subtrahend. Abundant practice may be had from the following simple plan:

- From 100 subtract in turn 22, 33, 44, 55, 66, 77, and 88.
- From 1,000 subtract in turn 222, etc., to 888.
- From 10,000 subtract in turn 2,222, etc., to 8,888.
- From 11,111 subtract in turn 2,222, etc., to 9,999.
- From each of these: 22,222, 33,333, 44,444, 55,555, subtract in turn 6,666, 7,777, 8,888, and 9,999.

MULTIPLICATION.—In the work in addition when the children has learned to add 2, 4, 6, etc.; 3, 6, 9, etc.; to 9, 18, 27, etc., and 12, 24, 36, etc., they had perfected rhythmical multiplication. It was simply left for them to say in connection with it: 6 nines are 54; 7 are 63; 8 are 72; 9 are 81, etc. Phrase it in whatever way they will, the need is that the number of nines in 54, 63, 72, etc., is essential. I have no objection to the old-fashioned multiplication table in its place, but what is of greater warrant is frequent practice by repetition. To secure this use the square as before:

	p	o	n	m	
a	5	6	7	8	
b	9	4	3	5	k
c	7	8	9	6	j
d	8	9	6	5	i
	e	f	g	h	

Multiply by 2 each number in *a*, then in *b*, *c*, etc., to *p*.

Multiply by 3, in the same way; then by 4, 5, 6.

Multiply by 4 each number in *a*, *b*, and *c*, etc.

Multiply by 5, 6, 7, 8, and 9 in the same way.

In this way it is possible to get limitless practice. Great care must be taken to secure the practice with the numbers that give trouble. With most children there are few combinations that cause difficulty; find which these are, and have much practice therewith.

WRITTEN MULTIPLICATION.—Multiplication should largely be with pencil. It is easy to get an abundance of practice in very simple ways.

The teacher needs to show very carefully how the work is to be done.

Examples.—Use as the multiplicand in turn 123; 1234; 12345; 123456; 1234567; 12345678; 123456789. Use as multiplier with each of these, 2, 3, 4, 5, 6, 7, 8, and 9. Then 22, 33, 44, 55, 66, 77, 88, and 89.—*The American Teacher.*

THERE is a time in every man's education when he arrives at the conviction that envy is ignorance; that imitation is suicide; that he must take himself, for better or for worse, as his portion; that, though the wide universe is full of good, no kernel of nourishing corn can come to him but through his toil bestowed on that plot of ground which is given him to till.—*Ralph Waldo Emerson.*

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Editorials.

TRUANCY IN TORONTO.

THE statement made by Mayor Kennedy, of Toronto, in his inaugural address, to the effect that there are hundreds of children playing in the streets of the city for whom there is no room in the schools, is a grave reproach to the Queen City. It is evidently worse than useless to enact stringent truant laws, and appoint truant officers to enforce them, so long as there is no room in the schools for the truants. Even from the comparatively low point of view of expense, it would be very easy to show that true economy demands that ample space should be provided in the schools of every town and city, as well as every village and township, for all the children of school age within their respective boundaries. Suppose, for instance, that there are one thousand children in Toronto growing up in illiteracy, and at the same time becoming learned in all the filthy lore and expert in all the vicious practices to be acquired in the back lanes of the city. When we reckon, on the one hand, all the loss of intelligent industry and productive energy which are the natural result of such an up-growing, and, on the other, all the cost to the community and

the state which will, before a score of years have passed, be incurred in detecting and punishing the criminals into whom a large percentage of these waifs will almost surely develop, who can doubt that the loss in dollars and cents will eventually amount to many times what would have been the cost of providing school accommodations and privileges for all?

There is, we believe, no one respect in which communities and nations have been so short-sighted in the past as in the matter of leaving thousands of boys and girls to be trained for lives of vice and crime in the streets and purlieus of the towns and cities, while maintaining armies of policemen and constables, and expensive courts, prisons, and penitentiaries for the detection and punishment of the criminals thus trained and matured under their very eyes. Gradually the mistake is being recognized, and more or less effective measures adopted to check the foul stream at its fountain-head. The Ontario Legislature, in particular, has lately taken some important steps in the right direction. It is a pity that the wasteful and pernicious economy in these matters could not be more summarily changed for a wise liberality.

THE STAGNANT PERIOD.

IN glancing over a story written for boys and girls by an Illinois inspector of schools, our eyes alighted on the following passage. Speaking of the evolution of the average boy at school, the writer gives the following as the result of his experience:

"His first few years of school are cheery and full of interest, his mind is receptive, he learns readily, and, with chance exceptions, is easily managed. By and by he comes to a marshy pool through which he must choke (*sic*) his way. He loses interest in school work, chafes under restraint, and the chances are he is a nuisance to his teacher, his parents, and himself, so far as school is concerned. If he could only be put to work for a year or two, to learn a trade, or something that would develop muscle and character such as the school cannot give. Manual training in the schools seeks to help the boy cut a channel through his stagnant period, but manual training, for some reason, seems at present to be unattainable by most schools. In the meantime, the problem what to do with stagnant boys remains unsolved. Happy condition of those boys in their middle teens who are provided with manual toil of some kind outside the schools!"

The picture is faithfully drawn. What teacher of experience has not come in contact again and again with the stag-

nant boy, or, rather, with the boy at this stagnant stage of his course? It is often hard to determine what is the best thing to be done with him. Certainly one of the worst things is to attempt to drive him through the marshy obstructions by main strength, so to speak. The problem is one which will test the pedagogical resources of the teacher to the utmost. The true educator will make it an occasion not for child—but for youth—study. He will strive to get the confidence of the boy, to get into the current of his thoughts and feelings, to understand his dissatisfactions and ambitions. He will sympathize with his unrest, realizing that he is at the critical stage when the hitherto latent impulses of manhood are awaking to life and beginning to stir within him. We have little doubt that in many cases the course suggested, that of permitting him to give up school and engage in some outdoor employment, such as will make considerable demands upon his physical powers, will be the best possible treatment. In nine cases out of ten, after such a change for a year or two, or even more, the young man will resume his studies, if opportunity is given, with renewed zest and vigor, often showing a wonderful development of power gained during the interval. Such a course, too, may be made to serve a double purpose by putting the coming man in possession of a useful trade or occupation, such as may be of inestimable service to him in after life. Every wise parent will see to it that both his sons and his daughters shall acquire some such resource, thus making them capable of earning a livelihood in case of necessity, and rendering them, in a measure, independent of the vicissitudes which throw so many helpless and hopeless upon the tender mercies of others in time of adversity. Of course, in such a case, it is by no means desirable that the youth's intellectual activities should be suffered to lie dormant during the interval of physical activity. On the contrary, he should be supplied with abundance of reading material of the kind best adapted to arouse a healthful interest in the world of thought and knowledge, as well as in the practical affairs to which his attention is, for the time being, more particularly directed. A liberal admixture of healthy and elevating fiction should not be withheld.

One does not wish to dogmatize in so important a matter, but we are strongly disposed to believe that it is one of the serious mistakes in our modern methods to keep a boy or girl continuously at school during the whole period of, say, from six or seven to sixteen or

seventeen, or even for a much longer period. To most young people the perpetual grind becomes monotonous and distasteful. Moreover, other useful kinds of education are in danger of being neglected, if not despised. But if the boy or girl is taken from school for a year or two, or even more, as suggested, by all means let it not be to pass the time in idleness, or without some regular, fixed, genuine, and, if possible, interesting work. A prolonged period of idleness, at this critical stage in the life history, is to be most earnestly deprecated. Its effect would be often most mischievous, if not ruinous.

A QUESTION OF DISCIPLINE (?)

THE difficulty which has arisen between the Council of the Provincial University and the students composing the Political Science Club has given rise to considerable feeling without as well as within University circles. It is described by the Council, in a published memorandum, as merely "a question of discipline," but, on the other hand, the version given by the Club seems to indicate that an important principle is involved. A detailed account of the affair would occupy more space than we can spare for such a purpose, but the following is a brief, and, to the best of our ability, an impartial, summary of the facts as reached by a comparison of the two statements.

The difficulty originated, or, at least, first came to the surface, in connection with the refusal of the Council to sanction a printed programme submitted by the Club for a series of meetings, at which addresses were to have been given by a number of gentlemen, most of whom were professors in the University and student-members of the Club, but two of whom, Messrs. Alfred Jury and Phillips Thompson, are well-known outside citizens—one of them an influential representative of trades-unionism, the other an advocate of socialistic theories. The students say that they had never before been informed, and were not aware, that it was necessary for such clubs to submit their programmes for the sanction of the Council before publication, and that, as a matter of fact, this has not been required of other clubs formed for the discussion of other branches of study.

Be that as it may, it appears that, when the names of the two gentlemen above mentioned appeared on the proposed programme, Prof. Mavor, the honorary president of the Club, advised the committee of the Club to omit them, as there would

be objection to them on the part of the Council. It further appears that Prof. Mavor understood that the committee acquiesced in his suggestion, and, acting in this belief, obtained from the Council their sanction of the draft programme, without the two names in question. The committee, however, say that they did not consent to the removal of these names, and that, following the usual custom, they proceeded to have the original draft printed, and, as a matter of courtesy, not as supposing it obligatory, sent a copy of the printed programme to President Loudon. The result was that they were notified that the Council declined to sanction the second programme. The Council's statement explains this action on the ground that "their previous action had been ignored, and that a programme had been published in disregard of their authority." This action, coupled with the withdrawal of their sanction of the first programme, had the effect of preventing the meetings at which Professors Mills and Wrong were respectively to have made addresses.

The important question involved, apart from that of mere college discipline, is twofold. The first is suggested by the following sentence in the Council's statement: "The Council explained to the Club that the responsibility for all instruction, both regular and occasional, rested with them." The Club do not distinctly take issue with this claim, but if it means that the University authorities assert a right to say that students may not arrange for or listen to lectures by persons of good character not connected with the University, on any of the subjects therein pursued, without permission of said authorities, they certainly circumscribe the student's liberty in the pursuit of truth in a manner which it would be difficult to defend, and to which young men of independent mind, and earnest in their desire for all-round investigation, can hardly be expected to submit. If, however, as seems probable, the Council mean merely to claim the right to say what instruction shall and what shall not be given within the University walls, their position is perhaps reasonable.

The other branch of the question has more of the personal character. The friends of Messrs. Thompson and Jury not unnaturally consider the action of the Council as really directed against these gentlemen, and find in it a reflection on them and the laboring classes they represent, because they are merely such, and can lay no claims to University training. The trades-unions of the city have so regarded the case, and have voiced their in-

dignation, and it is obvious that, unless they can be convinced to the contrary, the effect will be to still further widen the chasm between the workingmen of the country and the higher institutions of learning, a result which every friend of both would have cause to deplore. Touching this point, the Council say: "The Council were not called on to consider, and did not consider, the question of the merits or otherwise of the names appearing on the two programmes"; and "The action of the Council no more reflected on Messrs. Jury and Thompson than on Professors Mills and Wrong, inasmuch as these latter, equally with the former, have been incidentally prevented by the Council's decision in this matter of discipline from addressing the Club." On the other hand, the Club's committee point out that the only difference between the programme which was sanctioned and that which caused the difficulty consisted in the addition of the two names in question to the latter; that Prof. Mavor repeatedly told members of the committee that objection would be made to these names; that the formality of sanction by the Council, so rigidly insisted on in this case, has not been observed or required in the case of other similar clubs, and that President Loudon himself stated to officers of the Club that he was personally opposed to having Mr. Jury lecture in the University.

