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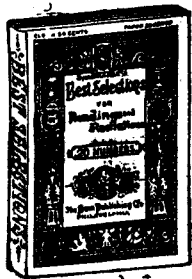
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- OF THE -

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EXAMINATIONS 1893.

- April:
- Return by Clerks of counties, cities, etc., of population to Department, due. [P. S. Act, sec. 129.] Applications for examination for Specialist's certificates of all grades to Department, due.
  - EASTER MONDAY.  
Toronto University Examinations in Medicine begin.  
Reports on Night Schools, due, (session 1892-93.)
  - Annual Meeting of the Ontario Educational Association at Toronto.
  - High Schools open (Third term.) [H.S. Act, sec. 42.] 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).]
  - Written Examination of School of Pedagogy begins (First session.)  
Toronto University Examinations in Law begin.

- May:
- Specialists' Examination at University of Toronto.  
Notice by candidates for the High School entrance, and Public School Leaving Examinations to Inspectors, due.
  - Notice by candidates for the Primary High School Leaving, and University Matriculation Examinations, to Inspectors, due.

- June:
- Applications for Kindergarten Examinations, due.
  - Normal School Examinations begin.  
Practical Examination of the School of Pedagogy begins.
  - Examinations in Oral Reading, Drawing and the Commercial course in High, Public and Separate Schools begin.
  - High School Entrance Examinations begin.  
Public School Leaving Examinations begin.
  - Kindergarten Examinations at Hamilton, Ottawa and Toronto.

- July:
- Primary and High School Junior Leaving and University Pass Matriculation Examinations begin.
  - Examination for Commercial Specialists' Certificates at Toronto.
  - High School Senior Leaving and University Honor Matriculation Examinations begin.

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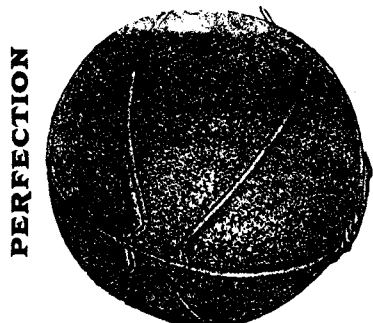
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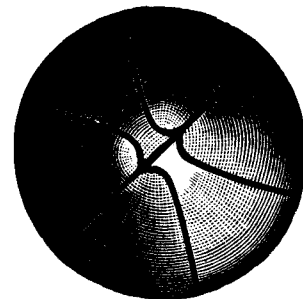
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TORONTO, APRIL 1, 1893.

Vol. VI.  
No. 22.

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Subscribers to the “Educational Journal” who do not receive recognition of remittances promptly will please excuse the delay, as we have to make extensive changes in our list in order to conform to the P.O. regulations. This will be completed in a few days, and acknowledgments will then be sent.

On account of the above change all subscribers MUST send their old as well as their new address when renewing their subscription.

## ✻ Editorial Notes. ✻

WHAT are you doing, what is being done in your school, in the way of cultivating a spirit of kindness and mercy to all living creatures? Have you any specimens of the genus “cruel” among your boys — any cousins-German of the boys who cut off the tails or poke out the eyes of dogs and cats, or tie tin pails to their tails, or pull off the wings and legs of flies and other insects, and laugh to see them writhe and struggle in their agony? Have your boys, any of them, caught the craze for making collections of butterflies, moths and other insects? If so, what effect is it having upon their sensibilities? Does the pursuit tend to make them indifferent to the sufferings of weak and helpless creatures, or the opposite? We confess that we have very serious doubts as to the true educational value and moral tendency of a good many things that are being done in the schools and out, in the name of science, and should be glad to learn the results of the observations of the thoughtful teachers.

Is it possible to conceive of anything more contrary to all nature’s methods and all natural impulses than the attempt to

repress, within the stillness of a silent school-room and the rigidity of a mechanical routine, the restless, bounding, irrepres- sible forces which are ever mightily effervescing, during waking hours, in every part of the being and structure of the healthful child? It is, we hold, not nature’s fault, but that of our artificial appliances and restrictions, if the bright, active child does not delight to exercise his mental, just as he delights to exercise his physical powers. If, as we must all admit, it is above all desirable that he should love the school and its work, is there any more effective means for preventing this and causing him to hate it than to compel him, from the very outset, to associate it with arbitrary prohibitions and irksome restraints, such as are directly at war with all his previous habits, and with the voice of nature, which is ever crying out within him for the largest possible measure of freedom and activity?

A FRIEND has sent us a copy of the *Kin- cardine Reporter*, containing minutes of a meeting of the Board of Education of that town, at which the report of a committee recommending an Easter promotion exami- nation, in addition to the two hitherto held in June and December, was discussed and adopted. We are requested to give our opin- ion on the advisability of having three pro- motion examinations instead of two in the year. The question is one which should be de- cided largely by the observation and experi- ence of actual teachers. Hence we hesitate to express a positive opinion. As a general principle, however, we are not in favor of multiplying the examinations in schools of any grade. The tendency of the thinking of the best educators is in the opposite direction. We should be inclined to share the fear expressed by Mr. Powell that the effect would be to promote cramming instead of healthful progress. With three promo- tion examinations in the year the children would be kept, we should fear, in a state of excitement and unrest, not favorable to the best educational results. At the same time we are aware that it is irksome and dis- couraging to the pupil who may have failed of promotion, owing possibly to circum- stances beyond his control, to be kept going over the familiar ground. As Inspector Campbell said, the prospect of an intermedi- ate examination would be stimulating to many such pupils. It is often true, too, that the best way in which to arouse an indolent or careless pupil is to put him at new work, on new subjects, and amid new surround- ings. Would it not be feasible to have stated supplementary examinations for those pupils only who may be specially recom- mended for it by their teachers?

A CORRESPONDENT says:

“In your issue of Feb. 1st some of the disadvantages of the custom of ‘raising of hands’ are mentioned. I would like to ask:

“1st. ‘Why not let the name follow im- mediately upon the question?’ Would it not be likely to cause inattention on the part of others in the class? Thinking that the question would not be given to them, they would not give their attention to it

“2nd. In what way does it lead to dis- order and confusion?

“3rd. If the hands are lowered when a teacher calls upon a pupil to answer, would it embarrass pupils?

“4th. Could not a watchful teacher pre- vent it from leading to deception and dis- honesty?”

Is not our correspondent’s first question based upon a misapprehension? When the question is stated every pupil in the class knows that he or she may be called on to answer it. We should suppose that this would help to fix the attention of all. It is sometimes well to name several pupils in succession, allowing each to answer before indicating whether any of the answers is correct or incorrect. We have found the plan work well with big boys and girls, especially when we took care often to name the student who seemed least attentive or ready to answer. It is possible that a skil- ful teacher might prevent the confusion which the writer of the article referred to deprecates. The strongest objection to the plan of raising hands is, in our opinion, that referred to in the last question. We do not see how any watchfulness on the part of the teacher can prevent many pupils who are unable to answer from holding up their hands, and thus trying to get credit for knowledge which they do not possess. We have reason to believe that there is a great deal more of deception and dishonesty of the kind indicated, even in some of our best schools, than is generally supposed. The boy or girl who has been carefully trained at home, often, we are convinced, takes lower standings in comparison with others, simply because more truthful. We have personally known more than one instance like that of the boy whom we knew to be faithful and fairly clever as well as truthful, who, when his father expressed surprise that his stand- ing was not as high as he expected, and asked if he could not make it higher, re- plied, “I can, papa, by telling lies like the other boys.” Too many teachers do not sufficiently consider to how great a tempta- tion they subject their pupils by the self- reporting system, of which the hand-raising is but a variety. Of course, we do not abso- lutely condemn such methods. We should be glad to have teachers discuss the question in brief letters.

✻ English. ✻

Edited by Fred. H. Sykes, M.A., EDUCATIONAL JOURNAL, Toronto, to whom communications respecting this department should be addressed.

"BREAK, BREAK, BREAK."

TENNYSON.

A LESSON IN PRIMARY LITERATURE.

BREAK, break, break

On thy cold gray stones, O Sea!  
And I would that my tongue could utter  
The thoughts that arise in me.

O well for the fisherman's boy  
That he shouts with his sister at play!  
O well for the sailor lad  
That he sings in his boat on the bay!

And the stately ships go down  
To their haven under the hill;  
But O for the touch of a vanished hand  
And the sound of a voice that is still!

Break, break, break,

At the foot of thy crags, O Sea!  
But the tender grace of a day that is dead  
Will never come back to me.

PLAN OF THE LESSON.

To have pupils realize the (i) apparent surroundings of the speaker as he utters or thinks the thoughts of the poem; (ii) the general purport of the lines; (iii) the train of thoughts that make up the poem; (iv) the metrical movement; (v) the relation of the poem to Tennyson's life. For the sake of space the usual division of question and answer has been given up. The reader will understand that everything except Pt. V. is to be elicited by questioning the class.

(i) The poet carries us in thought to the sea-coast. We stand with him on the cliffs, overlooking a strip of beach fringed on its seaward edge by lines of great stones, upon which the sea is breaking with ceaseless roar. Beyond the beach stretches the bay, ever-widening to the broad sea. In the cove to the left of us we see the cottages of the fishermen, and the shouts of the children playing on the beach rise distinctly to our ears. We hear also the song of the young sailor, as he sturdily pulls his little craft across the bay. Outside the bay we watch the moving sails of the mighty ocean ships pass down to the harbor below, and disappear, as they float in with the tide, behind the great hill that shelters the haven. The tide, which bears the ships shoreward, now has risen over the boulders at the foot of the cliffs, and beats with monotonous and ceaseless roar on the rocky crags themselves.

(ii) The mournful sound of the sea as it breaks ceaselessly upon the shore brings to the poet's mind a rush of grief. He is still suffering bitter anguish for the loss of his friend,—an irreparable loss, since he is dead. This anguish lies too deep for expression, and because his longing for his friend is in vain, is beyond hope of consolation.

(iii) We hear the poet address the waves, whose mournful roar calls up his own grief. The world seems desolate to him, desolate as the cold gray rocks below. Thoughts of the past crowd into his mind, the happy days gone by, when death had not robbed him of the joys of friendship; thoughts of the present destitute of all that can give him happiness. He feels a relief in the presence of the mournful sea, to whose sympathy he can confide his grief.

Yet below him the loud play of the children adds a deeper tinge to his grief. More acutely than ever he feels his own loss, as he looks upon their happy companionship. Not bitterly, but sadly, he views their pleasure, and, doubly conscious of his own loss, listens to the cheery song of the sailor at his work. The world is indeed active and happy for others, but for him there is only the lethargy of grief.

The great world goes on, knowing nothing, caring nothing for individual loss. The ships go and come. The tide bears into harbor the long-expected vessels, and at the busy wharves there are happy meetings of husbands and wives, of mothers and sons, of lovers and sweethearts. O that he too could once more greet his friend,

could clasp hands again, could hear his voice again, and have the comfort of his presence and his spirit!

But the rising tide beats more loudly than ever upon the crags below. The waves seem to give answer to the longing he had poured out to the sea. He recognizes in their ceaseless and mournful roar the almost pitiless progress of Fate. The past comes not again; the days once brightened by the sweet communion of loving minds can never return. For his loss there is no consolation.

(iv) The poet tells us elsewhere—

"I sometimes hold it half a sin  
To put in words the grief I feel;  
For words, like Nature, half reveal  
And half conceal the soul within.

"But for the unquiet heart and brain  
A use in measured language lies;  
The sad mechanic exercise,  
Like dull narcotics, numbing pain."

What is the nature of the measured language in the mechanic exercise of which he finds relief from his pain? Note in the second stanza that we should mark the movement of the verse. (' = accented, x = unaccented syllables.)

x' x x' x x'  
x x' x x' x x'  
x' x x' x' x'  
x x' x x' x x'

Note that the most regular lines are the second and fourth, each having three x x', i.e., the measure is trimeter anapestic. The movement in the first and third lines of this stanza is slightly irregular. Though these have the regular number of accented syllables, the full number of unaccented syllables is not present in each case:

- (1) x (x) ' x x' x x'
- (3) x (x) ' x x' x (x)'

Compare ll. 3, 9, 15, for proofs of expansion. This is a recognized usage in English verse which allows such freedom, since it gives variety to the movement. But the greatest irregularity occurs in the line

"Break, break, break."

This line we, for some reason or other, read slowly, accenting each syllable and pausing between the words.

The accented syllables are there, but not the unaccented. Interpreting it from the metre of the rest of the poem, we see that this line really equals

(x x) ' (x x) ' (x x)'

Note how fully the repetition and slow movement of this remarkable line picture the fall of the waves.

The metre, then, is very simple, the form of the stanza—its four lines with easy rime—is likewise simple, the words of the poet are all simple and direct. Hence we feel that he has given natural and unaffected expression to his feeling, and found perhaps in the writing of this poem some real relief for his unquiet heart and brain.

(v) For this poem chronicles a real grief for a real person; it is no sentimental wail for imaginary loss. A very close friendship bound Tennyson and Arthur Hallam, son of the great historian, to each other from the years 1828-1833. Young Hallam died while travelling in the Tyrol in 1833. In "Break, break, break," the intense grief of the poet first found expression, but it received full and complete expression only in his later poem, "In Memoriam," published in 1850. So that our lyric has the same relation to "In Memoriam" that "Galahad" has to the "Idyls of the King." F.H.S.

CORRESPONDENCE.

H.S.—The books dealing with synonyms most frequently used are the three following: Soule's "Dictionary of English Synonyms" (Philadelphia: Lippincott & Co.), which gives merely a very complete list of synonymous expressions. Crabb's "English Synonyms" is the cheapest work of value in distinguishing the shades of difference in meaning of synonymous words. It contains like-

wise many quotations valuable for definition. The best work by far is Smith's "Synonyms Discriminated" (London: Bell & Sons), which in accuracy of definition, fullness of quotation, and general scholarly character, is not surpassed.

You will find the "Concise Imperial Dictionary" thoroughly serviceable and trustworthy. If you desire a more expensive one, by all means get the "International Dictionary."

We shall try to find space for further Entrance Literature lessons. Your interest in the teaching of literature is very pleasing. You will find some idea of the extent with which you should treat each piece in a study of the Entrance papers, but more especially in the interest of the pupils themselves in the work.

J.B.—The incident narrated by Browning in his "Incident of the French Camp" ("The French at Ratisbon," III. Reader, 141), is substantially true and historical. It was, however, a man, not a boy, who brought the news of victory. You will find Gummere's "Handbook of Poetics" a satisfactory elementary treatment of English verse. It is founded on the best works on English metres. (Boston: Ginn & Co.)

✻ Mathematics. ✻

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

A FIRST LESSON IN TRIGONOMETRY.

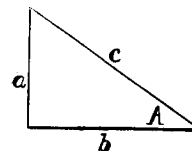
INTRODUCTION.

TRIGONOMETRY is a science founded upon arithmetic, algebra, and geometry. It is a web of mathematical reasoning woven out of the threads spun by these three separate sister sciences. Its special subject-matter in its elementary stages is the relations existing between the sides and the angles of triangles. The first principles are very simple, and yield almost immediately a variety of interesting applications. It assumes a good knowledge of common arithmetic, of the propositions in Euclid relating to triangles, and of common algebra up to and including quadratic equations. The most important propositions of geometry are Euc. I. 47 and 48, II. 13, and VI. 4. The purpose of this lesson is to state and apply the simple principles from which the whole science is developed.

LESSON I.

The first point to be considered is the ratios of the sides of a right-angled triangle to one another.

Consider the triangle whose sides are *a*, *b* and *c*, having the angle opposite *c* a right angle. Call the



angle opposite *a* the angle *A*. Then with reference to this angle *A*, *b* is the *base*, *a* the *perpendicular*, and *c* the *hypotenuse*, and the ratios of these three sides receive special names which must be learned thoroughly

by heart so that they can be read off accurately in any and every position of the triangle.

$\frac{a}{b}$  is denominated the TANGENT of the angle *A*, and is written for brevity, TAN *A*.

$\frac{a}{c}$  is denominated the SINE of the angle *A*, and is written SIN *A*.

$\frac{b}{c}$  is denominated the COSINE, of the angle *A*, and is written COS *A*.

These are the three fundamental abstractions of the whole science. The reciprocals of these three ratios also get individual names, which must be carefully committed to memory.

$\frac{b}{a}$  is called the COTANGENT, and is written Cot *A*.

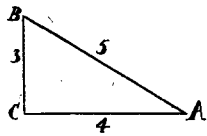
$\frac{c}{a}$  is called the COSECANT, and is written COSEC *A*.

$\frac{c}{b}$  is called the SECANT, and is written SEC *A*.

In order to give definiteness and precision to these six names, we take the right-angled tri-



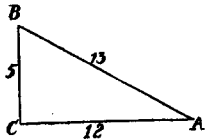
angle ABC, right-angled at C and having the sides respectively 3, 4, and 5 to agree with Euc. I. 47, thus:—



Then  $\sin A = \frac{3}{5}$ ;  $\cos A = \frac{4}{5}$ ;  $\tan A = \frac{3}{4}$   
 $\text{Cosec } A = \frac{5}{3}$ ;  $\sec A = \frac{5}{4}$   
 $\cot A = \frac{4}{3}$   
 Again, looking at the angle B, we have  
 $\sin B = \frac{4}{5}$ ;  $\cos B = \frac{3}{5}$ ;  $\tan B = \frac{4}{3}$   
 $\text{Cosec } B = \frac{5}{4}$ ;  $\sec B = \frac{5}{3}$ ;  $\cot B = \frac{3}{4}$ .

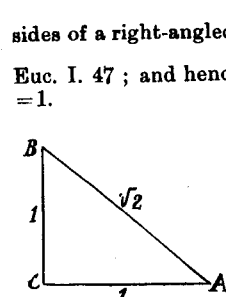
To impress the meaning more fully, take another right-angled triangle whose sides are 5, 12, 13, and the FUNCTIONS of it are:—

$\sin A = \frac{5}{13}$ ;  $\text{cosec } A = \frac{13}{5}$   
 $\cos A = \frac{12}{13}$ ;  $\sec A = \frac{13}{12}$   
 $\tan A = \frac{5}{12}$ ;  $\cot A = \frac{12}{5}$   
 And for the angle B we have:—  
 $\sin B = \frac{12}{13}$ ;  $\text{cosec } B = \frac{13}{12}$   
 $\cos B = \frac{5}{13}$ ;  $\sec B = \frac{13}{5}$   
 $\tan B = \frac{12}{5}$ ;  $\cot B = \frac{5}{12}$   
 and so on for every right-angled triangle.



EXERCISE.

- Write down the values of the six trigonometrical functions of the angle A and of the angle B in each of the following right-angled triangles whose sides are represented by the numbers 25, 24, 7; 41, 9, 40; 61, 60, 11; 109, 60, 91; 125, 100, 75; 89, 80, 39; 73, 48, 55; 53, 28, 45; 45, 36, 27; and 65, 16, 63.
- From the definitions given show that  $\sin A = 1 \div \text{cosec } A$ ;  $\cos A = 1 \div \sec A$ ; and  $\tan A = 1 \div \cot A$ .
- Prove that  $\tan A = \sin A \div \cos A$ .
- Show from the ratios that when a, b, c are the sides of a right-angled triangle  $\frac{a^2 + b^2}{c^2} = 1$  by Euc. I. 47; and hence deduce that  $\sin^2 A + \cos^2 A = 1$ .



Now let us take an isosceles right-angled triangle ABC, and suppose  $AC = BC = 1$ . Then, Euc. I. 47,  $AB = \sqrt{2}$ ; and Euc. I. 32,  $\angle A = \angle B = 45^\circ$ .

The functions of  $45^\circ$  are therefore these:—  
 $\sin 45^\circ = \cos 45^\circ = 1 \div \sqrt{2}$ ;

$\tan 45^\circ = \cot 45^\circ = 1$ ;  
 $\sec 45^\circ = \text{cosec } 45^\circ = \sqrt{2} = 1.4142$ .

We can immediately apply this to practical use.

EXAMPLE.—A tall pine tree is broken by a storm so that the upper part bends over and reaches the ground at a distance of 21 ft. from the root, making an angle of  $45^\circ$  with the ground. Find the height of the tree.

Here  $AC = 21$  ft.;  $\angle A = 45^\circ$ ;  $\therefore BC = 21$  ft. also.

Also  $\text{cosec } 45^\circ = AB \div BC = AB \div 21 = 1.4142$   
 $\therefore AB = 1.4142 \times 21 = 29.6982$ . Therefore the whole tree =  $29.6982 + 21 = 50.6982$  ft.

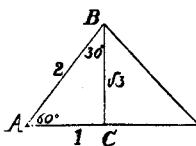
2. A ladder leans against the top of a wall, and its foot makes an angle of  $45^\circ$  with the earth at a distance of 25 ft. from the wall. Find the length of the ladder.

3. Wishing to know the height of a tree, I wait till the sunshine from the top of the tree to the end of the shadow makes an angle of  $45^\circ$ . I there plant a stake and measure the distance to the tree and find it 158 ft. What is the height of the tree, and what is the length of a string that would reach from the stake to the top of the tree?

Let us now look at an equilateral triangle with each side = 2. The angles are by Euc. I. 32 each equal to  $60^\circ$ . If we draw a perpendicular from an angle to the opposite side, it will bisect both the angle and the side, so that we have the figure.

Hence  $BC = \sqrt{3}$ , by Euc. I. 47, and the  $\angle ABC = 30^\circ$ ;  $\angle CAB = 60^\circ$ . Then from our definitions:—

$\sin 60^\circ = \sqrt{3} \div 2$   
 $\cos 60^\circ = 1 \div 2$   
 $\tan 60^\circ = \sqrt{3} = 1.732$



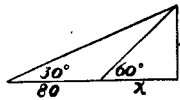
Also  $\sin 30^\circ = \frac{1}{2}$ ;  $\cos 30^\circ = \frac{\sqrt{3}}{2}$ ;  $\tan 30^\circ = 1 \div \sqrt{3}$ .

And we can now make further and more complicated applications to actual measurements, substituting the easy measurement of an angle for difficult or inaccessible measurements.

EXAMPLE.—1. A ladder 30 ft. long, inclined at an angle of  $60^\circ$  to the ground, rests on the top of a wall. Find the height of the wall and the distance of the wall from the foot of the ladder. Here  $\sin 60^\circ = \text{wall} \div \text{ladder} = \sqrt{3} \div 2$   
 $\therefore \text{wall} = \text{ladder} \times .866 = 30 \times .866 = 25.98$  ft.

2. At a distance of 100 ft. from its base, the top of a tower subtends an angle of  $30^\circ$ ; prove that the height is  $100 \div 1.732$ .

A tower stands on the opposite side of a river. Standing on the bank the observer finds that the top of the tower subtends an angle of  $60^\circ$  at the edge of the water. He moves back so far that this angle is reduced to  $30^\circ$ , and finds the distance to the water 80 yd. Find the height of the distant tower.



Here  $\tan 60^\circ = \frac{h}{x}$ , and  $\tan 30^\circ = \frac{h}{80+x}$ , where  $x = \text{width of the river}$ , and  $h = \text{height of the tower}$ .

$\therefore h = x \sqrt{3} = (80+x) \div \sqrt{3}$ , from which we get  $x$ , and thence find  $h = \text{about } 208$  ft.

4. On the bank of a river two stakes, A and B, are driven 100 yds. apart. Taking sight from A to a tree, C, on the opposite side of the river, the angle CAB is observed to be  $60^\circ$ . From B, the angle CBA is also taken and found to be  $45^\circ$ . Show that the breadth of the river must be  $= 50 \times .732 = 36.6$  yd.

5. At a certain distance from a tall tree, a man whose eye is 6 ft. from the ground, takes sight at the top of the tree and finds the base angle  $60^\circ$ . He then moves away till the angle is  $45^\circ$ , and on measuring back the distance finds that he had moved 100 ft. Find the height of the tree. Ans.  $-237 + 6 = 243$  ft.

In mensuration, mechanics, architecture, etc., we find a very great variety of applications of the simple principles given in this lesson. The student will find numerous examples in any good text-book. (See Dr. Birchard's "High School Trigonometry," p. 61, *et seqq.*)

SOLUTIONS TO PROBLEMS.

SENT IN BY SEVERAL CORRESPONDENTS.