Without attempting to decide the question of motive, we may say that it would, it seems to us, be an untenable position, and most unfortunate for the University, should any attempt be made to restrict the liberty of students in seeking to look at questions so practically and vitally important as those which come within the purview of the Political Science department from every point of view, and, above all, from that of the working people and their leaders in the persons of such men as Messrs. Jury and Thompson, who have, as the *Globe* says, "made a life-long study of these subjects."

A side issue of some importance has arisen in connection with the *Varsity*, the students' University paper. The editor, having sharply criticized the action of the Council in this matter, was called on to apologize through the paper, on pain of its suppression. The editor has personally and very properly apologized for certain mis-statements in his article, also for certain unseemly references to professors, and his apology has been accepted. But the students have almost unanimously refused to permit the apology or any other to appear in *Varsity*. The result remains to be seen.

Special Papers.

SCHOOL SANITATION.

BY J. DEARNESS, LONDON, INSPECTOR OF SCHOOLS.
(Concluded.)

The peculiar nature of respired air must be noticed here, for, while the degree of vitiation is measured by the proportion of carbon dioxide, that is not the most poisonous substance present. The change effected in the air by its circulation in the lungs is not only loss of oxygen and increase of carbon, but there is also a portion of organic matter which may be shown by chemical tests to be nitrogenous and oxidizable. It is this organic matter that produces the foetid smell characteristic of inhabited unventilated rooms, and which was the really poisonous agent in those dreadful fatalities instanced from the pages of history. In addition to the organic matter respired, other impurities are poured into the air of the schoolroom by insensible perspiration, by preventable uncleanness of the person and clothing of some of the pupils by dispersion of dust from the floor and walls, and by chalk and dust from the blackboard.

It has been found that in inhabited rooms when the proportion of carbon dioxide rises from .08 to .10 per cent. the organic impurities of the air are recognizable by the sense of smell, and, further,

successful one. It was certainly successful in showing the necessity for education of the people upon the importance of breathing pure air when they tranquilly remain in a room breathing air so foul that the flame of the lamp perishes in it. In a certain schoolhouse, close, well built, below the average height of ceiling and cubical capacity, there were over forty pupils in attendance. The inspector, on the day of his visit, found the ventilation very bad, and notified the trustees that the regulation laid down in the school law requiring provision to change the air in the room three times per hour should be carried out. The question of ventilating the schoolhouse was submitted to the annual meeting; the vote against ventilation stood 28 to 1. To maintain, in winter, a supply of pure air in a well-built dwelling costs money, and it would seem that the majority of our people do not yet know well enough the value of pure air to be willing to pay what it costs.

When we appeal to some school trustees and ratepayers to provide ventilation, we are met with some such objections as: "There are not any complaints of the children taking sick in school; children are young and can stand a good deal, the bit of bad air they get between recesses won't hurt them; they are to blame themselves, they keep on more fire than they need; they have far better schoolhouses than we had, and the foul air never hurt us."

caused by the conditions of schoolroom life. On the contrary, I have no doubt that social study and social recreation, reasonable in amount and appropriate to the age, are conducive to children's health of body and mind.

But even though sickness were not produced by lack of ventilation, the cost of providing it would be amply and doubly repaid in the more rapid and satisfactory physical and mental growth of children. No problem is solved, no fact is learned, not even a word is spoken without the appropriation of some oxygen. The purer the air breathed, the purer the blood; the better the blood, the more easily and effectively can the child acquire, retain, recollect, and reason. When the ideal days come, parents will be as solicitous that the schoolrooms be supplied with pure air as with good teachers.

Were further argument in favor of ventilation needed, I could point to the rapidity with which infectious diseases have spread in unventilated rooms, and I would, even at the risk of wearying you, quote from official returns to show that teachers are, of all classes, the most subject to pulmonary and bronchial troubles, but that, I trust, Dr. Bryce will, in his paper on consumption, dwell at length on the share that the present conditions of school life have in the development of that dreadfully prevalent disease.

I heard Dr. Oldright, a former officer of this association, quote the Rev. Mr. Fairfield's adaptations

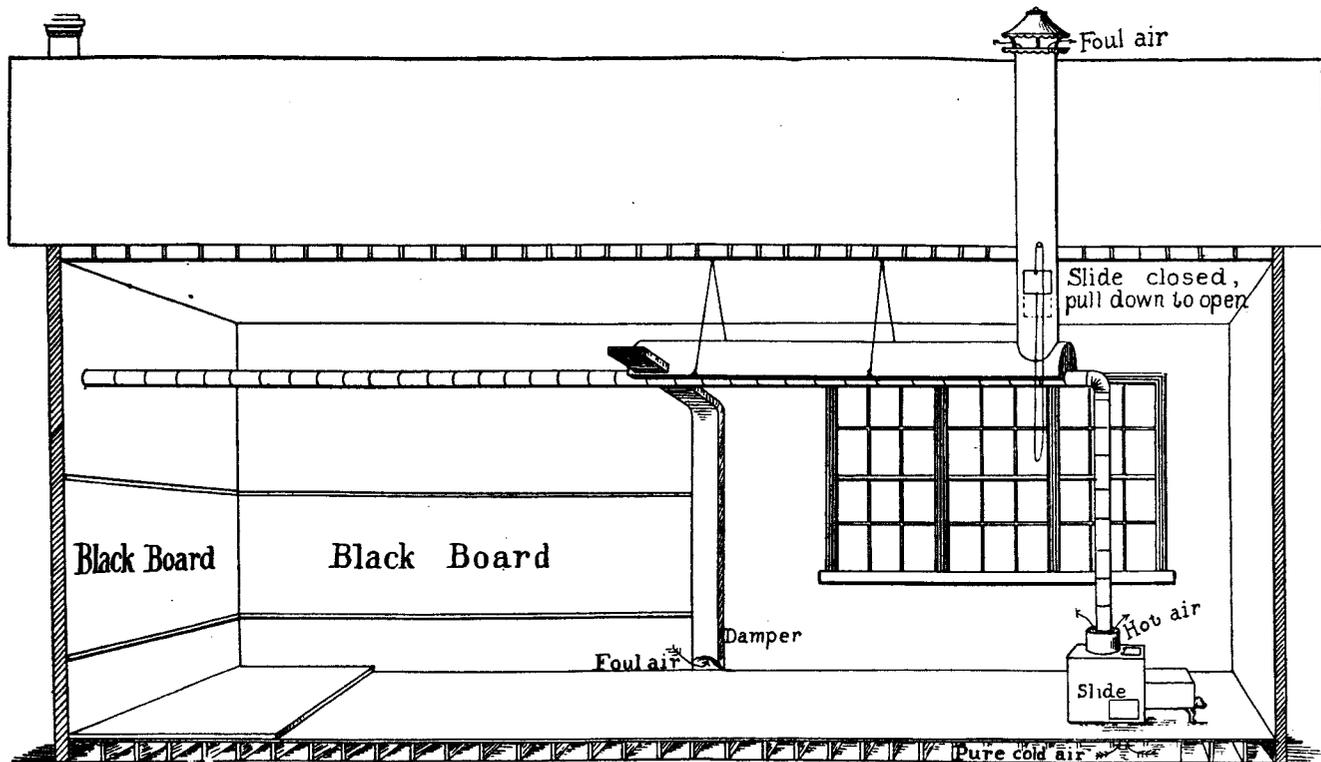


Diagram showing effective method for Heating and Ventilating a School Room.

that the same sense can but scarcely or not at all distinguish .10 per cent. from greatly increased degrees of vitiation by breathing. Again, presence for a brief time in a foul atmosphere dulls the sense of smell so as to render impurity imperceptible. These causes conceal from us the cognition of the foulness of the air we are taking into our lungs, and the danger of remaining in it. In this inventive age what a boon it would be were some one to invent a practical foul-air alarm that would warn the householder of the entrance of that most deadly and unseen enemy of human life—sewer gas—that would stop the schoolroom recitation, or interrupt the minister even in the middle of his prayer, by setting up a loud, incessant whir-r-r for fresh air! Think of a minister preaching on the sacredness of life in a crowded, unventilated house, while he and his hearers are busy killing each other by the poison of their own breath. I heard of a case that occurred near my own home. A Sunday-school room was crowded by the attendance at an entertainment one cold evening. With closed doors and windows the programme was proceeded with; by and by the lights grew dim and suddenly became extinguished. At this juncture the chairman arose and calmed the rising fears of the nervous ones by the assurance that there was no cause for alarm, it was only the foul air. No doubt the meeting was regarded a very suc-

One may marvel that intelligent men could not, even while they utter the words last quoted, perceive that the close, substantial buildings erected now need artificial means of ventilation far more than the loose frame or log buildings in which they went to school. How general and long-lived seems the fallacy that cool air and pure air are identical! Even teachers who ought to know the difference are occasionally known to close the stove damper when they have been told that the air in the room is not good. To make bad matters worse, ventilation by the stove, the only means in the room, is shut off. I heard a teacher severely criticized because in the winter "he opened the windows and shoved more wood into the stove." Another common fallacy, probably honestly entertained, is that the ills, if any, arising from confinement in foul air during school hours are corrected and cured by breathing pure air outdoors and at their homes. Every experienced teacher can recall instances of delicate children who could not stand the conditions of schoolroom life. Again and again such have essayed to attend school regularly, but soon headache, or sleeplessness, or vertigo, or loss of appetite, or symptoms of other disease have constrained parents to take them from school. In a well-taught school, hygienically furnished, I believe there would not be a single example of withdrawal on account of ill-health

of the congregation's appeal to the sexton. Part of that will bear repetition here:

O janitor of the schoolhouse, who sweeps,
And dusts (or is supposed to dust), and makes fires,
... there is one commodity
Worth more than gold
Worth more than anythink except the sole of
mann—

I mean pure air, janitor, I mean pure air!
O, it is plenty out o' doors, so plenty it doant no
What on airth to do with itself, but flies about
Scatterin' leaves, and blowin' off men's hatts,
In short, its jest as free as air out dores.
But, O, janitor, in our schoolroom, it's scarce as
hen's teeth.

U shut 50 girls and boys,
Specially the latter, in a tite schoolhouse,
Sum has bad breths, none ain't too sweet,
Sum is fevery, some is scrofulous, sum has bad
teeth and sum ain't over clean;
But every one of them brethes in & out and out
& in,
Say 50 times a minit, a thousand and a half breths
an hour;
How long will a house full of air last at that rate,
I ask you? Say 15 minits, then what?
Why then they must brethe it all over agen. And
wats more

The same individdible doant have the privilege
Of brethin' his own air and no one else's ;
Each one must take whatever comes to him.
... air is the same to us as milk to babes,
Or water to a fish, or pendulums to clocks,
Or boys to girls. Air is for us to breathe.
What signifies who teaches if I can't breathe !
What's professors and professoresses to children
who are half ded,
Ded for want of breth ! . . . Let me beg of
you
To let a little air come into our schoolhouse,
It laves to cum in where it can get warm,
And O how it will rouse the children up !
And spirit up the teacher and stop gapes
And yawns and fidgets ! . . .

With the data supplied us by scientific investigations, it is not difficult to determine what quantity of fresh air must be drawn into a room occupied by a given number of persons to maintain the degree of vitiation below a given proportion. Approximately, the depletion of oxygen proceeds as follows :

Each inspiration uses	
from	20 to 30 cub. in. of air.
16 to 18 inspirations	
per minute	480 "
50 persons per minute	24,000 "
50 persons per hour . . .	1,440,000 "
20.96 per cent. of the inspiration is oxygen.	
4.60 per cent. of the inspiration is oxygen abstracted by the lungs.	

Hence fifty persons deprive the air of from 44,000 to 66,000 cubic inches of oxygen per hour.

But while the air is becoming impoverished of its oxygen, it is with almost equal rapidity being loaded with carbon dioxide, the rate being 4.3 per cent., as shown before, and hence amounting to from 40,000 to 60,000 cubic inches of the latter gas.