43. By JOHN IRELAND, DRACON, Ont. Two straight railways make an angle of  $30^\circ$ . At 100 miles from the angle the *Samson* is approaching at 40 miles per hour, and at the same time the *Reindeer* passes the angle on the other line at 30 miles per hour. What is the shortest line between them as they pass? (See *Educational Weekly*, Oct. 29, 1885.)

SOLUTION by the proposer.—Let  $x = \text{time in hours till the minimum line is reached}$ . Then  $100 - 40x$  is the distance of the *Samson*, and  $30x$  the distance of the *Reindeer* from the angle. Hence by the calculus  
 $n^2 = (100 - 40x)^2 + (30x)^2 - 2(100 - 40x)(30x)(\sqrt{3}/2)$ .

Differentiating,  $x = (40 + 15\sqrt{3}) / (25 + 12\sqrt{3})$ ; 22.12 miles.

44. By L.M.C., Sharon. How many feet of wire  $\frac{1}{10}$  of an inch in circumference can be drawn without waste from 1 cub. ft. of brass?

SOLUTION.— $\text{Cir} = 2\pi r$ ;  $\text{cir}^2 \div 4\pi = \pi r^2 = \text{area of end}$ ;  $\text{cub. in. in one foot of wire} = 120^2 \div 4\pi$ ; No. feet of wire in a cub. ft. =

$1728 \times 1600 \times 2^2 \times 4 \times \frac{1}{12} = \text{etc.}$

45. Two trains, A and B, are on two roads crossing at right angles and approaching the crossing. A is  $a$  miles from the crossing and goes  $\alpha$  miles an hour; B is  $b$  miles from the crossing and goes  $\beta$  miles an hour. When will they be nearest together, and how far apart will they then be? (Junior Matric., 1891.)

SOLUTION by PROFESSOR DUPUIS. Let  $x = \text{time in hours}$ . Then  $a - \alpha x$  is A's distance from the

crossing at the end of  $x$  hours, and  $b - \beta x$  is B's distance.

Their distance apart is, Euc. I. 47, the square root of  $(a - \alpha x)^2 + (b - \beta x)^2$ , and this is to be a minimum.

But its square will also be a minimum, or  $x^2(\alpha^2 + \beta^2) - 2x(\alpha a + \beta b) + a^2 + b^2$  is to be a minimum.

The value of  $x$  is  $(\alpha a + \beta b) / (\alpha^2 + \beta^2)$ , and if this value for  $x$  be substituted the function reduces to

$(b\alpha - a\beta)^2 / (\alpha^2 + \beta^2)$  which is the square of the least distance. (See "Principles of Elementary Algebra," p. 142, Macmillan & Co., 1892.)

46. By D.R., Huron. Solve the equations

$x^2 y - 4 = 4x^{\frac{1}{2}} y - \frac{1}{4} y^3 \dots (1)$ ,  $x^{\frac{3}{2}} - 3 = x^{\frac{1}{2}} y^{\frac{1}{2}} (x^{\frac{1}{2}} - y^{\frac{1}{2}}) \dots (2)$ .

(High School Algebra, p. 195, Pt. II.)

SOLUTION.—Transpose (1) complete squares, and we get

$y(x^2 + x + \frac{1}{4}y^2) = xy^2 + 4x^{\frac{1}{2}}y + 4$ , whence

$y^{\frac{1}{2}}(x + \frac{1}{2}y) = x^{\frac{1}{2}}y + 2$ , that is

$x^{\frac{1}{2}}y^{\frac{1}{2}}(x^{\frac{1}{2}} - y^{\frac{1}{2}}) = 2 - \frac{1}{2}y^{\frac{3}{2}} = x^{\frac{3}{2}} - 3$ , from (2)

whence  $2x^{\frac{3}{2}} + y^{\frac{3}{2}} = 10 \dots (3)$

(2)  $\times 3$  gives  $3x^{\frac{1}{2}}y^{\frac{1}{2}}(x^{\frac{1}{2}} - y^{\frac{1}{2}}) = 3x^{\frac{3}{2}} - 9$

$= x^{\frac{3}{2}} - y^{\frac{3}{2}} + 1$ , from (3)

i. e.,  $x^{\frac{3}{2}} - y^{\frac{3}{2}} - 3x^{\frac{1}{2}}y^{\frac{1}{2}}(x^{\frac{1}{2}} - y^{\frac{1}{2}}) = -1$ . Take cub. rt. and

$x^{\frac{1}{2}} - y^{\frac{1}{2}} = -1$ , or  $y^{\frac{1}{2}} = x^{\frac{1}{2}} + 1 \dots (4)$

Substitute in (3) and  $3x^{\frac{3}{2}} + 3x + 3x^{\frac{1}{2}} = 9$ , or

$x^{\frac{1}{2}} - 1)(x + 2x^{\frac{1}{2}} + 3) = 0$ , whence  $x = 1$ ,  $y = 4$ , the other solutions being inapplicable to the equations.

PROBLEMS FOR SOLUTION.

47. By S. CLARE, Toronto. An ass is tethered to a stake on the verge of a circular meadow containing one acre. What is the length of the cord that will enable the animal to graze over half an acre?

48. By J.H.P., Ont. P is any point outside a circle; secants PAB and PCD are drawn; AD and BC are joined. Prove, without introducing the doctrine of proportion, that their intersection is on the chord joining the points of contact of the tangents from P.

49. By STUDENT, B.C. Factor the expression  $(a^3 + b^3 + c^3)xyz + (x^3 + y^3 + z^3)abc + (b^2c + c^2a + a^2b)(y^2z + z^2x + x^2y) + (bc^2 + ca^2 + ab^2)(yz^2 + zx^2 + xy^2) + 3abcxyz$ .

50. By J. A. C. MOORE. A man and a boy engaged to do a piece of work for \$21, but when two-fifths of the work was done, the boy ran away, and the man had to complete the work alone, and the consequence was that the work took  $1\frac{1}{2}$  days more than it should have done. Now the boy could do only half as much work as the man, and his wages were in proportion to his work. How much did each receive per day?

51. By the EDITOR. A contractor employs a fixed number of men to complete a work. He may employ either of two kinds of workmen; the first at 26s. 6d. per week each, the second at 18s. 6d. per week each; the work of one of the former being to that of one of the latter as 5 is to 4. If he finishes it as quickly as possible, he spends £270 more than he would if he had finished it as cheaply as possible, but takes 4 weeks less time. What would it have cost if he had employed equal numbers of the two kinds of workmen?—Cambridge, 1869.

AN ASTRAL DECIMATION.

A LITTLE group were discussing Biela's comet in a country store. "I tell ye," said Farmer Hardshell, "that was a great fall of stars the time that comet came along. I see more than a thousand drap, with my own eyes."

"I didn't see 'em," responded Joshua Bright; "but I looked aout the next night, and I noticed the stars was thinned aout considerable."—Puck.

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Published Semi-monthly.

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J. E. WELLS, M.A. . . . . Editor.

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## PUBLISHERS' DEPARTMENT.

The offers we made last issue are still continued, and we have added two others which will prove acceptable.

From now until further notice every one who sends in their subscription for the EDUCATIONAL JOURNAL for one year in advance, whether new or old subscribers, will receive

**"The Educational Journal" one year, and the "Farm Journal" one year free.**

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**"The Educational Journal" one year, and the Excelsior Webster Pocket Speller and Definer free.**

**"The Educational Journal" one year, and a Revolving Planisphere free.**

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### TEACHERS' CONVENTIONS.

East Bruce, April 27th and 28th, at Chesley.  
West Bruce, May 4th and 5th, at Kincardine.  
Brant County, May 11th and 12th, at Brantford  
Haldimand County, May 22nd and 23rd, at Caledonia.  
East Kent, May 25th and 26th.

## \* Editorials. \*

TORONTO, APRIL 1, 1893.

### ARBOR DAY.

THE next number of THE JOURNAL (April 15th) will be Arbor Day number. In addition to articles bearing on the best modes of turning the day to account, hints concerning trees, shrubs, flowers and other decorations and how to plant and cultivate them, we shall as usual give carefully chosen selections suitable for recitations, in connection with the school exercises for the day. Our thanks are due to those who have already kindly sent us papers, verses, etc., for the purpose, and we shall be very glad to receive suitable contributions from others who may be able to add, from the result of their reading and experience, so as to make the number as interesting and helpful as possible. It will be necessary, however, for all such "copy" to reach this office within a very few days after the date of this paper.

If we thought any word of ours could be of use in urging upon all teachers in town and country the duty and delight of entering heartily into the spirit of the day and striving to arouse enthusiasm in their pupils, we should gladly say it. The teacher who succeeds in opening the eyes of a boy or girl to the discovery and appreciation of the beauty of a tree, or shrub, or flower, and in creating a taste for neatness and order in all the appointments of the school, within doors and without, has done that child a service which may make his or her life altogether brighter, happier, more useful and more elevated throughout. This is true educational work. It is the tendency of such tastes and impulses, once awakened, to grow, gradually softening and refining the character, and opening up new and more elevated sources of enjoyment, which would otherwise have been unknown and inaccessible. What other satisfaction can equal that of having been the means of raising the whole life of a fellow-being to a higher level than that on which it would otherwise have been passed.

We need not enlarge, but we would throw out a single practical hint. The foundation of all good taste in decoration is neatness, tidiness. This is something which may be had everywhere, no matter what obstacles may stand in the way of improvements. The close of Arbor Day should find the premises of every school in the Province—rooms,

halls, grounds—as free from all litter and from everything unsightly, and as absolutely clean and tidy and attractive as it is possible for the combined tastes and efforts of teachers, pupils and trustees to make them. And then it should be made a matter of pride and daily care to keep them so. If nothing more than this were accomplished, Arbor Day would have been well spent.

### "SITTING STILL" AND "KEEPING QUIET."

WE reprinted in our last number a short paragraph from the *N. E. Journal of Education*, which contains matter for thought out of all proportion to its size. Its purport is that "a fire is to be opened all along the line against the traditional 'sitting still' idea." The writer states that there are already many schools in which the practice is absolutely done away with, and that he has seen one primary school in which "the entire session was one grand recess, the children going about the room as they liked, studying aloud if they chose—and most of them did choose"—and yet in that school, he affirms, there was the most work accomplished and the best results attained that he had anywhere seen.

Let us at the outset eliminate one feature of this picture which is too hideous to be viewed with patience, to say nothing of admiration. We refer to the "studying aloud." What is meant by studying aloud? We can conceive of but one school-room process which can with any regard to the fitness of words be dignified with the name of "studying," which can be done "aloud." That is the work of memorizing. This has happily been reduced to very small dimensions in all progressive schools at the present day, there being, so far as we are aware, but one case in which it is deemed defensible by any one aspiring to the dignity of an educator, that is, the committing to memory of choice selections from the works of the best authors, in prose and poetry. But to carry on even this desirable process "aloud," or to pretend to do so, in the school or elsewhere, would not only be an intolerable nuisance to all within hearing, but would be utterly inconsistent with proper mental concentration, or the formation of proper mental habits. Apart from the exercise of memory, pure and simple, we can think of no brain-work, no form or kind of thinking, which alone is "studying," which can be done "aloud." It is true that among our very earliest recollections of the "district" school in a remote and sparsely settled country place, is a vivid picture of the swaying bodies of rows of children, "making believe" for the benefit of the old school-master—who was only too glad to have

them keep themselves out of worse mischief for a time in this way—that their brains were very busy over a reading or geography lesson, while the hum and buzz of their monotonous droning resounded from wall and ceiling, and was borne through the open window by the summer breeze, for the delectation of the mower in the distant field, or the rare passer-by on the public road. But we cannot suppose that such a custom survives even in the remotest hamlet, in the last decade of the century, or that if it does, any intelligent teacher would think of describing the strange survival as “studying.”

Passing this point, however, the words we have quoted suggest a most important question of school methods. We do not know very well to what extent absolute silence and stillness, so far as it may be in the power of the teacher to enforce them, are the rule in Canadian schools, in city or country. Within the very limited sphere of our personal knowledge they are so. Looking back to our own experience in the receding past, we have a very vivid impression that we expended more brain force, and drew more heavily upon our stock of nervous energy, in a vain attempt to realize an impossible ideal of absolute quiet, than in all the other duties of the school-room. That was, we dare say, largely the result of imperfect methods or misdirected efforts. We should much like, however, to have the views of some of the many experienced and successful teachers among our readers upon the point. We should like to know what are the prevailing ideas and practice in the best Canadian schools. We are sure that a discussion of the question in a series of brief letters would be of great service as well as of special interest to many, who may still find the effort to solve the problem one of the hardest tasks of their daily lives. We have no doubt that some opinions or hints from any of the Inspectors who might have time and inclination to give them, would be specially acceptable and useful.