Besides the above changes there is added an indeterminate amount of organic matter.

Various authorities on hygiene place the limits of allowable impurity of the air in dwelling rooms at from .07 to .10 per cent. of carbon dioxide. The Ontario School Law allows each child a minimum cubical capacity of 250 cubic feet ; .07 per cent. of that space is 302 cubic inches. The child is respiring from 800 to 1,200 cubic inches of carbon dioxide per hour, and the original and incoming air contains .04 per cent. of its bulk of the same gas. The problem is, how much air bringing in .04 per cent. of gas will keep 250 cubic feet below .07 or .10 per cent. while the child is adding to the gas at the rate mentioned above ?

Following Prof. Heymann's formula, based on an exhalation of 900 cubic inches of carbonic dioxide per hour, to keep the air below .07 per cent. of impurity would require 3,035 cubic feet of inflow per hour ; below .10 per cent., 1,270 cubic feet per hour.

The Ontario School Law directs that ventilation should be provided to change the air in the room three times per hour, or once in twenty minutes. The greater allowable degree of ventilation, i.e., .10 per cent. (= 1 part in 1,000), requires 423 cubic feet of fresh air per child in twenty minutes, or 21,166 cubic feet in the same time for 50 children.

But allowance may be made for what is called "natural ventilation." This varies greatly according to the several circumstances, the most important one being the material and finish of the walls. Lang estimates the permeability of a brick wall to air at 99 cubic feet per hour for each square yard. Making the most favorable allowance for natural ventilation, an ordinary rural schoolroom of 12,500 cubic feet (50 times 250 cubic feet) capacity would be tolerably ventilated with provision to introduce and remove 10,000 to 12,000 cubic feet of air every twenty minutes.

To remove 10,000 cubic feet of air in twenty minutes the flues should take away 8 1/3 cubic feet per second. It is not difficult to set up currents in smooth flues moving at the rate of 4 to 4 1/3 feet per second. Hence the minimum size of the ventilating flues of a schoolroom attended by 50 pupils should be a cross section of two square feet.

The foregoing facts have been duly considered by engineers and architects when planning large school buildings in cities and towns which are to be heated with hot air, steam, or hot water, but very little has yet been done towards the proper heating and ventilating of the single-roomed rural schoolhouses in which two-thirds of the children in the province are receiving their education.

In the two or three months of the school year when a fire is not needed, very satisfactory ventilation—precaution being taken to avoid draughts—can be secured by means of open windows and doors.

It ought to be made an inspector's duty to test atleast once a year whether the window sashes can be raised or lowered. If the upper sash has not been hung on weights, a cord may be passed from a staple in the middle of the lower bar of the upper sash to a pulley in the frame above, by means of which the sash may be easily raised and lowered by a person standing on the floor. A board about four inches wide should be fitted closely against the upper part of the upper sash, so that the latter can be lowered sufficiently, even on the windward side, to make an opening between the sashes, allowing an upward draught between them without allowing the wind to blow directly in and produce a dangerous draught.

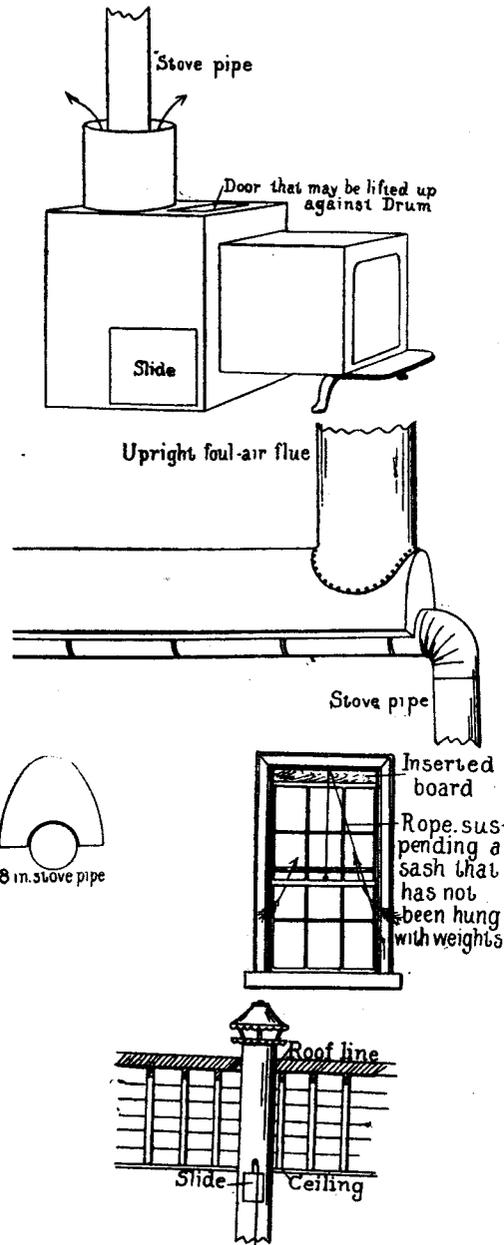


Diagram showing effective method for Heating and Ventilating a School Room.

The following simple plan of heating and ventilating a room (see diagram), using the old-fashioned box stove as a heater, may be applied in either new or old one-room buildings. The principle consists in heating fresh air in a jacket constructed upon the back half of the stove and drawing off foul air at the floor through flues which obtain their draft in a drum lying upon the horizontal stovepipe.

This appliance not only warms the room evenly and ventilates it, but, if the dampers and controls are properly employed, less fuel will be consumed than before the flues were put in.

The jacket to supply the warm air should be made to embrace the back half of the stove, leaving an air passage of four or five inches on the sides and end, and to fit closely to the floor. Heavy galvanized iron should be used for the jacket (No.

22 at least), and the sides should be braced against the stove. The top of the jacket may be left open or wire-screened, but it is found to give a warmer, stronger current if it is continued into a drum around the lowest length of the stovepipe, as shown in the diagram. A slide or door may be put in the top or front, but one must be made on the slide, or, better, one on each side, as large as practicable, to be left open at night when the fresh air supply is shut off, or when children come in with wet, cold feet and need access to all the heat-radiating surface they can get.

Pure outdoor air is conducted into the jacket by flues usually made by boxing in two of the floor joists to an opening under the stove. A slide of galvanized iron is used to shut off when desired, or to control the quantity of fresh air admitted into the jacket. If a pair of joists are boxed through from side to side of the schoolhouse, an interceptor must be placed in the middle of the passage to divert the current into the jacket. All wooden parts below the stove must be lined with tin or zinc. No part of air space in jacket or inlet flues should have less than 200 square inches in area of cross section ; outlet flues must be larger to allow for expansion of air in heating.

To get force to draw the foul air out of the room an inverted U-shaped drum is made to lie along the upper side of the horizontal stovepipe. This drum should be laid on the hottest part of the pipe, and from it a flue be carried up through the ceiling and out through the roof, as shown in the plan. The foul air is taken to the U drum by a pair of flues, one on each side, carried from near the floor up along the wall and horizontally across to the drum. A convenient shape for the upright part of the flues is oblong, 24 x 6 inches, the part carried across may be circular, 13 or 14 inches in diameter, and an interceptor should be placed in the U drum between the entrances of the horizontal flues. Each upright flue should have a (ratchet) damper to close it at night and to control the draught during the day. A slide in the central upright flue at the ceiling may be opened when the room becomes too warm, or used as a summer ventilator. The foul-air flues throughout may be made of lighter iron (No. 26 or 28) than the jacket, and should have an area in cross section of two square feet.

In new schoolhouses a ventilating flue of, say, one square foot may be provided for in the chimney. In that case smaller flues on the sides will do, say, 6x15, or 20 inches each, and these may be placed nearly opposite the elbow of the stovepipe, and the central upright put at the opposite end from that shown in the plan.

All openings leading to the outside should be kept closed when the schoolroom is not occupied, and at such times the slide on the side of the jacket should remain open.

A ventilating appliance like or nearly like that described above has been put in several schoolhouses in my division. The cost has varied from \$38 to \$60. When the details are properly constructed and the sides and dampers controlled according to their intention, not only is the room ventilated, but every part of it is evenly warmed ; the jacket screens these pupils seated near the stove from being blistered. The quality of the heat is partly conveyed, as in the case of a hot-air furnace, and partly radiant from the uncovered part of the stove and from the stovepipes ; the heating is therefore more healthful than that from a hot-air furnace alone. It takes less fuel than the latter, because no heat is lost in the basement. One of the trustees of Rosemond school told me they had burned but little more than half as much wood in the two winters since the ventilating apparatus was put in as they had burned in the two preceding winters. Where fuel is expensive, it pays to provide double windows.

A ventilated schoolroom cannot be comfortably heated if open spaces under the doors, or cracks in the floor, or loose wainscoting tacked over unplastered brick permit frosty draughts to enter and sweep along the floor to the mouths of the flues. A room ventilated by flues cannot be made too close against the entrance of the frosty wind except by the flues entering the hot-air chamber.

I have dwelt at length upon the subject of ventilation, believing it at present to be one of the most paramount sanitary importance to our rural schools. Pure air in the schoolroom and sleeping room is essential to the robust health and mental vigor of the rising generation. Principal Austin pertinently asks: Of what use, so far as life is con-

cerned, is culturing highly the mind, if the body is too weak to bear the strain and pressure of life's battles? Of what use garnishing the jewels till their resplendent lustre dazzles the eyes of all beholders, if both casket and jewel are so soon to be thrown into the pit? Why be anxious to increase the size and value of the cargo if the vessel is so poorly built that the storms will surely wreck her in mid-ocean?"

I heard Dr. Stanley Hall say at the N. E. A. meeting in Toronto a couple of years ago that investigations respecting the effect of school life on children carried on in different countries show results which are appalling. They show a percentage, he said, of various kinds of ill-health, 33, even 40, not to speak of seeds of ill-health as yet indiscernible. He said, in effect, that the idea is beginning to dawn that health is the highest criterion of an educational system, and that if a school system injures the body it is bad, no matter how much good it may do the mind.

THE PUBLIC SCHOOL LEAVING EXAMINATION.

BY INSPECTOR H. REAZIN.

The promoters of this examination had two objects in view: (1) To bring the fifth class back to the rural schools, in order to retain the children of farmers and tradesmen—the children of the masses, the 96 per cent. of our children who never go to a High School—a couple of years longer in the Public Schools, and in order to bring back the winter pupils to the rural schools. (2) To send better-prepared pupils to the High Schools.

This examination has now been on its trial for three years. It has passed through some severe ordeals. Everything seemed against it. The High School men were opposed to it. The first regulations practically confined it to a few village schools. The papers set were too hard. Some of those papers set for children in rural schools were as difficult as the primary papers set for third-class teachers. Then the bonus did mischief. The bonus was almost a fatal mistake. The bonus is chiefly responsible for the two different papers. The bonus was intended to facilitate the introduction of the fifth class, but it merely retarded it. It favors graded schools and militates against the rural schools. The sooner the bonus is abolished the better.

The Public School Leaving Examination has been fully discussed at teachers' conventions, and in some cases, as in Norfolk County, East Grey, and elsewhere, adverse votes have been recorded against it. It must be remembered, however, that occasionally these conventions are controlled by High School men, in which case any such expression of opinion goes for nothing. I can easily understand young teachers who, perhaps, entered the High School with a very deficient Public School education, barely knowing 50 per cent. of fourth-class work—who were never in a fifth class themselves, and consequently know very little about fifth-class work in a Public School—feeling some hesitancy about undertaking to teach a school with a fifth-class in it, and as a consequence voting against the Public School leaving at a convention; but I am unable to understand any competent and experienced teacher, any school inspector, or anybody else interested in Public School education, doing so. Would it not be much more in the interests of Public School education if we were to advocate at our conventions such changes in the regulations as would be likely to extend the benefits of this examination more fully to the rural schools?