#### “CONDUCT AND MANNER.”

THE *Canadian Magazine* is at once the latest and the most promising of Canadian literary ventures which we have yet seen. The first number, bearing date March, 1893, contains a variety of good and interesting articles by some of the foremost of Canadian writers in prose and verse. Amongst these, one which will attract the attention of a good many readers, and is in some respects of special interest to teachers, is by Professor Clark, of Trinity University, Toronto, on “Conduct and Manner.” The subject is not a new one by any means, but it is one which does not

always receive the attention it merits, especially in a young country like Canada, and amongst those who, like most of our students and teachers, are kept too busy in preparing themselves for professional duties, and often in correcting the faults and supplying the deficiencies of early education, to have much time to mingle in society, or to devote to the study of what they are apt to regard as matters of secondary importance. To such, a brief extract or two from this paper may prove suggestive and helpful.

Professor Clark reminds us at the outset that while behaviour may be said to hold a position inferior to that of character “its place is close to the other, and indeed it is inseparable from it, as the body is from the soul.”

But how, it may be asked, do the representatives of the Anglo-Saxon race on this side of the Atlantic compare in this respect with the inhabitants of the old world. This is a question not quite easy to answer. In the first place, we have, of course, a considerable number of persons who differ in nothing in their general bearing from English ladies and gentlemen. But there seems to be a general notion that manners are not improving among the inhabitants of the United States or Canada. We have before us an article from the *New York Nation*, insisting upon the necessity of teaching in our schools “what is called manners, or minor morals. In this field,” the writer says, “our common schools do nothing, or next to nothing. Little or nothing is done in the schools to combat the mischievous delusion that suavity of manner is a confession of social or other inferiority, and that in order to preserve his self-respect and maintain his republican equality an American has to be surly or indifferent, after the manner of hotel clerks or expressmen, and too often salesmen and ‘salesladies’ in stores. The result is that we have probably the worst-mannered children in the civilized world.”

Have these remarks any application to ourselves here in Canada? It was but the other day that a child who had been at one of our Public schools was noticed by her friends as having changed some of her modes of speech and action. For example, she no longer said “Thank you,” when she received an attention, nor did she say “If you please,” when she asked a favor, and when someone inquired as to the reason for her giving up these practices of ordinary courtesy she said her teacher had forbidden her to make use of them as they savored of servility. We doubt whether our cousins across the line could beat this. And the consequences of this kind of education are visible everywhere. What shall we say of the “sales ladies” in our stores? It is even asserted that the manners of young ladies who deal in our stores are so insolent that those who serve them adopt similar manners in self-defence. Whether this be so we have no means of knowing; but the manners of some of our “ladies,” particularly we might say of those to whom gentle-

men who give up their seats in street cars, are not always absolutely beautiful.

We have been tempted into making a longer extract than we intended, by reason of the peculiarly practical and suggestive character of the extract. This leaves us room for only a few fragments:

On the one hand there are certain principles which must enter into the composition of what we call good manners. On the other, it is by no means necessary that everyone should conform exactly to the same pattern. To require or to expect, for example, that every one should have the same amount of vivacity on the one hand, or the same solidity of manner on the other, would be a patent absurdity.

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Again, in good behaviour, there must be a certain regard for custom. It is easy to rail against conventionality, and if by conventionality we are to understand falseness, unreality, the mere parrot-like repetition of other people's words and ways, then let us denounce it in the name of truth and goodness. It is an evil and a hurtful thing. But all this may be said without our failing to recognize the importance of custom and the necessity of following it. A man or a woman who regards with contempt and treats with neglect the common customs of his own country is, if possible, more foolish than one who lives in a constant state of terror or alarm lest he or she should not have learned or adopted the latest fashions.

One great guide, one powerful protection, in our intercourse with others, is that which must indeed be reckoned a chief part of all noble, human and Christian conduct, namely, the having a constant regard to the opinions, the feelings, the inclinations, and the interests of those with whom we are brought into contact.

To put forth this duty plainly and strongly is not to surrender one's own independence of speech and action, nor is it to counsel a servile spirit which would not only hurt our own self-respect and dignity, but which would be almost equally injurious to others. But such surrender of our own liberty will never be necessary; nay, it will hardly be possible, when our consideration for others arises from kindness and affectionateness of feeling. Servility proceeds from selfishness, not from love. It is engendered and fostered rather by the desire to gain our own ends than by the wish to do good or to bring pleasure to others. He who acts from the higher and nobler motive will hardly ever be tempted to conduct so unworthy of his manhood; and if he is tempted, he will have a reserve of strength in the principles by which he is habitually animated. It is hardly too much to say that we are here touching upon the very distinction between a man whose conduct we approve and whose character we admire, and a man whose conduct is offensive and repulsive.

THE mind is its own builder. It is the business of a teacher to attend this builder, and supply the right material in proper quantity at the right time. To deluge the builder with ill-prepared and unasorted material does not facilitate the process of building.—*Anon.*



## Primary Department.

### ENUNCIATION.

RHODA LEE.

CORRECT enunciation is a quality of expression that should receive a great deal of attention. Clear, distinct articulation is not a characteristic of the majority of children who come to us, but we can do much to cultivate it. Exercises designed for this purpose cannot be given too early. They should commence in the very lowest class and extend to the highest. Not the same exercises of course, but all with the one object in view.

No two classes will require exactly the same practices. In some there will be difficulty with the initial sounds, "h," "r," "wh," "s," etc. Others require attention to the vowel sounds, while the majority are afflicted with what might be termed lazy enunciation—slurring over in a most deplorable way, and even omitting altogether, the all-important endings of words.

Exercises for cultivating proper enunciation may be arranged conveniently in a chart which can be turned to at any spare moment. Lists of work containing certain difficulties should be made and sentences formed embracing as many of these words as possible. Exercises such as the following may be found in any work on elocution:

The horn of the hunter hung high in the hall.

He heard the herdsmen hurrying home.

Round the rugged rock the ragged rascal ran.

What whim led Whitney White to wheel round the boat when he saw the whale?

Timothy Thickthong thrust three thistles into the thick of his thumb.

Thirty-three thousand things thwart thoughtless thieves.

Sam Slick's sweet sister Susan saw sixty sets of scissors sharpened and set last Saturday.

The greatest trouble we find with the vowels is the tendency to broaden the sounds. Words such as cometh, children, sacred, listen, because, we hear pronounced comuth, childrun, sacrud, listun, becuz. These and other words liable to be mispronounced, such as, your, dew, new, etc., should be kept in lists and read and drilled upon as frequently as possible.

But perhaps the exercises we need most are those on the final sounds. Endings, such as "pt," "sts," "ing," and "nd," are, as a rule, so carelessly pronounced.

For this, give exercises containing the following words:

(a) Kept, swept, crept, slept, wept, etc.

(b) Mists, ghosts, posts, fists, insists, wrists, thrusts.

(c) Ringing, singing, clinging, bringing, pudding, stocking, rocking, etc.

(d) Land, band, grand, stand, brand hand, bend, lend, find, bind, etc.

From the words let the children, if possible, make sentences and use these as a part of your reading gymnastics. For example:

1. He crept into bed but wept before he slept.

2. He thrusts his fists against the posts.
3. Flinging himself down he listened to the clanging and ringing of the bells.
4. Hand me that brand new stand.

How often we hear, what would be otherwise good reading or beautiful singing, spoiled entirely by poor, indistinct enunciation. Let us do everything we can in the school-life by example, precept and practice to cultivate purer, better, more pleasing speech.

### REPRODUCTION STORY No. 1.

THE following and other little stories which will be given from time to time are actual reproductions by pupils in a Toronto school of stories read to them. They appear just as the children wrote them, with the exception of a few corrections in spelling.

#### THE BOY WHO WAS ALWAYS LATE.

THERE was once a little boy who was always late for breakfast. One day in winter he heard the breakfast bell ring and he fell asleep again. He woke up and heard the bell again but still he fell asleep. His name was David.

When he woke up again he looked out of the window and there he saw a nice double sleigh. All the family were in the sleigh and as soon as they got ready off they went along the road and poor David was left alone in the house. When his mother came home she said to David, I was sorry to leave you alone in the house but it was your own fault.

GORDON PAXTON, (Age 8.)

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#### GRACE DARLING.

GRACE DARLING was the daughter of a light-house keeper. One night there was an awful storm and there was a boat dashed into pieces and broken. Nine people clung to the rocks and were saved in the morning. Grace took her spy glass and saw these poor people on the rocks and Grace begged her father to get out the life boat but her father said it was no good to go, they would just get drowned but at last he did and saved the people and took them to the light-house and got them warmed and got them something to eat and that is the end of my story.

MAGGIE HAIG, (Aged 6.)

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#### A BRAVE GIRL.

GRACE was a good girl and she saved nine people. But I suppose you would like to know who Grace was. She was the daughter of a light-house keeper and she was not afraid of the sea. She had great skill with a boat and she would row while her father put out the nets. And one night there was a great storm and as soon as Grace wakened up she took a spy-glass and she saw some people on the rocks. She called to her father to get out the life-boat. Her father said no boat could stand that storm but she coaxed her father and after he got the boat out and they found nine people clinging to the rocks and she and her father saved the nine people.

MONTAGUE STAFFORD, (Aged 7.)

### THE RAINY DAY.

TUNE—"There's nae luck about the hoose."

THE rain is falling very fast,  
We can't go out to play,  
But we are happy while in school,  
Tho' 'tis a rainy day.

CHORUS—Then clap, clap, all together!  
Clap, clap, away.  
The school may be a happy place,  
Upon a rainy day.

For while the rain comes pattering down  
We merrily sing our song.  
To hearts content and spirits light,  
Hours quickly speed along.

CHORUS—Then clap, clap, all together, etc.

We listen all attentively,  
To what our teachers say  
And when our lessons all are o'er  
'Tis then the time to play.

CHORUS—Then clap, clap, all together, etc.

MOTIONS.—Falling rain—hands moving swiftly from wrist, gradually descending.

Pattering rain—tips of fingers on desk, tapping quickly and lightly.

In chorus, all clap lightly keeping perfect time with music.

### DICTIONATION EXERCISE.

THE following letter for dictation was given the highest primary class in the Boston schools as a test for promotion. It included spelling, writing, punctuation, and capitals.

(TO THE TEACHER: Read through the letter once to your pupils; and then, as you slowly dictate, require them to write it.)

BOSTON, June 9, 1892.

DEAR JOSEPH,

You wish to know what I do in school. Reading, writing, and arithmetic take up most of my time. I have learned about my own body, and have studied animals. I have had lessons in paper-folding and making things of clay. Does your teacher let you have knives and scissors? Mine says every one must use his hands as well as his eyes. It will not be my teacher's fault, if there are mistakes in this letter. Your friend,

ROBERT T. ANDREWS.

—Primary Education.

### PRIMARY NUMBER.

BY R. N. YAWGER.

DID you ever vary your primary number work with the following exercise? If not try it. Put on the board several numbers with the combinations of which the children are already familiar. Tell the children to make an example using two of the numbers, give the answer and call on another child who does the same. Explain that these examples must make a continuous story, and each child must start with the previous answer, as:

2 4 1 5 3 6 8 10 7

Mary—Jane had one apple and Kate gave her two more, then she had three apples, Harry.

Harry—Jane found three more apples lying under a large tree. Joe came along and asked her how many apples she had. Jane said, "I have now six apples," Ruth.

Ruth—Then Joe said, "Oh, Jane, give me two of them, won't you? I am fond of apples." So Jane gave Joe two apples, and she had four left, Maud.

Maud—As Jane was going into the house with her four apples she dropped one and she had but three, Walter.

Walter—But Jane's mother said, "Never mind, I will give you three times as many as you have now," and she gave Jane nine more. Then Jane had twelve apples, etc.

This may be continued indefinitely, and with a little practice the children will exercise great ingenuity. The teacher should guide the work to see that all are called upon, and also that no unfamiliar combinations are involved. She may give the last story herself and then lead up to the new combination. Care should be used throughout in regard to the language.—*American Teacher*.

## PRIMARY LANGUAGE LESSONS.

BY CATHERINE A. TIERNEY.

[Fill blanks with *was* or *were*.]

1. JOHN—at the party.
  2. The other boys—there, too.
  3. The man—in the house.
  4. Three men—walking in the field.
  5. The girl—going home to-day.
  6. The four girls—at school.
  7. I—not in the house when John came.
  8. We—going away when Lucy called to see us.
  9. —I in the house when you rang the bell?
  10. —we among the ones you asked to stay?
  11. He—too old to run.
  12. They—all on their way to school.
  13. —he the man whom we met?
  14. —they the boys who stole the apples?
  15. She—five years old at the time
  16. They—almost late for school.
  17. —they the two children of whom you spoke?
  18. —she the girl to whom you gave the pear?
  19. You—not at home this morning.
  20. I asked Lucy if you—in the house.
- American Teacher*.

## MORNING EXERCISE HELPS.

DO THE BEST YOU CAN.

THERE is a pretty story about two children—a boy about ten years old and a girl a little older. The boy could draw very nicely, and once his papa showed his drawing to a strange gentleman, and talked about his wonderful talent.

"And what has this little lady a talent for?" asked the gentleman, turning toward the modest-looking little sister, who had entered the room after her brother, and now stood quietly by her mother's side.

The father hesitated, as his eyes rested on his less gifted child; but her mother, drawing her fondly towards her, replied, "This little girl has a talent for doing the best she can."

Wasn't that a sweet thing to say? Do the best you can, children, and although you mayn't be as clever as the others, you will always have eyes of love turned on you.—*Great Thoughts*.

## \* Hints and Helps. \*

### THE PLAYHOUR IN A COUNTRY SCHOOL.

FRED. BROWNSCOMBE, PETROLIA.

#### III.—INDOOR GAMES.

ACTING CHARADES.—These are, of course, amusements of grown up folk, and, as such, are, I suppose, familiar to most of my readers. However, I find them very suitable for my elder pupils, particularly during inclement weather when the attendance is small and few of the younger children are present.

Charades are really impromptu theatricals, but, besides affording considerable scope to the dramatic instinct upon which they are based and which all human beings seems to possess to some degree, they provide an excellent exercise in thought and expression, and well-read or original pupils take part with decided interest.

The procedure is somewhat as follows: Divide the players equally and send from the room those who are to compose the audience; the others select a word of two or more syllables, each syllable of which must be of such a nature that it may be used as a word itself, as *car-pet*, *fire-man*, *chorus* (*core-us*), *music* (*mew-sick*), *seclusion* (*see-clue-shun*), etc. They then prepare a scene with appropriate dialogue and movement, in which the word representing the first syllable may be uttered several times, and the idea contained in it may be represented as clearly as possible.

All being in readiness the audience are called in to observe and listen till the end of the scene when they retire again. Each remaining syllable is treated in a similar way and finally the whole word is brought out. At the end of this last scene the listening party guesses, if they can, the word. It is then their turn to be the actors, while the others become the audience.

For example we had not long ago, the word "carpet." For the scene for the first syllable, two rows of desks represented the seats in a *car*. The school-bell in the hands of a small boy was the engine bell, another boy was appointed conductor, and another officiated as brakesman; the rest, with hats on and carrying wraps, stood at one side as passengers waiting on the platform. When all were ready the other party were admitted. The conductor then cried "All aboard" and the passengers took their seats.

There was, of course, the inevitable old lady with numerous bundles who had to be assisted by several, and who was greatly excited lest she might lose something. After the train started, the conductor examined the tickets and explained things for the talkative old lady, the brakeman, at intervals, called out the names of the stations approached, and cars were changed at the proper places, each person acting his part as naturally as possible till Toronto was reached, when all left the car, thus ending the first part.

The other party were then dismissed till called in to witness the second part, that is, the one with "pet" as its central idea. "Mary had a little lamb" supplied the plot for this, the "lamb" being a small boy attached to a rope, and the scene a morning in school. Then came the last part for "carpet." The audience listened attentively to the dialogue this time, and after several trials guessed the word.

HIDE THE RULER.—The pupils, with the exception of one, leave the room. To this one is given a short ruler (or other object) to hide in any place he chooses. After doing so he summons the others, who immediately enter and search for it, each one exclaiming as he discovers it, "I spy the Ruler," till all have found it. The first one to find it has the privilege of concealing the object next. For apparent reasons the law of the game is that some part of the hidden object must be visible.

THE FAMILY COACH.—In this the teacher must take the part of chief player, as it is necessary to invent a long story, and a considerable tax is put upon the memory. He gives to each pupil the name of some person or thing to be mentioned in the story which is chiefly concerned with the adventures of a family coach. For example he calls one "the coachman," another "the whip," others, "the old gentleman," "the young lady," "the little dog," "the landlord," etc. He then takes his stand in the centre and commences his

narrative, in the course of which he takes care to mention all the names given to the players. When the name of a player is mentioned he must immediately rise from his seat, turn round, and sit down again; and, when "the family coach" is named all the players rise and turn; any one failing to do so must leave the game or suffer some penalty previously determined upon.

TWENTY QUESTIONS is similar to "Animal, Vegetable and Mineral," excepting that only twenty questions may be asked, but these may be any questions whatever.

HIDE THE KEY.—The players stand in a circle, holding a long cord, forming an endless band, upon which a small key has previously been slipped. The key is passed rapidly from one hand to another—always concealed by the hands—while somebody in the centre endeavors to discover the person who holds it, who, when rightly named takes his position in the centre instead of the other. If the circle is very large two keys may be slipped upon the cord and two players placed in the centre together.

Instead of using a cord each player may grasp with his left hand the right wrist of the person to his left. The key is passed from hand to hand, the players making a circular motion and touching hands frequently as in passing the object. In this case, if the key drop on the floor the centre player may choose anyone to take his place.

JACOB AND RACHEL.—The players join hands, forming a circle with a boy and a girl in the centre. The boy is blindfolded and must remain so till he catches the girl when he has the privilege of choosing some other boy as "Jacob." "Rachel" then wears the bandage and pursues the new Jacob. If at any time she becomes unaware of his whereabouts she calls out "Jacob," and he must immediately answer "Rachel," or vice versa. "Rachel" chooses a girl in her place when she has caught the boy. My pupils usually give the pursued player the school-bell to carry, whose jingle does away with the calling.

BACHELORS AND MAIDS.—The boys go into the lobby leaving the girls in possession of the school-room. Each girl selects an occupation which she is to represent in pantomime with such suitable instruments as she can get, the music teacher, for example, carrying a music book, the housekeeper a broom, the mason laying bricks, etc. Each boy also chooses a business. When all are ready the girls march in a circle, moving towards the right, while the boys enter and march in a larger circle outside the girls moving towards the left, each boy and each girl making all the while the motions of his or her occupation. When a boy observes a girl of the same trade as himself he offers his arm and they two leave the circles and walk about. When all of similar occupations have left the march, the couples so formed clap hands at the "Old Maids" and "Old Bachelors" who are left.

EYES ONLY.—Sides are chosen who stand near the door, one in the room and the other in the lobby. The doorway is hung with newspapers so that each party is unseen by the other. At the proper height two small holes are made in the paper for a person's eyes. One of the outside party then applies his eyes (open, of course), to the apertures, whereupon one of his opponents scrutinizes them for a few seconds and announces their owner's name; if correct he guesses at others again and again till he makes a mistake, when he steps aside and another takes his place. This continues till all the inside party have had a trial, after which the other party does the guessing.

Any person whose name has been announced correctly must join the guesser's side, at the time or at the termination of that side's guessing as is most convenient. If a player be wrong in his first guess he must go over to the other side. Continue till one side has absorbed the other or till some other game is called for.

GRUNT.—In this game with the euphonious name a blindfolded boy (or girl) with a reversed broom in his hand stands in the middle of a circle formed by the players joining hands.

After the circle has moved around several times that he may not know the position of any particular person, and stopped again, the "blindman" advances some steps, taps his broom upon the floor and utters a grunt or inarticulate sound of some kind, upon which the player before whom he has

tapped his broom must respond in a similar manner, being allowed, however, to conceal his voice as skilfully as he can. The "blindman" now guesses the name of the other, and if successful exchanges places with him; if not the circle moves round again, stops, and he tries once more.

**TWIRL THE PLATE.**—After the players have seated themselves in a circle and numbered from "one" up, "one" takes his stand in the centre with a plate or stovetid in his hand. This he starts whirling on its edge, calling out at the same time one of the given numbers. The person bearing this number immediately springs forward and endeavors to grasp the whirling object before it falls. If successful he also twirls it and mentions a number; if it falls before he reaches it, or because of his attempt to seize it, he must leave the game and the first player starts it going again. This may also be played by calling two numbers, the one to catch the plate having the privilege of starting it again, while the other goes back to his place in the circle. If neither gets it, the other player whirls it again.

**THE FEATHER.**—The players sit or stand in as small a circle as possible with a shawl stretched tightly in their midst and held tightly under each chin. Some one takes a small piece of light paper crushed slightly, places it before his mouth and then blows it towards some other player. The one towards whom it comes must blow it towards some one else, for if it touches him he must leave the game. Game continues till about half are out. A light feather may be used instead of the paper.

In this, Twirl the Plate, and The Family Coach, instead of having the unsuccessful players leave the game, you may write on slips of paper a number of penalties, placing the slips in a hat. When the game has continued long enough, have the unsuccessful players draw the slips and undergo the penalties prescribed thereon.

**HOT COCKLES.**—One of those taking part kneels, with one hand placed palm uppermost on his back, and with his face in a cap laid on the chair or seat before which he kneels. The rest of the pupils in turn administer as lap to the open hand, the kneeler after each slap turning round and endeavoring to discover who bestowed it. When he guesses correctly, the detected player takes his place.

#### IN THE SCHOOLROOM.

"TOILING, rejoicing, sorrowing,  
Onward through life he goes;  
Each morning sees some task begun,  
Each evening sees its close.  
Something attempted, something done,  
Hath earned a night's repose."

What are the teacher's emotions as she enters her schoolroom every morning? Are the following lines expressive of her sentiments?—

"Uneasy lies the head of all who rule;  
Her's, worst of all, whose kingdom is a school."

Does she long for the mechanical performance of duties, which she terms teaching, to terminate, in order that she and her unfortunate mechanisms may be liberated? Or, on the other hand, does she realize the nobility, happiness and sweetness of rearing "the tender thought," and thus enter upon her daily duties with a kind, loyal, yet thoughtful, heart, knowing that she is teaching for eternity, not merely for the current term?

The teacher who would be a true educator and seek to develop character as well as intellect, adheres to the principles of the "golden rule." She is appreciative and sympathetic. She bears in mind that her pupils—to quite an extent—are her reflectors, and as she wishes for kindness, she's kind. She wishes for truth, hence she's true.

Instead of continually "harping" at the dull, thoughtless boy, she shows her appreciation of the bright, thoughtful one, knowing that if she brands a boy with "bad," or "stupid," he will in all probability live up to the reputation.

She encourages her pupils to confide in her, putting a high premium on sincere, penitent "confessionals."

She does not forget the little courtesies which sweeten social intercourse, viz., "Thank you," "If you please," "Good morning," etc.

In full, the true educator endeavors to make her pupils "make the most of themselves, by instilling principles of virtue and honor, and teaching

them that goodness and usefulness are the greatest nobility.

The teacher who has the privilege of moving in a social and moral school atmosphere—and all may, who admit the truth of "the world is just what you make it," will not find the work irksome. True, it is sometimes tiresome and discouraging, but consciousness of duty faithfully and lovingly performed will be an ample reward.—*L.M., in Educational Review.*

#### THE RECITATION.

No suggestion that I can make is more important than that teachers study how to get more done in the few minutes given to recitation, the purposes of which are to find out whether the work assigned has been done, and, if not, why not; to train the entire class to a more thorough understanding and expression of what they have learned, to apply what they have learned in new directions, and then prepare the way for work of another day. All this must be done for the ten or twenty different pupils with but thirty precious minutes in which to do it. I have often seen a teacher spend most of the time in getting at his work, standing idly by while the pupils were at work at the board, or at work with one pupil while a dozen were unemployed and listless, or teaching as if he were helping the pupils learn their lessons, and using other devices apparently to kill time.