I should like to ask any Public School men opposed to this examination a few questions. Why do two-thirds of our entrance candidates fail every year? Why do two-thirds of the primary candidates fail every year? Why do a large percentage of our teachers write bad English at the Model School examinations? What do these three things indicate? There is but one answer, *Deficient Public School education*. How can anybody deficient in Public School education teach even a rural Public School well? Where can a good Public School education be acquired, if not acquired in a Public School? When pupils leave a Public School only half knowing fourth class work, what percentage of them will ever make it up? Is not a good Public School education a necessary foundation for all successful after-study? If the foundation is bad, will the structure not totter when the examination storms come? Do those who write

bad English at the Model School examinations possess a good Public School education? If not, then how are they to teach what they do not know themselves? Have not the people of this province, who pay the cost, a just right to demand that the teachers sent out to teach their children in the Public Schools shall themselves possess a good Public School education? Why have salaries in the rural schools dropped one-third? Because there is no fifth class. Why have male teachers dropped out of the rural schools? The same answer. Why does *experience* now go for nothing in the engagement of teachers for the rural schools? Because there is no fifth class. Why have the large boys and girls disappeared from the rural Public Schools? Because there is no fifth class in them. Why has the calling of the Public School teacher almost ceased to be a profession? Because the entrance examination some years ago drew the fifth class out of the rural schools.

When there is a fifth class in every Public School, when candidates for Public School teachers' certificates are required to possess a good Public School education—required to pass the Public School leaving examination as admission to the High schools—then there will be less bad English at the Model School examinations; then there will be no third class teacher afraid of a fifth class; then will salaries advance in the rural schools; and then will many of the ills of the unfortunate rural school teacher have disappeared. And this the Public School Leaving Examination is, alone, likely to bring about

Mathematics.

UNIVERSITY MATRICULATION SCHOLARSHIP EXAMINATIONS.

PROBLEMS.

SOLUTIONS BY R. J. CORNWELL, B.A., Stratford Collegiate Institute.

1. Show that the product of n different integers, each of which is the sum of two square integers, may be divided into the sum of two square integers in 2^{n-1} ways.

Denote the integers by $a_1^2 + b_1^2, a_2^2 + b_2^2, \dots, a_n^2 + b_n^2$.

$$(a_1^2 + b_1^2)(a_2^2 + b_2^2) = (a_1 a_2 + b_1 b_2)^2 + (a_1 b_2 - a_2 b_1)^2$$

$$\text{or } = (a_1 a_2 - b_1 b_2)^2 + (a_1 b_2 + a_2 b_1)^2$$

i.e., the product of any two different integers of this form can be resolved into the sum of two square integers in two ways.

Suppose the theorem is true when n integers are taken, i.e., that the product of n integers of the above form can be expressed in the form $x^2 + y^2$ in 2^{n-1} ways. Then when each one of the 2^{n-1} expressions of the form $x^2 + y^2$ is multiplied by a new integer $a^2 + b^2$, two new ways are formed—as shown at the beginning. Thus altogether we still have $2^{n-1} \times 2$ or 2^n ways of dividing the product of $n+1$ such integers into the sum of two square integers.

Thus if the theorem is true for n integers, it is also true for $n+1$ integers; but we have shown that it is true for 2; \therefore for 3, and \therefore generally.

2. Show that

$$(a + w^2 b + w c)^3 - (a + w b + w^2 c)^3 = 3 \sqrt{-3} (b - c) (c - a) (a - b),$$

where w is an imaginary cube root of unity.

$$\text{Since } x^3 y^3 = (x - y) \{ (x - y)^2 + 3xy \}$$

$$\therefore \text{ the exp. } = (w^2 b + w b - w^2 c - w b) \{ (w^2 b + w c - w^2 c - w b)^2 + 3(a + w^2 b + w c)(a + w b + w^2 c) \}$$

$$= w (w - 1)(b - c) \{ w^2 (w - 1)^2 (b - c)^2 + 3(a^2 + b^2 + c^2 - ab - ac - bc) \}$$

$$= \sqrt{-3} (b - c) \{ -3(b - c)^2 + 3(a^2 + b^2 + c^2 - ab - ac - bc) \}$$

$$= 3 \sqrt{-3} (b - c) (a - b) (a - c).$$

3. Find the sum of the squares of the first n terms of a series whose r^{th} term is $a + (r - 1)b$.

$$n^{\text{th}} \text{ term} = \{ a + (n - 1)b \}^2 = [(a - b) + nb]^2 = (a - b)^2 + 2bn(a - b) + n^2 b^2.$$

$$\therefore S = n(a - b)^2 + 2b(a - b) \sum n + b^2 \sum n^2$$

$$= n(a - b)^2 + b(a - b)n(n + 1) + \frac{bn^2(n + 1)(2n + 1)}{6}$$

4. If $f(r)$ is the coefficient of x^r in

$$1 + nx(1 + x) + \frac{n(n - 1)}{2} x^2(1 + x)^2 + \dots$$

then $2 \{ f(0) + f(1) + f(2) + \dots + f(n - 1) \} + f(n) = 3^n$.

The given exp. $= (1 + x + x^2)^n$

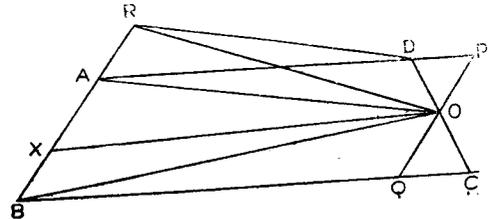
$$\therefore (1 + x + x^2)^n = f(0) + x f(1) + x^2 f(2) + \dots + x^n f(n) + \dots + x^{2n} f(0).$$

Since this is an identity, let $x = 1$.

$$\therefore 3^n = f(0) + f(1) + \dots + f(n) + \dots + f(1) + f(0)$$

$$= 2 \{ f(0) + f(1) + \dots + f(n - 1) \} + f(n)$$

5. Bisect the area of a trapezium by a line drawn from the middle point of one of the non-parallel sides.



O is mid. pt. of trap. ABCD.

Join OA. Draw DR || to OA, meeting Ba prod. at R.

Join OR. Cut off BX = aR. Join OX.

Draw POQ || to aB. Then $\square^m PB = \text{trap. I. 26, etc.}$

$$\begin{aligned} \text{Quad. OAXD} &= \triangle OAX + \triangle OAD \\ &= \triangle OAX + \triangle OAR \quad \text{I. 37.} \\ &= \triangle OAX + \triangle OBX \quad \text{I. 38.} \\ &= \triangle OAB = \frac{1}{2} \square^m = \frac{1}{2} \text{ trap.} \end{aligned}$$

\therefore OX bisects the trapezium.

6. From any point on the circumcircle of a triangle, perpendiculars are drawn to the three sides. The feet of these perpendiculars are in line.

ABC is any triangle in a circle. From O, any point on the circumference, draw \perp 's OP, OQ, OR to AB, BC, CA, resp.;

$\therefore \angle ORC + \angle OQC = 2 \text{ rt. } \angle$'s, \therefore ORCQ is concyclic, III. 22.

$\therefore \angle ORA = \angle OPA$, \therefore ORPA is concyclic, III. 21.

$$\begin{aligned} \text{Now } \angle ORP &= \text{sup. of } \angle OAP \\ &= \angle OCQ \quad \text{III. 22. Cor.} \\ &= \angle ORQ \quad \text{III. 21.} \end{aligned}$$

\therefore P, R, Q are collinear. I. 14.

7. Construct a right-angled triangle such that one side may be a mean proportional between the hypotenuse and the other side.

Let AB be a straight line. On AB describe a semicircle.

Divide AB in medial section. (II. 11.)

Place AC in the circle = AD (IV. 1);

Join BC.

$$\text{Rect. AB.BD} = \text{AD}^2 \quad \text{II. 11.}$$

$$\therefore \text{AB}^2 - \text{AB.AD} = \text{AD}^2$$

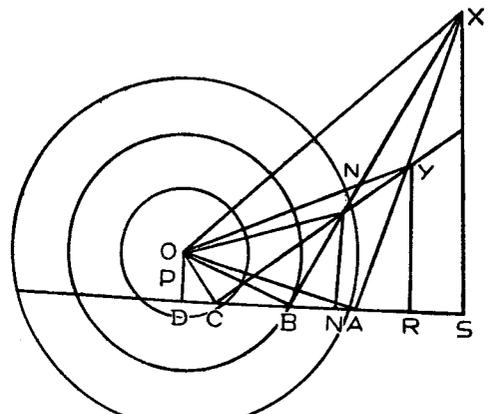
$$\therefore \text{AB}^2 - \text{AD}^2 = \text{AB.AD}$$

$$\therefore \text{AB}^2 - \text{AC}^2 = \text{AB.AC}$$

$$\therefore \text{BC}^2 = \text{AB.AC} \quad \text{II., 4, 7.}$$

\therefore as required.

8. ABCD is a concyclic quadrangle, and O is a point on its circumcircle. OP is the perpendicular upon AB, OQ on CD, OR on AD, OS on BC, OT on AC, and OV on BD. Show that the rectangles OP.OQ, OR.OS, and OT.OV are all equal.



$$\frac{OP}{OT} = \frac{\sin OAB}{\sin OAC} = \frac{\sin ODB}{\sin ODC} = \frac{OV}{OQ}$$

$$\therefore OP.OQ = OT.OV.$$

$$\frac{OP}{OR} = \frac{\sin OAB}{\sin OAD} = \frac{\sin OCB}{\sin OCQ} = \frac{OS}{OQ}$$

$$\therefore OP.OQ = OS.OR.$$

$$\therefore OP.OQ = OT.OV = OS.OR.$$

9. Prove that

$$\tan^{-1} \frac{1}{3} + \tan^{-1} \frac{1}{3} + \tan^{-1} \frac{1}{3} + \tan^{-1} \frac{1}{3} = \frac{\pi}{4}$$

Given expression = $\tan^{-1} \frac{4}{3} + \tan^{-1} \frac{3}{4}$

$$= \tan^{-1} \frac{4 \cdot 4 + 3 \cdot 3}{3 \cdot 4 - 4 \cdot 3} = \frac{\pi}{4}$$

10. If

$$\frac{\tan(a + \beta - \gamma)}{\tan(a - \beta + \gamma)} = \frac{\tan \gamma}{\tan \beta}$$

prove that

$$\sin 2a + \sin 2\beta + \sin 2\gamma = 0$$

$$\frac{\tan(a + \beta - \gamma)}{\tan(a - \beta + \gamma)} = \frac{\tan \gamma}{\tan \beta}$$

∴ using componends and dividends we have

$$\frac{\tan a + \beta - \gamma + \tan a - \beta + \gamma}{\tan a + \beta - \gamma - \tan a - \beta + \gamma} = \frac{\tan \gamma + \tan \beta}{\tan \gamma - \tan \beta}$$

or

$$\frac{\sin 2a}{\sin 2(\beta - \gamma)} = \frac{\sin(\beta + \gamma)}{\sin(\gamma - \beta)}$$

$$\therefore \frac{\sin 2a}{2 \sin(\beta - \gamma) \cos(\beta - \gamma)} + \frac{\sin(\beta + \gamma)}{\sin(\gamma + \beta)} = 0$$

Clear of fractions, and we have

$$\sin 2a + 2 \sin(\beta + \gamma) \cos(\beta - \gamma) = 0$$

or $\sin 2a + \sin 2\beta + \sin 2\gamma = 0$.