The problem of the recitation is, how to lay out work for pupils so that they will bring the necessary material to the recitation, and then for thirty minutes keep every boy and girl intensely busy and interested listening, thinking and doing, in handling the matter of the lesson. At the close of such a lesson the pupils leave the room like young gymnasts, energized and strengthened intellectually by the vigor of the training. On the other hand, a sluggish recitation not only furnishes no good results, but trains to sluggish habits that make it impossible for a boy to gather himself upon occasion as at an examination, and work vigorously and with effect.—*Superintendent Kiehle.*

#### THE TEACHER IN THE RECITATION.

1. The teacher, while hearing a recitation, should assume a position that will enable him to keep all of his pupils in sight.

2. In large classes it is best, if possible, for the teacher to assume a standing position, but whether sitting or standing the position should be graceful.

3. The teacher's manners in the presence of his class should be dignified and gentlemanly.

4. The teacher should be pleasant and affable in his manner of teaching, and thus control his class by his own example.

5. The teacher should so conduct his work as to keep all in the class interested and busy.

6. The teacher should show by his manner that he himself is fully interested in what he attempts to teach, and thus awaken interest on the part of his pupils.

7. The teacher's language should be well chosen and correct, that his pupils may not lose respect for him because of his many errors of speech.

8. The teacher should be enthusiastic and energetic, thus leading his pupils to feel the importance of the work in which they are engaged.

9. The teacher should use pleasant tones of voice, and thus avoid creating nervousness in either himself or his pupils.

10. The teacher should be even tempered, not permitting trifles to ruffle or provoke him to scold, and thus make his pupils disorderly.

11. The teacher should be prompt in calling and dismissing classes, and prompt in his questions and general class work.

12. Everything in the class recitation should be methodical and systematic, but not to such an extent as to destroy interest.

13. The teacher's manners should be such as to encourage the timid and repress the impertinent.

14. The teacher should be quick to change his methods of recitation the moment the interest begins to flag.

15. The teacher should take as little of the recitation time as possible in reprimanding pupils. A simple shake of the head is more effective than a half hour's scolding.

16. The teacher should move about occasionally among his pupils, even during recitation. This will tend to keep all orderly and busy.

17.—The teacher should not be too prompt to help a pupil out of difficulty by offering assistance. The recitation is to be made by the pupil, not the teacher.—*Raub's School Methods.*

#### MAGIC SQUARE OF ARCHIMEDES.

The following is the magic square of Archimedes:

22	21	13	5	46	38	30
31	23	15	14	6	47	39
40	32	24	16	8	7	48
49	41	33	25	17	9	1
2	43	42	34	26	18	10
11	3	44	36	35	27	19
20	11	4	45	37	29	28

It will be observed that it contains all numbers from 1 to 49 inclusive, and that no number is repeated. Write the numbers as arranged here on a card. Some afternoon when a bright, but mischievous boy is almost "spoiling" for want of something to do, hand him the card and let him find the sum of the numbers in each column, also the sum of each line, and compare the different sums.—*School News.*

#### Book Notices, etc.

Any book here reviewed sent post-paid on receipt of price. Address The Grip Printing & Publishing Co., Toronto.

*Hume's Treatise of Morals.* And Selections from the *Treatise of the Passions.* With an Introduction by James H. Hyslop, Ph.D., instructor in Logic, Ethics and Psychology, Columbia College, New York. Boston: Ginn & Company. 1893.

It is well that the old method of teaching ethics, psychology, literature and kindred subjects by simply telling students about the works and views of various writers, in lectures, with or without the use of text-books prepared for the purpose, is giving way to a better. The college lecturer is, it may be hoped, being superseded by the educator, and the college parrot or crammer by the genuine student. The former is no longer willing to offer or the latter to accept knowledge of what the great thinkers of the past have written at second-hand and in prepared and diluted forms. The book before us is one of a series which will greatly facilitate the use of the improved method in the subject of ethics. It is one of six small volumes each of which is to be devoted to the presentation of a leading system in the history of modern ethics, in selections or extracts from the original works. Best of all would be, of course, the reading of the complete works of each great writer, but as this would be impracticable in undergraduate work, the plan here adopted is the natural substitute. The volume before us contains the whole of Hume's *Treatise on Morals*, and such selections from his "Passions" as seem necessary to throw fuller light upon his views. It contains also an introduction, critical and explanatory notes, a biographical sketch, etc. Hobbes, Clarke, Locke, Kant and Hegel will complete the series, of which Professor Sneath, of Yale University, is the general editor.

*Song Budget.* A Collection of Songs for School and Educational Gatherings. Compiled and published by C. W. Bardeen, editor of *School Bulletin*, Syracuse, N.Y. Pp. 284.

This work contains many choice compositions, and is in every way well adapted to the needs of all grades. There is a pleasing variety in the character of the songs, those intended for the primary classes being particularly bright and attractive. Among these are found suitable marching and calisthenic songs.

The collection is a very desirable one for both teachers and scholars, as the author has aimed at giving only what is good in both music and sentiment.

*Music Primer.* By Rev. Frederic E. J. Lloyd, F.C.C.G. Published by Jas. W. Doley, Halifax, N.S. Pp. 42. 30c.

For the teacher or adult student of music this little book may be very useful, as it enters, in a careful and thoroughly systematic way, into the theoretical side of the subject. We trust, however, that the author did not intend the work to be used as a text-book in the hands of children; that would be a violation of some of the most fundamental principles of education. The second part of the primer is composed of well chosen school songs and rounds arranged in two parts.

*Problems in Arithmetic.* Suitable for candidates preparing for the Entrance Examinations to the Prince of Wales College and Normal School. Selected by D. J. Macleod, Chief Superintendent of Education. Pp. 33.

A handy book for any teacher who wishes to teach by the inductive method or by the laboratory plan without placing a text-book in the pupils' hands. Useful also for review questions or examination problems.

*Macmillan's French Composition.* (Second Course.) By G. Eugène Fasnacht. Pp. 416. Price 5s. London: Macmillan & Co.

In this volume, which is intended for advanced students, the author follows an interesting and almost unique place. Recognizing that the practice of translating French into English must go hand in hand with translating English into French, he has compiled a volume of parallel passages chosen for the most part from standard writers of France and England. These passages treat of the same subject, and to some extent, in the same spirit. For instance, a passage from *Theirs on the way to write history* faces one from *Macaulay on the perfect historian*; a paragraph on *English fogs* by Taine, one on a *London fog* by Dickens. The second and third parts contain English extracts and French model passages, the former intended to train the student in self-help, and the latter to enable him to study French style. The plan of the work, aiming as it does, to give that grace and ease and spirit of French prose, which can be got only by assimilation of French style, and which no purely dictionary word can ever give, merits high commendation. The copious notes on idiomatic difficulties will be of service, but the student will specially welcome the special vocabulary to the course promised by the publishers, which as yet we have not received.

*Chaucer's Canterbury Pilgrimage.* Epitomized by William Calder. Pp. 259. Price 4s. Edinburgh and London: Blackwood & Sons.

The steady growth of Chaucerian study is one of the best features of English scholarship, just as the study of Chaucer in the secondary schools is one of the most helpful signs of the wider dissemination of true ideas of the English language and literature. The volume before us is in no sense a school book, though the text of the Prologue is given in full, but rather an aid for the young Chaucerian scholars or to the general reader who wants in brief the character and substance of the Prologue, and the best of the *Canterbury tales*. Any difficulties in Chaucer's language are provided for by a copious glossary. Mr. Calder's style is readable and his quotations admirable. It is true fault could be found with his making of Chaucer's metre, e.g., "swote" (Prologue, l. 1), "roote" (l. 2), etc., should have the final *e* marked, just as well as "percéd" (l. 2), or "aweté" (l. 5). This, however, may be passed over in a work of popular character. This volume is illustrated with engravings of Chaucer, *Canterbury Cathedral*, the tabard, etc., and for frontispiece has a fine plate of the pilgrims as they set out on their way, the miller and his baggage in the van. The volume is to be recommended for school libraries and with interest pupils in

"the Poet of the Dawn, who wrote  
The *Canterbury Tales*, and his old age  
Made beautiful with Song."

## \* Literary Notes. \*

*Our Little Men and Women* for April is full of bright, wholesome thoughts, artistically woven into apt story, clever verse and merry rhyme. Its pictures, too, are full of suggestion and story, admirably adapted to educate and instruct, and the illustrations and text combined make a charming spring number. Price, \$1 per year; 10c. a number. D. Lothrop & Company, publishers, Boston.

The *Silver Cross*, the official organ of the International Order of The King's Daughters and Sons, one of the most remarkable of the great religious organizations of the day, is greatly improved in many respects. It has a new and most artistic and suggestive cover. It has made its pages still more attractive by the addition of dainty and artistic department headings and initial letters. The monthly Bible lesson, specially prepared for the International Order of the King's Daughters and Sons, under the auspices of President, Harper of Chicago University, published in the magazine, cannot fail to be of great value to the members.—The Silver Cross Publishing Co., 158 West 23rd Street, New York City.

The first paper in the *Atlantic* for April is the conclusion of Mrs. Mary Hartwell Catherwood's serial, "Old Kaskaskia." Dr. Edward Everett Hale continues his series of papers on "My College Days," and is particularly delightful in his descriptions of the Class Days of bygone years. The short story of the number consists of a tale called "Miss Tom and Peepsie," by A. M. Ewell. Henry Van Brunt has a thoughtful paper on "Architecture among the Poets"; and President E. Benjamin Andrews, of Brown University, has an article on "Money as an International Question." Professor A. V. G. Allen's sympathetic paper on Bishop Brooks is written from the standpoint of a man who has lost at once a friend and a leader. These are but a few of the interesting papers in this number. Houghton, Mifflin & Co., Boston.

The April issue of *Lippincott's* is mainly devoted to Columbus and the Exposition. The complete novel, "Columbus in Love," is by George Alfred Townsend ("Gath"), and narrates fully and feelingly the great discoverer's relations with Beatriz Enriquez. The novel is fully illustrated. William Iglehart tells "What the Publicity Department did for the Columbian Exposition." Julian Hawthorne attempts "A Description of the Inexpressible,"—the buildings of the Fair; and Frederic M. Bird characterizes "The Religion of 1492" and that of Columbus. The non-Columbian papers include one by Edgar Saltus on "Sappho"; an instalment of M. Crofton's "Men of the Day," covering J. A. Froude, Gounod, Dr. Farrar, General Howard, and Congressman Holman; and an illustrated tale by Annie Flint,—"Abraham's Mother," which is the second in the series of *Lippincott's Notable Stories*. The poetry of the number is by Florence Earle Coates, Owen Wister, and Robert Loveman.

The third part of Mrs. Catherwood's serial, "Old Kaskaskia," which opens the March number of the *Atlantic Monthly*, is full of interest. Elizabeth Bellamy has a clever sketch of negro life, called "Mom Cely's Wonderful Luck." Edward Everett Hale's first paper on "My College Days" gives an interesting account of Harvard College in the days of President Quincy. Another paper of reminiscent interest is a charming essay by Mr. H. O. Merwin, "On Growing Old," while Dr. William Henry Furness offers some "Random Reminiscences of Emerson," which throw new light on the personality of the philosopher of Concord. For biographical papers we have Captain A. T. Mahan's sketch of "Admiral, the Earl of St. Vincent," and John Foster Kirk's "An English Family in the Seventeenth Century." An interesting unsigned paper, also based on a volume of memoirs, is entitled "A Great Lady of the French Restoration,"—Madame de Gontaut. A paper by Havelock Ellis, on "The Ancestry of Genius"; "Persian Poetry," by Sir Edward Strachey; and the extremely picturesque and pathetic sketch of the life of a Japanese dancing-girl, written by Lafcadio Hearn, complete the more notable contents of the number. Houghton, Mifflin & Co., Boston.

## \* Question Drawer. \*

C. J. A.—We cannot give you all the information you ask for touching the Manitoba system. You had better write direct to the Superintendent of Education, Winnipeg, Man.

A. B. C.—See Science Department in next number; also answer to C. J. A. above.

H. N. A.—1. The teaching of Emerson's "The Mountain and the Squirrel" is, evidently, that the plan of creation embraces the little as well as the great; that the former as well as the latter has its place and use in the order of nature; and that the great can no more fill the place and do the office of the small than the small that of the great.  
2. For the moral of "The Viper and the File," see English Department in last number.