11. Eliminate θ and ϕ from the equations,

$$\tan \theta \cdot \cot \phi = \tan a \cdot \cot a_1,$$

$$\cos^2 \theta = \cos a \cdot \sec \beta$$

$$\cos^2 \phi = \cos a_1 \cdot \sec \beta$$

$$\cos^2 \theta = \cos a \cdot \sec \beta$$

$$\therefore \sec^2 \theta = \sec a \cdot \cos \beta$$

Also $\sec^2 \phi = \sec a_1 \cdot \cos \beta$.

$$\therefore \tan^2 \theta = \sec a \cos \beta - 1$$

and $\tan^2 \phi = \sec a_1 \cos \beta - 1$

∴ the eliminant is

$$\frac{(\sec a \cdot \cos \beta - 1)}{\sec a_1 \cdot \cos \beta - 1} = \tan a \cdot \cot a_1$$

12. A straight line cuts three concentric circles in A, B, C, and passes at a distance p from the centre; show that the area of the triangle formed by the tangents at A, B, C is $\frac{1}{2p} (BC \cdot CA \cdot AB)$

rect. AR.AD. = rect. CR.CD = YR.p, from which we get

AR = CD. Euc. VI. 26.

Similarly BN = CD and AS = BD.

Now area of XYZ

$$= \Delta ABX + \Delta CBZ - \Delta CAZ$$

$$= \frac{1}{2} AB \cdot XS + \frac{1}{2} CB \cdot ZN - \frac{1}{2} CA \cdot YR$$

$$= \frac{1}{2} AB \cdot \frac{AS \cdot AD}{p} + \frac{1}{2} CB \cdot \frac{NB \cdot BD}{p} - \frac{1}{2} CA \cdot \frac{CD \cdot CR}{p}$$

$$= \frac{1}{2p} \{ AB \cdot (AC + CD) (BC + CD) + CB \cdot CD (BC + CD) - CA \cdot CD (CA + CD) \}$$

If this be expanded and coefficients of CD and CD² be collected, these will vanish, and there will be left

$$\frac{AB \cdot BC \cdot CA}{2p}$$

CORRESPONDENCE.

N. S., Montague Cross, P.E.I., sent eight problems in Arithmetic.

E. R., South Mountain, sent three questions in Mensuration.

M. J. S., P.E.I., sent a partition problem.

A SUBSCRIBER, Montreal, sent a problem.

M. Y. TAYLOR, Stewartville, very kindly pointed out an error in the first line of the first solution given on p. 154, Oct. 1, 1894. It reads 4886 bush. 36 lbs. wheat @ 58c, \$2,854.76 instead of \$2,834.33, as it plainly should be; and the total will then be \$2,916.46. We are much obliged for the correction, and hope that all similar mistakes will be promptly rectified by our correspondents who may detect them. This friend also sends a solution of No. 3, Ex. xxiv., p. 84, P. S. Arith., and gets the answer \$20.90 by taking in only one-half the area of the doors and windows. She wishes to know the reason of the rule calling for this deduction. "Use and wont" seem to be the only reason, for, on consulting several good text-books, we find no mention of such rule. Can any person give a better reason? Do workmen actually follow this rule in computing the price of their work? Is it a

local arbitrary regulation, or is it universally acknowledged? We can find no trace of it elsewhere.

E. J. D. sent a clock problem, which has been solved in this column before.

M. MILLER sent a discount problem, which has been solved in this column before.

THOS. L. BUCKTON, Colchester, Ont., solved Nos. 1, 3, 5, 6, 7, 8. Many thanks.

A. B. CHALMERS, Milverton, sent two solutions of No. 112, one analytic, the other deductive, both neatly set down. He also sends a problem for solution, and says some very kind things about THE JOURNAL.

F. MCE., Orchardville, solved 102, 103, 104, 105, 106, 107, 108, and 109 of December issue. Very good for a girl only 14 years old.

E. J. DAVEY, Glanford, sends a solution of No. 112.

P. J. B., Montague Cross, P.E.I., sends nine problems in arithmetic.

J. S. THOMAS, Waterloo, Ont., solved 102, 103, 104, 105, 106, 107, 108, 109, and 112, and remarks that "THE JOURNAL is a grand help to teachers." Such practical help and such words of appreciation are highly prized by THE JOURNAL staff. All honor to those who are ardently desirous to help forward the teachers' cause in Canada!

W. R. B. sends an interesting letter, which shows that he is attempting to master mathematics under a load of difficulties. Courage, comrade! "Time and patience turn the mulberry leaf into satin."

J. S. MCNAMARA, Penetanguishene, sends neat concise solutions of 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, and 112. We present him sincere thanks on behalf of the thousands of readers who will be helped by the work of such correspondents as our generous friend, J. S. MCN.

A FRIEND, who gives no signature, sends solutions to 102, 103, 104, 105, 106, and 109, and they are good solutions, too.

There are a number of letters of a more private character in the Editor's pigeon-hole, and one or two more that deserve public acknowledgment and thanks.

J. E. HOLT, Newton Robinson, asks whether the rules found in the *Pub. Sch. Arith.* for the solidity of a frustrum of a cone or of a pyramid, and also for the solidity of a wedge, are absolutely correct or merely approximations. *Ans.*: Absolutely correct. He asks for answers to other questions about the same charming volume. These will receive attention at the earliest moment possible. The pressure on this column is increasing beyond the limits of our space. Will all our friends please exercise a little patience? The stack of correspondence that has accumulated would fill one whole issue of THE JOURNAL from cover to cover, and still leave enough to occupy our allotted space for another number. J. E. H. and all the other kind friends who are working to make THE JOURNAL a valuable help, and to extend its influence to every school in Canada, are working in a very effective way to raise the status of the whole profession. United solidly in confraternity we can accomplish a good deal in many ways, and "the sympathy of numbers" is a great power to encourage every true worker. Let us stand together and labor for the common good through the friendly medium of our own paper. . . . We give up this month to the Scholarship Problems. Mr. Cornwell has very courteously supplied neat solutions.

Examination Papers.

EAST SIMCOE PROMOTION EXAMINATION.

December 6th and 7th, 1894.

GRAMMAR—THIRD CLASS.

Juniors will do any five questions; seniors any six questions. Questions having equal value, 15 and 12½. Values—75 marks.

I.—Define with examples: Phrase, Simple Sentence, Predication, Preposition, Modifier.

II.—Analyze fully: (a) On the road we saw a small boy crying. (b) That book on the table is mine. (c) From all sides rushed the howling pack of wolves.

III.—Parse fully the words in (a) and (b) above.

IV. Use the words: Around, snow, more, aim, and howl, as two or more different parts of speech.

V.—Correct, giving reasons for such corrections: (a) John walks slow. (b) He stole them pears. (c)

He was real sorry to hear it. (d) Each animal in the stable knows their own name.

VI.—Write: (a) A sentence containing an adverbial phrase. (b) A sentence containing an adverb modifying an adjective; and also one containing an adjective used as a noun.

VII.—(a) Give the relation of each word in the following sentence: The mob approached the prison and attempted to force open the gates.

FOURTH CLASS.

Candidates will do any six questions. Values—75 marks; 12½ marks for each question.

I.—State the different inflections of the pronoun, illustrating your answer by examples.

II.—Analyze fully: (a) Arriving upon the scene we found that we were too late. (b) Please to answer by return mail. (c) Have you seen the tall trees swaying when the blast is sounding shrill?

III.—Parse fully the italicized words in preceding question.

IV.—Use as different parts of speech five words from the sentence in Question II. State the part of speech of word used.

V.—What do you understand by Tense, Comparison, Intransitive Verb, Pronominal Adjective, and Analysis?

VI.—Correct the errors in the following sentences, giving reason for such corrections: (a) Seeing us approach we went away. (b) Let you and I go at once. (c) Wanted.—A woman to wash, iron and attend to three small children. (d) Whom did you say owns the house?

VII.—From house to house that wild scene amid rushed the devouring flames. State the relation of each word in the foregoing sentence.

ARITHMETIC—JUNIOR FOURTH.

Seven questions make a full paper. Values—15 marks each.

I.—Resolve into prime factors; 216, 289, 900, 1155, 13923.

II.—Find the greatest number that will divide 1397 and 2633, leaving the remainder 11 and 15 respectively.

III.—What is the capacity of the smallest cistern that can be filled in an exact number of minutes by either or both of two pipes, the first of which runs 48 gals. and the second 64 gals. per minute?

IV.—The difference in weight between two boxes of tea is 15 4-5 lbs., and the lighter box weighs 19 ¾ lbs. Find their total weight.

V.—A piece of cloth measured 27 ½ yds. before fulling, but only 25 ¾ yds. after fulling. How much did the cloth shrink?

VI.—Find the price to the nearest cent of 26 ½ bu. oats at 29 ¾ c. per bu., and 45 ¾ bu. wheat at 74 8-9c. per bu.

VII.—A man took 4678 steps in walking 2 22 5/8 mi. What was the average length of his step?

VIII.—Find the value of 915 lbs. wheat at 64c. per bu., 425 lbs. oats at 32c. per bu., and 372 lbs. barley at 42c. per bu.

IX.—Divide 13 ½ lbs. tea into two parcels, one of which shall be 3 ¾ lbs. heavier than the other.

X.—Find the value of a pile of cordwood 6'-4" high, 39' long and 4' wide, at \$2.56 per cord.

ARITHMETIC—PART SECOND CLASS.

Juniors first seven questions; Seniors last seven. Five questions make a full paper.

I.—Find the sum of 7896 + 979 + 809 + 99 × 64537.

II.—John owns 97 acres of land, James 125 acres, Charlie owns 275 acres, and Robert owns 25 acres; how many acres do they own altogether?

III.—A man paid 275 dollars for a span of horses and 79 more than this for a carriage. For how much must he sell them both to gain 85 dollars?

IV.—Find the difference between 43763 and 4235.

V.—A man owing 769 dollars paid at one time 389 dollars, and at another 285 dollars. How much does he still owe?

VI.—Write in figures: XIX, XLIX, LXXXIX, XCIX, CIX.

VII.—Write in words: 101, 110, 805, 850, 1001.

VIII.—Find the result of: 7369 - 476 - 1945 + 3052 - 879.

IX.—The minuend is 1000, the subtrahend 799; find the remainder.

X.—A boy has 575 cents, he spends 75 cents for a book and 424 cents for a suit of clothes. How much had he left?

Primary Department.

THE PHONIC SYSTEM OF TEACHING READING.

BY RHODA LEE.

In spite of many and violent attacks made upon the phonic system of teaching reading, it stands firmer to-day than ever, strengthened by the best of all practical proofs, namely, results. That the results are most satisfactory, any one who has seen the system fairly tested will admit. It would hardly be considered a fair test when placed in the hands of one who understood the system imperfectly. Considerable study and preparation are requisite to a thorough grasp of the entire work; but the principle, once clearly understood, all else is plain sailing.

Apart from the consideration of time-saving, the characteristic that most strongly commends the system to me is that, from the very first lesson, the aim is to give *power* to the child, not merely to tax his memory. By the time he is familiar with the first five letters (according to the order I have adopted, *m, a, t, s, p*), or at the end of two weeks, he begins to use his reasoning powers in various processes, recognizes new words, reads short sentences, works with the letters, changing them about to form new words, and in a variety of other exercises that suggest themselves to the student of phonics.