H. N. A.—The Government gives no grants to church libraries or any others but those belonging to institutions which are under its control.

FRANK LEIGH.—You are right. There are now twelve cities in Ontario. We relied on the Canadian Almanac, but failed to notice that it does not yet place Windsor in the list, though we were aware that Windsor had been made a city. Thanks for the correction.

### PHILLIPS BROOKS AS A TEACHER OF TOLERANCE.

A PROFOUND respect for accepted results made Phillips Brooks believe in Protestantism as the greatest onward movement in the annals of Christianity, and in Puritanism as among its highest ideals. But he also affirmed with the whole strength of his nature the principle of tolerance, in which both Protestantism and Puritanism had been wanting—the popular motive of the last century, painfully educed from the untold misery and anguish which intolerance had cost; the motive which had inspired the founders of American nationality. It may have been that he foresaw the evils which threatened from the rising spirit of intolerance among the American Churches, or it may have been a chapter from his own experience; but he also discerned that toleration had never yet been rested on its true basis, the only ground on which it can continue to exist. Because it had degenerated, as some conceived it, into the cultivation of indifference, he would not, like Carlyle, abandon the word with a sneer. It was one of the great words of history, to be taken up and redeemed. The spirit of true tolerance must grow, not out of a sense of uncertainty as to what is truth, but out of a deeper certainty and assurance of the possession of truth. When a man knew he was right beyond the possibility of being shaken in adherence to his belief, he was strong to tolerate the conviction of others in the spirit of hopefulness and charity. To those whose faith was without this inward assurance and direct vision of truth, who rested on external authority, whether of ecclesiastical councils or the letter of Scripture, toleration must be always a forced necessity, a disguised spirit of persecution waiting for its opportunity. They could not, therefore, understand how he could affiliate with men of every variety of religious belief; they thought him treacherous to his creed; they designated him an Arian, a Socinian, or a Pelagian. His book entitled *Tolerance* deserves special mention, because for once he dropped the rôle of preacher, and assumed the chair of lecturer, in order to teach the world what tolerance means. In this book more than in any other of his writings, we see how the man himself had been made. He has given us a description of himself more true than any of his followers or admirers can give.—Prof. A. V. G. Allen, in *Atlantic Monthly*.

TOM KEYES—"Have you given up the idea of taking singing lessons?"

CARRIE D'ALZO—"Yes. I found it would take me three years to learn to sing as well as I thought I sang already."—*Life*.



## For Friday Afternoon. School-Room Methods.

### THE CAKE THAT KATE BAKED.

THIS is the cake that Kate baked.

These are the plums  
That lay in the cake that Kate baked.

This is the boy  
That ate the plums  
That lay in the cake that Kate baked.

These are the ills  
That worried the boy  
That ate the plums  
That lay in the cake that Kate baked.

These are the pills  
That cured the ills  
That worried the boy  
That ate the plums  
That lay in the cake that Kate baked.

This is Katie, pretty and sweet,  
Who gave the pills  
That cured the ills  
That worried the boy  
That ate the plums  
That lay in the cake that Kate baked.

This is the doctor, so grave and neat,  
That proposed to Katie, pretty and sweet,  
Who gave the pills  
That cured the ills  
That worried the boy  
That ate the plums  
That lay in the cake that Kate baked.

This is the parson who thought it a treat  
To marry the doctor, so grave and neat,  
Who proposed to Katie, pretty and sweet,  
Who gave the pills  
That cured the ills  
That worried the boy  
That ate the plums  
That lay in the cake that Kate baked.

—London Tit-Bits.

### THE BUILDERS.

ALL are architects of Fate,  
Working in these walls of Time;  
Some with massive deeds and great,  
Some with ornaments of rhyme.

Nothing useless is, or low;  
Each thing in its place is best;  
And what seems but idle show  
Strengthens and supports the rest.

For the structure that we raise,  
Time is with materials filled;  
Our to-days and yesterdays  
Are the blocks with which we build.

Truly shape and fashion these;  
Leave no yawning gaps between;  
Think not, because no man sees,  
Such things will remain unseen.

In the elder days of Art,  
Builders wrought with greatest care  
Each minute and unseen part;  
For the gods see everywhere.

Let us do our work as well,  
Both the unseen and the seen;  
Make the house, where gods may dwell,  
Beautiful, entire and clean.

Else our lives are incomplete,  
Standing in the walls of Time,  
Broken stairways, where the feet  
Stumble as they seek to climb.

Build to-day, then, strong and sure,  
With a firm and ample base;  
And ascending and secure  
Shall to-morrow find its place.

Thus alone can we attain  
To those turrets, where the eye  
Sees the world as one vast plain,  
And one boundless reach of sky.

—Longfellow.

### TEMPERANCE AND HYGIENE.

#### FIRST PRIZE LESSON.

THOMAS HAMMOND, AYLMER, ONT.

#### USES OF WATER IN THE BODY.

Teacher (holding in his hand a soda biscuit, asks)  
—Did any of you ever eat anything similar to this?  
Pupils all lift hands in token that each has eaten a soda biscuit.

T.—In eating the biscuit, what was the first process? P.—Chewing, or mastication.

T.—Why did you chew it? Pupils give a variety of answers, the chief of which is, "To make it fine in order to swallow it."

T.—Suppose we found it fine before taking it into the mouth, could you then swallow it? P.—No. It would be too dry. By chewing it we also dampen it.

T.—Have you sufficient water in the mouth to moisten the whole biscuit so as to enable you to swallow it? P.—After some hesitation answer in the negative.

T.—Then whence comes the moisture or water?

The teacher may here substitute the *instructive* for the *inductive* method, and tell the pupils that Nature, in her wisdom, has furnished us with glands situated near the root of the tongue, and through these glands issues a liquid substance known as saliva, or in common language the boys might call it spittle. This saliva mixing with the food in mastication, dampens it so that it can be swallowed. It also contains a substance known as *pepsin* that assists to dissolve or digest the food after it is swallowed.

To impress the lesson of the saliva glands the teacher might ascertain which of his pupils had been afflicted with *mumps*, and discuss the painful sensation caused by eating while thus afflicted.

Mumps being merely an inflammation of the saliva glands, the pain while eating is caused by the saliva making its way through the inflamed and swollen glands.

T.—What reasons have we now for masticating the food? P.—To mix it with the saliva and to make it fine so that it can be swallowed.

T.—Is there any other reason for making the food fine?

No answer.

T.—Which would dissolve more readily, large or small lumps? P.—Small lumps.

T.—Then, if we swallow food in comparatively large lumps, what effect will it have on the digestion? P.—It would not be properly mixed with the saliva, and as it would be in lumps, it would not properly digest.

This opportunity should not be lost to teach an impressive lesson on the injurious effects resulting from ignorance or carelessness with regard to the taking of food. We are said to be a nation of dyspeptics. Let the teacher show why, and prescribe the remedy as suggested in the foregoing.

The teacher will now further discuss the digestion of food; showing that, after the food enters the stomach, nature furnishes a gastric juice, bile, etc. Discuss the condition of the food, and how it is absorbed by the small lacteals into the blood vessels.

Leaving the food for the present, the teacher now discusses the action of the blood.

T.—Who can describe our town water-works?

This question brings a description of the pipes extending through all parts of the town, smaller pipes running into larger, etc.

T.—How is the water propelled through these pipes? P.—By the water-works engine.

T.—There is an engine within each of us that propels the blood through the system as the engine forces the water through the pipes. What is the name of this engine? P.—The heart.

From this we learn that the blood courses through the body, and the food in the liquid state is carried to every part of the system, and that Nature, in some mysterious way, converts the food into the tissues of the body.

It is supposed that the pupils have been taught that chemical change produces heat. Show that such a change occurs in all the tissues of the body producing animal heat and a waste matter carried off by the water current through the pores of the skin in the form of sweat or perspiration. The

action of the water current in conveying the food to, and the waste matter from the body, may be illustrated in a score of ways; for example, the river, upon whose water logs are floated to the mill; also carries off the sawdust, etc.

The teacher must not fail to impress a hygienic lesson in regard to the value of the bath as a means of keeping the pores open and promoting proper circulation.

In this connection, the teacher will discuss the results following the closing of the pores of the skin, "colds," and the accumulation of water in the organs and cavities of the body (dropsy).

We must now discuss the question, How much of the human body is composed of water? Perhaps this could not be done better than by taking Dr. Richardson's experiment with an Egyptian mummy (text-book). By this we find that about seven-eighths of the human body is water. Discuss with the class whether this be so with a very old man, or with a very young child. Illustrate by an old fowl, a young fowl. The pupils will readily tell that in the case of very young fowls the bones are barely solids; they evidently contain more water than those of old fowls. Illustrate further by the egg before it was hatched, and it will be seen that it was at one time in a liquid state. This may suggest that every thing with which we come in contact may have been at one time in a liquid state.

Not only is this phase of the subject valuable in developing the subject in hand, but it is likely to open the minds of children to the natural phenomena around them, and may inspire them with a desire to know more of Nature and of themselves.

To further discuss the uses of water in the body we shall determine the nature of colloids and what are colloidal parts of the body.

To teach colloids, the teacher should obtain a piece of glue, and some time previous to the lesson, in the presence of the class, place the glue in warm water. When this subject is called the class will see that the hard glue has been surcharged with water. Following this hint the teacher may enable the class to arrive at the meaning of *colloid*.

The next to be discussed is the colloidal parts of the body. The teacher must here again drop the deductive and take up the instructive method, and enumerate the organs that are colloidal in their nature, such as muscles, skin, membranes, fibrine and albumen of the blood; a part of the brain, etc.

Now draw from the class the appearance or condition of our colloidal parts, say, the muscles that are now surcharged with water, if they were dried, or all the water taken from them. It will be seen that they would lose their plump shape, be smaller in size, would be stiff, inflexible, etc. From this we find another use of water in the system.

Now we may recount the various uses of water in the body. The teacher will get from the class, 1st, that water is a solvent for food, and is the medium that carries the food held in solution to all the tissues of the body; 2nd, that it carries off through the pores the waste matter that has served its purpose; 3rd, that it gives size, shape, flexibility, etc., to the organs of the body. ●

### GEOGRAPHY.

The following questions were prepared by Dr. E. E. White for the Cincinnati schools. They are suggestive and valuable. Canadian localities may be substituted if thought desirable, and many similar questions may be prepared on other topics.

1. Why is it warmer at noon than at 9 o'clock a.m.?

2. Why is it warmer in Ohio in July than in January?

3. In what month is the sun nearest the zenith at noon in Cincinnati? Farthest from the zenith? (2) What is the difference in degrees between the highest and lowest altitude of the sun here at noon?

4. Is the sun at this time (November) going from or approaching the zenith? When will there be a change? When the next change?

5. Why is the Torrid zone warmer than the Temperate zones? The Temperate zones than the Frigid zones are?

6. If you lived at the equator would the sun ever be directly over your head at noon? If so, when?

7. In how many and what months is the sun at the equator north of the zenith at noon? South of the zenith at noon? What is true of the move-



ment of vertical rays of the sun in the Torrid zone?

8. Are the rays of the sun ever vertical at the Tropic of Cancer? If so, when? North of the Tropic of Cancer? At the Tropic of Capricorn?

9. If you lived at Quito (on the equator), in what direction would your shadow fall at noon in July? In January?

10. In what month are the shadows of vertical objects at Cincinnati longest at noon? In what month shortest? Why?

11. When does the sun rise exactly in the east? (2) In what month does it rise north of east? South of east? (3) When does it rise farthest north of east at the equator? How many degrees?

12. When the rays of the sun are vertical at the Tropic of Cancer, which zone has no day? Which no night?

13. Which pole of the earth is now in continual darkness? Which will be next April? Why the change?

14. How many times in the year, and when, are the days and nights equal? (2) Is this true in all parts of the earth? (3) On what line are the rays of the sun vertical when the days and nights are equal?

15. In what month will the days at Cincinnati be the longest? The shortest? Will this also be true in all parts of the North Temperate zone?

16. Which has the longer day in summer, Cincinnati or New Orleans? Cincinnati or Chicago? Quito or Quebec?

17. Which has the longer day in July, the Torrid zone or the North Temperate zone? The North Temperate or the North Frigid zone?