Personating the letters and connecting the sounds with other natural sounds familiar to children may appear to some ultra-philosophical and highly-psychological minds to savor of the absurd. In the hands of a clever caricaturist devices of this nature may be made to appear to the general reader extremely amusing, but to those actively engaged in the work the exaggeration is so apparent as to convince one that profound want of knowledge alone would prompt it. The reason for it all lies in the fact that it is practically impossible for some educationists and others to descend to the level of the child-mind, and it would be wise to leave the education of children to those who can come into touch with them. Do not imagine I am providing a cloak for the sickly, sentimental practice of simplifying things which require no simplification. I have no sympathy with those who would remove all difficulties, and make everything easy for children. No development of strength can be expected where there is no struggle. There is an erroneous idea abroad that connects phonic teaching with this namby-pamby work, but a greater mistake never existed, and it is much to be deplored that the work should, by some, have been so perverted. I have never heard of a system in which the child did as much for himself as in the phonic, or in which he was more independent of the teacher.

The only other point it will be possible to consider at present is the rapidity with which the children learn to read, and in dealing with this I wish merely to give some few instances that have occurred in my own experience, or have come under

my direct observation, in the hope that the facts may convince some who are still doubtful of the merits of the method.

At the end of three years the average child will be able to read anything on a level with Fourth Book work; the particularly bright will do it in two or less. Words will be met with that require marking on first sight, but once is generally sufficient. I had several cases of children, who had been but a year and a half at school, who read at first sight as tests, and with scarcely a mistake, the following lessons from the Fourth and High School Readers: *The Little Midshipman, Death of Little Nell, Tom Brown, Making Maple Sugar, Mill on the Floss, Contentment, Break, Break, Break*, and others.

Some of these had come to school at the age of five, the majority at six, and a few at seven. I grant they did not understand the subject *perfectly*; we would not expect children at that age to grasp the entire thought contained in such advanced work, but they were able to pronounce the words correctly.

Frequently strangers, wishing to try the power of the children to read unfamiliar words, have placed difficult geographical names on the blackboard, and, testing individually, have found, with few exceptions, the class able to read anything. As I stated before, the first reading might necessitate marking. For example: A visitor to a Senior First Book class wrote the word *Penn-syl-van-i-a* as a first test. This was recognized by all who had been "brought up" on the phonic system. Erasing this, he wrote: *My home is in the State of Pennsylvania. I came here by the Le-high Valley Railroad.* This presented no difficulty to the children. Two or three pages of THE JOURNAL might be filled with illustrations of a similar nature, but it is unnecessary. In closing, I would like to urge all who are not using the phonic system of teaching reading to give it a fair test. In THE JOURNAL of November and December of 1893, and January, February, and March of 1894, an outline of the work was given, with suggestions for teaching that, I trust, will be helpful to beginners.

AN ARITHMETIC LESSON.

BY RHODA LEE.

"To see ourselves as others see us." Then surely would we rid ourselves of some of the many faults with which we are so well supplied. Sometimes I think the power of self-inspection might be of use in showing to a few unassuming and extremely humble people, once at least, and unmistakably, the qualities in them that others admire and appreciate. We must admit that this class of people is an extremely small one, but to it Miss B—, whom I was visiting last fall, certainly belonged. I had assured her repeatedly of the fact, but do not think she yet realizes what lessons she has taught her visitors by her quiet, orderly, definite, and kindly manner of dealing with children.

The class is second book grade. The children are not long in it until they

unconsciously adopt the ways of the teacher. The raising of a hand, the manner in which a pupil rises to reply to a question, the taking and distributing of books and other work-material, are in themselves lessons any onlooker might well carry away.

An arithmetic lesson which I witnessed in this class one morning impressed me so deeply that I wish to give my readers the benefit of it. There was nothing remarkably brilliant or original about it. The charm lay chiefly in the strong interest displayed, the prompt answers, and the general orderliness maintained throughout.

The forty minutes allotted to the subject—which followed immediately upon the opening exercises—was divided into two parts, (1) mechanical work; (2) thought problems. Between these two parts a short recreation occurred. The thought problems were on this morning largely mental, the pencil being used only to record the answer. A few involving book work (blank books were used in preference to slates) were given, but these did not occupy much of the time. What was termed mechanical work began with practice in rapid addition; this was followed by a drill on the multiplication table of five. Numbers ranging from 1 to 12 were placed in a circle on the blackboard, the multiplier, 5, being placed in the centre. Miss B— pointed to the numbers as quickly as the children could write, the answers being placed in the books. Varying the exercise, the teacher dictated the numbers, the children writing the answers as before. In each case the number indicated or dictated was multiplied by the constant figure, 5.

Then followed continued multiplication. The number 523 was given, and two minutes given in which to multiply. The multiplier, 5, was, of course, carried in the mind, there being no necessity for writing it. To illustrate:

$$\begin{array}{r} 523 \\ 2615 \\ 13075 \\ 65375 \\ 326875 \\ 1634375 \text{ etc.} \end{array}$$

The lines were counted when the signal "time" had been given to place pencils. They were taken again for a moment to mark the 5th, 10th, and 12th lines by a dash in front. The answers were then read. This was, of course, a review lesson, and an exercise in which considerable practice had been given, and the majority had correct answers.

A new table was next introduced. The first step was to ask the children to make the table. This they immediately set to work upon. On the books were speedily seen an array of addition examples, such as the following:

$$\begin{array}{r} 2 \quad 3 \quad 4 \quad 5 \quad 6 \\ 2 \quad 3 \quad 4 \quad 5 \quad 6 \\ 2 \quad 3 \quad 4 \quad 5 \quad 6 \\ 2 \quad 3 \quad 4 \quad 5 \quad 6 \\ 2 \quad 3 \quad 4 \quad 5 \quad 6 \\ 2 \quad 3 \quad 4 \quad 5 \quad 6 \\ \hline 12 \quad 18 \quad 24 \quad 30 \quad 36 \text{ etc.} \end{array}$$

After this had been done the teacher called for the answers, and with a little

aid from her the new table was placed on the board and in the books. After a short drill books were closed and the answers on the board erased. They were then called for again, the table being written in this way:

6 times 1 = 6
6 " 2 = 12
6 " 3 = 18
6 " 4 = 24
6 " 5 = 30
6 " 6 = 36 etc.

A minute or two more given for study and then the answers were again erased. This was done several times, until the table became familiar.

On inquiring, I found that the practice of making the table for themselves had been followed from the first, and the plan undoubtedly was a good one. The remainder of the lesson we will have to leave for another day.

A COMBINATION EXERCISE.

SPELLING, LANGUAGE, AND ETHICS.

BY M. S. T.

Is any teacher at her wits' end to know how to combine her studies in order to get them all in?

The following plan has helped me to solve the problem, for it includes spelling, language, and ethics. Previous to dictation, I drill on the spelling of the more difficult words, sometimes allowing the most difficult of all to remain on the board, for I think it better to copy a word than spell it incorrectly. Allowing the pupils to end the stories as they please furnishes an opportunity for originality; and morals self-taught are always the most effective. The exercises are short, that they may not infringe on time allotted to other studies.

DICTIONATION.

When Willie came to school this morning he saw a piece of orange peel on the sidewalk. He stopped and pushed it off into the gutter.

Now you may write and tell me what you think his reason was for pushing it off.

Frank's father gave him a five-cent piece, Wednesday morning. On his way to school Frank spent a cent for candy. The lady made a mistake, and gave him back five pennies.

What do you think Frank did?

Maud was on her way to the store, for her mamma. Just ahead of her she saw a little girl drop a cent. Maud ran and picked it up.

Write what you think Maud did with it.

Herbert and Fred were snowballing with their playmates after school. Fred tried to hit a post, but the snowball went through a bay window instead.

Now, what do you think he did about it?

Mary had the mumps, and had to stay home from school a week. While she was sick, Jennie picked a bunch of violets and carried it to her.

What do you think Mary thought when she saw Jennie come in with the flowers?

Mabel did not know how to do one example in arithmetic, and Alice had a perfect slate. By turning her head a little, Mabel could see Alice's slate.

What do you think she did?—*Primary Education.*

GEMS FOR THE BLACKBOARDS.

1. "Dare to be true! Nothing can need a lie,
A fault which needs it most grows two thereby."
2. "Ill habits gather by unseen degrees,
As brooks make rivers, rivers run to seas."
3. "Honor is purchased by deeds we do,
Honor is not won
Until some honorable deed is done."
4. "Be noble! and the nobleness that lies
In other men, sleeping, but never dead,
Will rise in majesty to meet thine own."
5. "The world deals good-naturedly with good-natured people."

—*Popular Educator.*

Correspondence.

"THE INFANTRY."

To the Editor of THE EDUCATIONAL JOURNAL.

SIR,—Since you published my few condensed remarks on the "Crusade of the Children" in your issue of Oct. 15th several valuable contributions have appeared in your columns and in the daily papers, all pointing in the same direction, and leading up to the propositions formulated by the Waterloo Association and published in a recent issue of THE JOURNAL. I understand also that a number of the most enterprising educationists have been giving this great burning question their serious attention, with an earnest desire to work out the best practical solution. And it is a problem well worthy of the fixed attention of educationists and statesmen who really love Canada and sincerely wish to promote the best interests of the coming generation of Canadians. Most especially, it is a problem that concerns vitally every Public School teacher within the bounds of Ontario. If they can be brought to pause for one day and made to reflect on the anomalous, unique, and altogether exceptional position in which the public law of the country places them, the disadvantageous position in which they are placed by regulations formulated by the Education Department in regard to the lowest grade of teachers, a position considerably worse, on the whole, than that of the barbers of the province—as can easily be proved—then I have hopes that the whole body of teachers will, at the Provincial Association to be held next Easter, unite in a unanimous demand for more reasonable rules in regard to the terms of admission of apprentices to the business of Public School teaching. To secure this pause and serious reflection by every teacher within the reach of THE JOURNAL, I assume the responsibility of naming SATURDAY, FEB. 16TH, as the day to be spent by every teacher in studying this great problem, and in setting down in writing his or her proposed scheme for making the occupation the real profession which every thinker admits it ought to be. Teachers in the Public Schools of Ontario, unite for once, pause for one day in your perpetual self-sacrifice, and consider your own present position and future prospects! Think out carefully, with the best help you can obtain, the enormous waste of teaching power, moral influence, and public money entailed by the great annual *legal* exodus from your ranks. Remember TEACHERS' DAY, FEB. 16TH, and address yourselves earnestly and vigorously for ten hours to master this question. Summarize your results in concise, clear-cut propositions, and send them to the press, and thus make your voices heard in the counsels of the nation, and your arguments felt by the popular conscience, which is sound and reliable and certain to respond when properly educated. As an encouragement to decisive and unanimous action, remember that the Department has already yielded

very gracefully to the gentle pressure by sending out a circular in December, stating that after 1895 the University matriculation standard will be required for Primary candidates. Here is an indication that the authorities are prepared to move forward as fast as crystallized public opinion will warrant. The blame rests on the senior members of the teaching fraternity, who have done very little to educate public opinion up to an intelligent view of what the real public interest demands. Let every teacher do his duty to himself and his beloved country on TEACHERS' DAY, and let every newspaper in Ontario contain a clear statement of the demand by the Public School teachers for fairer and more honest terms, and for better service to the public in proportion to the cost. Will the teachers unite as one man and move together in solid column toward certain victory? Or will they remain supine and inactive and careless of the general good? If the latter, their opponents and enemies can calculate on their incapacity for combination and well-concerted action, just as the officers of a lunatic asylum calculate upon the well-known incapacity of lunatics to organize any combined movement. Already in the present stage of this agitation an important position has been gained. Shall we despair of success all along the line? Observe the permanence that has resulted to the High School teachers—who are now a genuine profession—by the successive limitations placed upon those who wish to become assistant teachers. Observe the steady increase yearly in the average salary—I cannot stop now to quote the figures. Observe, moreover, the increased respect paid to increased efficiency, and observe the steady decrease in the number of changes in the best positions, along with the steady increase in the salaries paid to thoroughly trained men and women. Observe these facts carefully; study the reports of past years on Jan. 26th as they were never studied before; combine the results into a steady stream of influence on public opinion through the press, and the dawn of a better and brighter day will break upon the Public School teachers of Ontario, who are undoubtedly the hardest worked and the worst paid public servants on this continent.

Will all who are in possession of the facts kindly send at once to THE JOURNAL the following valuable information?

- (a) The number of students who wrote in December at each Model School.
- (b) The number who passed.
- (c) The number rejected.
- (d) The average percentage of the whole class at each school given by each Model School master for teaching lessons.

These four items will help a good deal towards fixing the responsibility and exposing the weak place in the system. I am, Sir, yours truly,
EXPERIENCE.

THOSE WATERLOO RESOLUTIONS.

To the Editor of THE EDUCATIONAL JOURNAL.

SIR,—It would not do if we all viewed matters from the same standpoint. In fact, we should never arrive at any truth unless we firmly expressed our individual opinions, and were capable of grasping the whole and giving it some definite form.

Among many others, I have read with interest the correspondence which has appeared in THE JOURNAL touching that very important question, how best to raise the status of the teaching profession. The cause I consider to be a good one, and the zeal displayed by some of your correspondents commendable; but the profound selfishness that shone through much of what was written displayed a method of judging that would unmistakably arrive at conclusions most pernicious. The Waterloo Teachers' Association have forwarded resolutions bearing upon the subject under discussion. With them I will deal briefly, as embodying the radical measures advocated by the bulk of the correspondents. In referring to the resolutions, you entitle them "A Step in the Right Direction." If by that you mean that some change should be made whereby ability and experience would be more easily retained in the profession, I agree with you; but if you mean that the carrying out of such resolutions by the Education Department would be otherwise than positively injurious to the cause of education, as well as to the profession, then I must take exception to your position.

I was somewhat surprised to see resolutions such as those referred to emanating from such a body. From such one would naturally expect the product of thought and honest research. I certainly did not expect to find a protective policy, such as every unselfishly honest man should hate as he hates sin, formulated and presented as a means of allaying the evils of overcrowding in a noble profession. Were it not for the fact that at associations resolutions are, for the most part, the work of a few, submitted and formally passed without much consideration, I should have been more surprised, knowing, as I do, something of the standing of the teachers of Waterloo county. Although I do think the resolutions submitted worthy of wholesale condemnation, I will just now merely touch the question. I believe that any system of protection that tends to make time and money the gateways of entrance to the profession, rather than natural ability, to be not only the outcome of sheer selfishness, but most wicked in its workings. Such protection (and that is the protection outlined by the resolutions under consideration) would soon give us a combine of machine-made teachers, and relegate to other walks in life those that are "God-made." I do not believe that there are too many good teachers. One thing is certain—good teachers are not too plentiful even in the Province of Ontario to-day; and no effort should be made to debar any from the profession that are "born teachers" by building around those already in the profession, good and bad, protection walls in the shape of long normal terms, advanced years, and widespread, although by no means thorough, literary training. It is to be regretted that resolutions passed by teachers' associations mean so little.

It is nearly time that this trumping up of formal resolutions at associations was done away with, and educational thought fostered in some more reliable way.

JOHN J. SKENE.

Chatsworth, Jan. 14, 1895.

Teacher's Miscellany.

LANGUAGE THAT NEEDS A REST.

I was awakened in the middle of the night by a disturbance in the library. It did not seem to be the noise of burglars. It was more like the murmuring sound of many tongues, engaged in spirited debate. I listened closely, and concluded it must be some sort of a discussion being held by the words in my big unabridged dictionary. Creeping softly to the door, I stood and listened. "I don't care," said the little word *Of*; "I may not be very big, but that is no reason why everybody should take advantage of me. I am the most mercilessly overworked word in the whole dictionary, and there is no earthly reason for it either. People say they 'consider of,' and 'approve of,' and 'accept of,' and 'admit of,' all sorts of things. Then they say 'all of us,' and 'both of them,' and 'first of all,' and tell about 'looking out of' the window, or cutting a piece of bread 'off of' the loaf, until I am utterly tired out."

"Pshaw!" said the word *Up*. "I am not much bigger than you, and I do twice as much work, and a good deal of it needlessly, too. People 'wake up' in the morning, and 'get up,' and 'shake up' their beds, and 'dress up,' and 'wash up,' and 'draw up' to the table, and 'eat up,' and 'drink up' their breakfast. Then they 'jump up' from the table, and 'hurry up' to 'go up' to the corner, where the street-car driver 'pulls up' his horses, and the passengers 'ascend up' into the front seats, and the conductor 'takes up' the tickets. All this is done even before people 'get up' town, and 'take up' their day's work. From that time until they 'put up' their books and 'shut up' their offices, I do more work than any two words in this book; and even after business hours I am worked until people 'lock up' their houses, and 'go up to bed,' and 'cover themselves up,' and 'shut up' their eyes for the night. It would take a week to tell what I have to 'put up' with in a day, and I am a good deal 'worked up' over it."

"I agree that both *Up* and *Of* are very much overworked," said the word *Stated*, "but I think I myself deserve a little sympathy. I am doing not only my own legitimate work, but also that which ought to be done by my friend *Said*. Nobody

'says' anything nowadays; he always 'states' it."

"Yes," chipped in the funny little word *Pun*, "these are very 'stately' times."

Some of the words laughed at this, but *Humor* said: "Pun is a simpleton."

"No," answered *Wit*, "he is a fellow of duplicities."

"He makes me tired," said *Slang*.

Then the discussion was resumed.

"I do a great deal of needless work," said the word *But*. "People say they have no doubt 'but that' it will rain, and they shouldn't wonder 'but what' it would snow, until I don't know 'but' I shall strike."

"What I have most to complain about," said the word *As*, "is that I am forced to associate so much with the word *Equally*. Only yesterday a man said he could 'see equally as well as' another man. I don't see what business *Equally* had in that sentence."

"Well," retorted *Equally*, "men every day say that something is 'equally as good' as something else, and I don't see what business *As* has in that sentence."

"I think," said *Propriety*, "you two should be divorced by mutual consent."

There was a fluttering sound and a clamor of voices.

"We, too, ought to be granted divorce," was the substance of what they said, and among the voices I recognized those of the following couples: *Cover Over*, *Enter In*, *From Thence*, *Go Fetch*, *Have Got*, *Latter End*, *Continue On*, *Converse Together*, *New Beginner*, *Return Back*, *Rise Up*, *Sink Down*, *They Both*, *Try And*, *More Perfect*, *Seldom Ever*, *Almost Never*, *Feel Badly*, *United Together*, *Two First*, *An One*, *Over Again*, *Repeat Again*, and many others.

When quietude had been restored, the word *Rest* said: "You words all talk of being overworked, as if that were the worst thing that could happen to a fellow, but I tell you it is much worse to be cut out of your own work. Now, look at me. Here I am, ready and willing to perform my part in the speech of the day, but almost everybody passes by me and employs my awkward friend *Balance*. It is the commonest thing in the world to hear people say they will pay the 'balance' of a debt, or will sleep the 'balance' of the night."

"I suffer considerably from the same kind of neglect," said the word *Deem*. "Nobody ever 'deems' a thing beautiful any more, it is always 'considered' beautiful, when, in fact, it is not considered at all."

"True," said *Irritate*, "and people talk of being 'aggravated' when they ought, instead, to give me work."

"And me," said *Purpose*. "Look at me. I get hardly anything to do, because people are always 'proposing' to do this, or that, when no idea of a proposition is involved. Why, I read the other day of a man who had 'proposed' to murder another, when, really, he had never said a word about it to a living being. Of course, he only purposed to commit the murder."

"It is my turn," said the word *Among*. "I should like to protest against Mr. *Between* doing my work. The idea of people saying a man divided an orange 'between' his three children! It humiliates me."

"It is no worse," said the word *Fewer*, "than to have people say there were 'less' men in one army than in another."

"No," added *More Than*, "and no worse than to have them say there were 'over' one hundred thousand men."

"It seems to me," said the word *Likely*, "that nobody has more reason for complaint than I have. My friend *Liable* is doing nearly all my work. They say a man is 'liable' to be sick, or 'liable' to be out of town, when the question of liability does not enter into the matter at all."

"You're no worse off than I am," said the little word *So*. "That fellow *Such* is doing all my work. People say there never was 'such' a glorious country as this, when, of course, they mean there never was 'so' glorious a country elsewhere."

I saw that there was likely to be no end to this discussion, since half the words in the dictionary were making efforts to put in their complaints, so I returned to my couch, and I will leave it to any person who has read this account to say whether I had not already heard enough to make me or anybody else feel sleepy.—*Washington Post*.

Question Drawer.

SUBSCRIBER.—See answer to "B. A."

M. J. MCM. AND ENQUIRER AFTER THE TRUTH.—We are sorry that we have been unable to get definite and reliable information in time to answer your questions in this number of THE JOURNAL. We expect to be able to do so in the next.

L. A.—Authorized copybook No. 6 is included in the requirements for entrance. Writing in any blank exercise book will be accepted if it covers the same ground. We know no regulation concerning the pen to be used. That is, no doubt, at the option of the teacher.

ALPHA.—The regulations of the Education Department say expressly that the renewal of a third-class certificate, under the circumstances you name, shall be "at the discretion of the Board." We fail to find any provision by which the Board can be compelled to grant renewal.

A SUBSCRIBER.—We know of no regulations touching such matters as slants and loops in writing, save such as are to be gathered from the authorized copybooks, and the use of these is not obligatory if the same ground is covered. The particulars you mention depend upon the system of writing used, and we are not aware that the Department prescribes or recommends any one system.

B. A.—The literary selections, etc., for Entrance have been printed in every number of THE JOURNAL for months. See advertisement of Education Department. But let us again repeat what we have so often said, that for all information of this kind, which is official in character, it is much better to write direct to the Education Department, Toronto. The Department issues circulars giving information on all such matters, and will, no doubt, send them promptly to all who ask for them.

INQUIRER.—Yes, there will be entrance examinations for 1895, as usual. As to your other questions, see above.

L. H.—Standard time means simply the civil time which has been established by law or usage over a given country or region. In the United States and Canada four kinds or divisions of standard time have been established by the railroads, and accepted generally by the people, viz., Eastern, Central, Mountain, and Pacific time. These correspond to the mean local times of the 75th, 90th, 105th, and 120th meridians west from Greenwich. The effect is that all places between the 75th and 90th meridians have the same time, which is that of the 75th meridian, instead of having times constantly varying as the distance from the Greenwich meridian increases. The standard times within the divisions named are, therefore, five, six, seven, and eight hours, respectively, slower than Greenwich time, as each fifteen degrees represents an hour, measured by the earth's revolution. To illustrate: When it is twelve o'clock at Greenwich, it should be about seven a.m. at Ottawa, which is not far from the 75th meridian west from Greenwich. By the same rule it should at the same moment be only a little past six a.m. at Port Arthur, which is not far from the 90th meridian. But, according to the standard time system, the clocks at Port Arthur show the same time (Eastern time) as those at Ottawa. But when the traveller going west has crossed the 90th meridian, he finds all the clocks just one hour behind the Ottawa and Port Arthur time. By turning the hands of his watch back one hour, he will have the exact time (Central time) at all stations westward until he reaches the 105th meridian, about Regina, when he will have to turn back his watch another hour (Western time). Another 15 degrees will take him into Pacific time.

An English schoolmaster once said to his boys that he would give a crown to any one of them who would propound a riddle he could not answer. "Well," said one of them, "why am I like the Prince of Wales?"

The master puzzled his brains for some minutes for an answer, but could not guess the correct one. At last he exclaimed, "I'm sure I don't know."

"Why," replied the boy, "because I'm waiting for the crown."—*Ex.*

Literary Notes.

Under the title, "First Attacks on the Mother Tongue," Prof. James Sully describes, in the February *Popular Science Monthly*, the manner in which children learn to imitate speech, and then to apply correctly the words they use. Some of the amusing mistakes they make in both processes are accounted for in Prof. Sully's article.

The complete novel in the February issue of *Lippincott's* is "The Chapel of Ease," by Harriet Riddle Davis. It is a pleasant, peaceful story of rural life in Maryland, and of a young widow's somewhat complicated love affair. Francis Lynde, in "Quong Lee," shows that there are some good Chinamen. "The Fate of the Farmer," by Fred Perry Powers, is an instructive essay on the growing evils of agricultural tenancy. Mrs. Caroline Earle White describes the festival of "Corpus Christi in Seville," and Dr. Charles C. Abbott shows what one who has eyes and a love for nature may see during "A Walk in Winter." Under the heading, "Lingo in Literature," William Cecil Elam, a Virginian, exposes the blunders made by many writers, even those of repute, in trying to reproduce negro dialect. Annie Steger Winston discusses "The Pleasures of Bad Taste" with much acumen. The poetry of the number is by Florence Earle Coates, Carrie Black Morgan, Edith M. Thomas, and Richard Stillman Powell.

Herr Wilhelm Liebknecht, leader of the Social Democrats in the German Reichstag, has written for the February *Forum* a full explanation of "The Programme of German Socialism," describing its wonderful growth in Germany. In the same number of *The Forum*, Mr. Henry Holt explodes some of the "Fallacies Underlying Social Discontent" in the United States. The Rev. William Bayard Hale, whose articles in *The Forum* on the religious condition of Middleboro and Fall River, Mass., attracted so much attention, has, in the same number, an article on the religious condition of Westerly, R.I., entitled "A Religious Study of a Baptist Town." Col. Carroll D. Wright contributes an article, entitled "Steps Toward Government Control of Railroads," showing how the Chicago strike has emphasized the need of legislation for the regulation of strikes, and how it is also a factor in producing the changes in federal law, which are now going on, and which tend to governmental control of railroads.

Scribner's Magazine for February has many features of interest to everybody who is thoroughly awake to contemporary affairs, and wants to be posted in regard to American topics. Noah Brook's articles on "American Party Politics" will give any man, young or old, in a very short space, a clear idea of how American politics have developed from Washington's time to the war. There is also the first article of a series by President Andrews, of Brown University, which will describe "The Last Quarter-Century in the United States," picturesquely telling the story of the most significant events from the Chicago fire to the present day. Then all married people, or those who hope to be married, will be intensely interested in Robert Grant's brilliant series of papers on "The Art of Living." Not only are they made doubly entertaining with Mr. Grant's remarkable power of humor and satire, but they are filled with the most practical suggestions of a man who is thoroughly posted in regard to the every-day problems which confront well-to-do people. In addition to all these attractions, the magazine has begun

what promises to be one of the best serials of the year—George Meredith's, "The Amazing Marriage"—the latest novel of the man who stands to-day at the head of English writers of fiction.

The February issue of the *Atlantic Monthly* contains one or two articles of particular timeliness. The one which will attract perhaps the widest attention is an able paper by Theodore Roosevelt upon "The Present Status of Civil Service Reform." In these days, when hypnotic influences are much discussed, the article by Boris Sidis upon "A Study of the Mob" is of special interest. Two contributions of unusual character are "The Subtle Art of Speech-Reading," by Mrs. Alexander Graham Bell, and "A Voyage in the Dark," by Rowland E. Robinson. There is much excellent fiction, including three chapters of Elizabeth Stuart Phelps' powerful serial, "A Singular Life," "The Life of Nancy," by Sarah Orne Jewett, "Come Down," by A. M. Ewell, and the final instalment of Mrs. Wiggin's charming two-part story, "A Village Stradivarius." Aside from these more prominent features, there are several other contributions. The book reviews will appeal to many general readers, as they treat of three books much discussed at present—Meredith's "Lord Ormont and his Aminta," Caine's "The Manxman," and Du Maurier's "Tribly." Other reviews and the usual departments complete the issue.

Book Notices.

EXERCISES IN ARITHMETIC, Part I, 95 pp., 25c.; Do., Part II., 167 pp., 35c. Copp, Clark & Co., Toronto, 1894.

The first part contains graded exercises, suitable for pupils in the first and the second class; the second part is intended for the senior classes of Public Schools; the answers to both parts are contained in a separate volume for teachers. The whole series supplies a fairly good set of examples, and will be found useful in saving time to busy teachers in ungraded schools. These books are by a working teacher, Mr. W. N. Cuthbert, of Verschoyle Public School.

ALGEBRA SELF-TAUGHT, 100 pp., 60c., by W. P. Higgs, M.A. London and New York, 1894, Spon & Chamberlain.

The name is a misnomer, and the book will disappoint those who expect something original or greatly helpful. Anyone who can read it intelligently does not need it. Only about twenty pages are devoted to the first steps in algebra.

LESSONS IN ORGANIC CHEMISTRY, Part I., Elementary, 140 pp., 2s. 6d. Macmillan & Co., New York, 1894.

In this little volume Dr. G. S. Turpin has given a clear outline of the subject. It is crammed with facts, and brings the science down to date.

THE DEBRISAY ANALYTICAL LATIN METHOD, by C. T. De Brisay, B.A., Toronto.

In so far as Mr. DeBrisay uses the so-called "inductive" method, which has been so largely applied by President Harper and fellow-workers, he has adopted a system in regard to whose merits opinions differ widely among the best educators. Many of these of high authority hold that the "inductive," or "analytic," method cannot be said to have succeeded. It is even affirmed that the prevailing sentiment in the United States is to discredit it. The fact that a person with a gift for language, and a previous knowledge of at least one difficult language,

will most quickly acquire another language in this way does not, it is argued, prove anything for ordinary pedagogical purposes. For our own part, we must say that many years' experience in the use of the method leaves us strongly impressed in its favor.

One thing, however, in Mr. DeBrisay's method is thoroughly commendable—his treatment of the "suspended" character of Latin sentence-structure. Here, undoubtedly, is the key to the situation for such a teacher, who necessarily receives the waste or spoiled material of our schools and colleges. There are many teachers who well remember the inspiration they received from Prof. Hale's little book, "The Art of Reading Latin." Here is the really successful portion of Mr. DeBrisay's method.

It is a pity that he should weaken an enthusiastic and honest attempt to do good work by the sophistical claim of "mastery" of the language in some incredibly short time. There is nothing new either in the claim or the method. For Mr. DeBrisay must know perfectly well that he has succeeded with pupils with whom former teachers, working on the same lines (which are at bottom nothing but the principles of all good teaching), have failed, and that others, again, will succeed where he has failed, though they may be far inferior to him in enthusiasm and teaching gifts.

NEW YEAR AND MIDWINTER EXERCISES, RECITATIONS, QUOTATIONS, AUTHORS' BIRTHDAYS, AND SOCIAL PROGRAMMES FOR CELEBRATING NEW YEAR AND MIDWINTER DAYS IN THE SCHOOLROOM. Edited by Alice M. Kellogg. New York and Chicago: C. L. Kellogg & Co.

This neat little pamphlet of ninety-six pages is accurately described in the above title. As was to be expected from Miss Kellogg's repute as an educational writer, the extracts are chosen with excellent taste, and the work will, no doubt, be received as a very welcome addition to the many similar exercise books now in use, and an improvement on most of them.

FORTY LESSONS IN CLAY MODELLING. Arranged by Amos M. Kellogg, Editor of *The School Journal*. New York: E. L. Kellogg & Co.

This little manual is designed as an aid to the teacher, showing how pupils may begin with very simple forms, and advance to those that are quite complex. Many will, no doubt, find it helpful and suggestive.

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OFFICIAL CALENDAR

OF THE

Educational Department

February:

6. First meeting of High School Boards and Boards of Education [P. S. Act, sec. 106 (1); H. S. Act, sec. 13 (1).] (1st Wednesday in February.)

March:

1. Last day for receiving applications for examination of candidates not in attendance at the Provincial School of Pedagogy. (1st March) Inspectors' Annual Reports to Department, due. [P.S. Act, sec. 155 (5).] (On or before 1st March.) Inspectors' summary, township and village Reports to Department, due. (On or before 1st March.) Auditors' Reports on the School Accounts of High School Boards, and the Boards of cities, towns, villages, and townships to Department, due. [P. S. Act, sec. 114; H. S. Act, sec. 36 (2).] (On or before 1st March.) Financial Statement of Teachers' Associations to Department, due. (On or before 1st March.) Separate School Supporters to notify Municipal Clerk. [S. S. Act, sec. 40.] (On or before 1st March.) 27. Toronto University Examinations in Medicine begin. (Subject to appointment.) 29. Night Schools close (session 1894-5.) (Close 31st March.)

April:

1. Return by Clerks of counties, cities, etc., of population to Department, due. [P. S. Act, sec. 129.] (On or before 1st April.) Application for examination for Specialists' certificates of all grades to Department, due. (On or before 1st April.) 11. High Schools close, second term. [H. S. Act, sec. 42.] (Thursday before Easter Sunday.) 12. GOOD FRIDAY. 15. EASTER MONDAY. Reports on Night Schools due (Session 1894-5.) (Not later than 15th April.) 16. Annual Meeting of the Ontario Educational Association at Toronto. (During Easter vacation.) 22. High Schools open, third term. [H. S. Act, sec. 42.] (Second Monday after Easter Sunday.) Public and Separate Schools in cities, towns, and incorporated villages open after Easter holidays [P. S. Act, sec. 173 (2); S. S. Act, sec. 79 (2).] (Same as for H.S.) 24. Art School Examinations begin. (Subject to appointment.) 25. Toronto University Examinations in Law begin. (Subject to appointment.)

SELECTIONS FOR LITERATURE. ENTRANCE.—1895.

Fourth Reader.

- Lesson I. Tom Brown.
Lesson V. Pictures of Memory.
Lesson X. The Barefoot Boy.
Lesson XVIII. The Vision of Mirza.—First Reading.
Lesson XX. The Vision of Mirza.—Second Reading.
Lesson XXIII. On His Own Blindness.
Lesson XXVI. From "The Deserted Village."
Lesson XXXII. Flow Gently, Sweet Afton.
Lesson XXXVII. The Bell of Atri.
Lesson XLII. Lady Clare.
Lesson LXVIII. The Heroine of Vercheres.
Lesson LXXXVI. Landing of the Pilgrims.
Lesson LXXXIX. After Death in Arabia.
Lesson XCI. Robert Burns.
Lesson XCIV. The Ride from Ghent to Aix.
Lesson XCVI. Canada and the United States.
Lesson XCVIII. National Morality.
Lesson CI. Scene from "King John."

SELECTIONS FOR MEMORIZATION.

Fourth Reader.

1. The Bells of Shandon, pp. 51-52; 2. To Mary in Heaven, pp. 97-98; 3. Ring Out, Wild Bells, pp. 121-122; 4. Lady Clare, pp. 128-130; 5. Lead, Kindly Light, p. 145; 6. Before Sedan, p. 199; 7. The Three Fishers, p. 220; 8. The Forsaken Merchant, pp. 298-302; 9. To a Skylark, pp. 317-320; 10. Elegy, written in a country churchyard, pp. 331-335.

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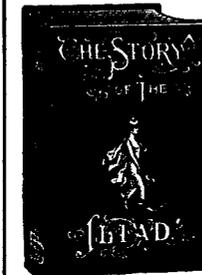
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