18. How many and what seasons has the Torrid zone? Are the seasons the same on both sides of the equator at the same time? Why?

19. How many and what seasons have the Temperate zones? The Frigid zones? Why?

20. When it is summer in Ohio, what is the season of the year in Chili? Why?

## Educational Notes.

GOVERNOR FLOWER has appointed Susan B. Anthony a manager of the State Industrial School at Rochester. Miss Anthony said to a reporter: "I feel just a little pride in the appointment. You see I have been regarded as a sort of a hooped and horned creature for so long that even a little thing touches my heart, and when it comes to being recognized as an American citizen after fighting forty years to prove my citizenship, it begins to look as though we women haven't been fighting in vain."

Of all European countries Greece alone consistently carries out the principle of free education from Kindergarten to university. As a result it has a larger proportion of highly-educated men than Germany. At the present time the University of Athens has no fewer than 2,500 students. It so happens, however, that the national exchequer needs replenishing, and the Prime Minister, M. Tricoupis, has hit upon the idea of assessing a small tax upon students in the secondary schools and universities. He hopes in this way to raise over £50,000 annually.—*The Schoolmaster*.

UNIONISM among teachers seems to be spreading rapidly in England. Near the end of December, 1892, the Executive of the N.U.T. (National Union of Teachers) in England announced "20,386 up to date, and we hope to touch the 21,000 before the end of the month." Letters have recently been received at the offices of the Union and by ourselves from New Zealand, Bombay, South Australia, and Cape Colony, asking all about the constitution of the N.U.T., with a view either of setting up new, or remodelling existing institutions in these respective countries upon the lines of the Home Union.

SECRETARY J. W. DICKINSON, of the Massachusetts Board of Education, has made a study of the length of the school course. He has returns from 146 schools. Of these, 1,950 graduates have taken a nine years' course; 402, eight years; and 29, ten years. In the nine years' course the average age at graduation was 15 years and 2 months; in the eight years, 14 years, 3½ months; in the ten

years, 15 years and 2 months. In the cities and large towns they graduated at 15 years, 1 month; in the small towns, at 14 years, 3 months; in Boston, 15 years, 5 months; Cambridge, 15 years, 4 months; Quincy, 14 years, 6 months.—*Journal of Education*.

"IDEAL CONDITIONS." This is the title of a description of schools in Stockholm, found in an Austrian paper. No schoolroom seats more than thirty-five pupils. Each has a single desk so placed that the teacher can walk round it on all sides. There are special rooms for umbrellas and outdoor clothing. Teaching is done only in the forenoon; the afternoon work consists of gymnastics, exercises and manual training. School begins at seven o'clock in summer and eight o'clock in winter. There is a break of twenty minutes for breakfast, and a special room for it. There is always an intermission of fifteen minutes between each lesson. What do English teachers say to this?—*The Schoolmaster*.

At a recent Board school examination for girls, one of the tasks was an essay on "Boys," and this was one of the compositions just as it was handed in by a girl of twelve:—"The boy is not an animal, yet they can be heard to a considerable distance. When a boy hollers he opens his big mouth like frogs, but girls hold their tongue till they are spoke to and then they answer respectable, and tell just how it was. A boy thinks himself clever, because he can wade where it is deep, but God made the dry land for every living thing, and rested on the seventh day. When a boy grows up he is called a husband and stays out at nights; but the grew up girl is a widow and keeps house."—*The Manchester Courier*.

EVIDENTLY, says an English contemporary, teachers can blunder as well as scholars. Here are some specimens from examination papers recently submitted by pupil teachers to Her Majesty's inspectors of schools. "My favorite walk," says one in a competition paper, "is when I do not have far to go to it." The favorite walk of another is a drive in the country; and a third likes it best when he stays at home. "The game of cricket," foreigners will be especially glad to know, "consists of six wickets, two bats, and a ball." "Nor must we," adds this writer thoughtfully, "omit the bails, which are four in number." "Joan of Arc," one is glad to learn, "was very pious and rather genteel." On the margin of this paper a waggish examiner notes, "She also burned well." "Parse the words in italics," an inspector said, "in the following passage, beginning 'Fierce Roderick felt the fatal drain.'" "Drain," explained a trainer of the young idea—"that is, sewer or sere." "Man is mortal," a Scotch girl tells us, means "he is awfully drunk."—*The Australian Schoolmaster*.

## Teachers' Miscellany.

### TEACHERS.

AN ODE.

BY S. J. BOYD, BELFAST, ONT.

"I TAUGHT, partly because I heard it was a good route to the Presidency, and partly because I needed money. It was fortunate that I did not need much."—BILL NYE.

Oh! why should the spirit of teachers be proud?

Or foster a love for hoarded-up pelf?

For soon his old coat is replaced by a shroud,

Or in prosaic diction, he's laid on the shelf.

A monarch you stand, like the noted Selkirk,

In the Sanctum, from nine until four;

Your salary is forfeit, if duty you shrink;

While penury raps at the door.

Your rule has its limit, as England's Crown,

Or port you like Russia's Czar?

To treat each small subject to Dignity's frown,

Its infantile pleasures to mar.

Do you pause on the headland of hope and look down

For Gratitude's sun to send up his rays;

For the pupil a smile, and the parent a frown

Is all you can look for to lengthen your days.

How eager the merchant his stock to display,

At the same every farmer is spry,

But to get them to visit the school half-a-day,

You think you can do it—well; try.

Would they have their time to simplicity lent?

By watching a teacher, unfolding a mind,

Or the bow of their children's intellects bent

On hurling a shaft to strike ignorance blind.

Guerillas have blighted the true teacher's ranks

And made it a tortuous task:—

Application—Two fifty,—Accepted, with thanks,

For teachers are worth what they ask.

If a trustee board find a churl to their mind,

Who holds his intelligence cheap,

Whose ambition is slain by an unfurnished brain,

O'er their folly the angels will weep.

But why elongate with flatulent rhyme

The tale of a pedagogue's woes,

An exile from home in a frost-bitten clime,

With cold-blooded parents as foes.

Oh! welcome the day, in the dim far-away,

When our noble profession shall rise

To stand as it should, with the honored and good,

A point or two nearer the skies.

### EDUCATION IN CHINA.

IN China, the *Schoolmaster* remarks, instruction is quite free and unrestricted; any ignorant charlatan may open a school, without any interference on the part of the Government. The character of the teacher is a matter simply for the parents. When it is desired to start a school, the chiefs of the village or the district of a town assemble, appoint a teacher, and decide upon his salary. A place is furnished, and the school opens. If the teacher wishes to retire, he is allowed to do with very little ceremony, and another is appointed. The Government, however, exercises an indirect influence over the school when the time comes for the competitive examination, which is possibly going to raise some of the scholars to high office. The students then place themselves under competent masters, who make them study the famous Chinese classical works, upon which the examination is based. The more well-to-do are accustomed to resort to coaches, who give private lessons at their pupils' own homes, and sometimes lodge with the family. As to primary instruction, there is, according to M. Huc, the missionary, no country in the world where it is more widely diffused. Among the farms, fenced around with fine bamboo plantations, one finds the schoolmaster, generally an old man with white beard and moustache, his nose surmounted with an enormous pair of spectacles. He very often lives in a pagoda, and receives his emolument in kind from the husbandmen after the ingathering of the harvest. If the crop is poor, the dominie finds himself in a miserable plight. In the northern provinces, on account of the rigors of the winter, the schools are fewer in number and smaller than those further south. The lower civilization of the northerners is easily perceived. In the central provinces the Chinese are full of vivacity and intelligence, and devote themselves assiduously to the study of literature. It is not, however, correct to say that no Chinaman is uneducated. Out of ten ordinary Celestials, only one is able to read properly. The other nine—and it is this which gives a false impression about their achievements—are able by a sort of daily practice to read and write certain characters, which just suffice for their own particular business. The Chinese pedagogues teach their pupils the various methods of saluting, and the deportment which they ought to assume towards parents, superiors, and equals. When he has mastered the elements, the pupil studies in succession the "San-dre-King," a sort of poetical book of nature and morals, from the Celestial standpoint. Then follows "Ta-Hio," a treaty on politics and morals; "Tchouang-Young," a book of wisdom; "Lum-Yu," a book of moral and political maxims; and "Meng-tze," a book of philosophy. These are followed by the "King" series, which contains old legends and records in five volumes. The great defect in Chinese education is that it develops no reasoning or reflection in the pupil's mind. The pupil is only called upon to exercise his memory on works the sense of which he rarely compre-

hends, and which his teacher expressly refrains from explaining. The mental exercise which is furnished by the study of mathematics or metaphysics is quite wanting. The memory is cultivated at the expense of the reasoning faculties. If a pupil appeared to think out any idea for himself, it would be something which had been previously expressed. In a word, Chinese education is retrospective; always and continuously it looks behind, never before.—*Educational Times.*

**BITS OF NEWS.**

AN English teacher, Miss A. C. Graham, has taken a prize offered by the *University Correspondent* for the best collection of pupils' blunders. She vouches for them all as literal copies of the originals, and explains that she was led to set about their collection by reading one day the surprising statement that "Iliad and Odessae translated Euripides." We give a few of the choicest gems of her collection, in some of which the outcropping of the English idea that all history converges on the British Isles is almost startling:

Esau was a man who wrote fables and who sold the copyright to a publisher for a bottle of potash.

The Jews believed in the synagogue and had their Sunday on a Saturday, but the Samaritans believed in the Church of England and worshipped in groves of oak, therefore the Jews had no dealings with the Samaritans.

Titus was a Roman Emperor—supposed to have written the Epistle to the Hebrews—his other name was Oates.

Oliver Cromwell was a man who was put into prison for his interference in Ireland. When he was in prison he wrote "The Pilgrim's progress" and married a lady called Mrs. O'Shea.

Wolsey was a famous general who fought in the Crimean War, and who, after being decapitated several times, said to Cromwell: "Ah, if I had only served you as you have served me, I would not have been deserted in my old age."

Perkin Warbeck raised a rebellion in the reign of Henry VIII. He said he was the son of a prince, but he was really the son of respectable people.

The heart is a comical shaped bag. The heart is divided into several parts by a fleshy partition. These parts are called right artillery, left artillery, and so forth. The function of the heart is between the lungs. The work of the heart is to repair the different organs in about half a minute.

Explain the words fort and fortress: A fort is a place to put men in, and a fortress is a place to put women in.

Hydrostatics is when a mad dog bites you. It is called hydrophobia when a dog is mad, and hydrostatics when a man catches it.—*Youth's Companion.*

what will  $7\frac{1}{2}$  lbs. of sugar cost if  $5\frac{1}{4}$  lbs. cost  $18\frac{3}{8}$  c. ? and also, find the cost of  $7\frac{1}{2}$  lbs. of sugar at the rate of  $5\frac{1}{4}$  lbs. for  $18\frac{3}{8}$  c. This exercise is a language lesson of importance, because it is as essential that our pupils should know how to write questions properly as it is that they should be able to give correct solutions.

The analysis follows:

$$5\frac{1}{4}, \text{ or } \frac{21}{4} \text{ lbs. cost } 18\frac{3}{8}, \text{ or } \frac{147c.}{8}$$

$$\frac{1}{4} \text{ lb. cost (less) } \frac{147c.}{8 \times 21}$$

$$\frac{4}{4} \text{ or } \frac{2}{2} \text{ lb. cost (more) } \frac{147 \times 4c.}{8 \times 21}$$

$$\frac{1}{2} \text{ lb. cost (less) } \frac{147 \times 4c.}{8 \times 21 \times 2}$$

$$7\frac{1}{2}, \text{ or } \frac{15}{2} \text{ lbs. cost (more) } \frac{147 \times 4 \times 15}{8 \times 21 \times 2} = 26\frac{1}{4}c$$

In proving the work, the class are required to re-write the question by inverting the order of statements—substituting the answer just obtained, as: If  $7\frac{1}{2}$  lbs. of sugar cost  $26\frac{1}{4}$  c., what will  $5\frac{1}{4}$  lbs. cost? and analyze as before.

Again. By dictation in the sign language, or by written directions, the class are required to re-arrange the question so that the thing sought will be changed from "money" to "pounds," thus: If  $5\frac{1}{4}$  lbs. of sugar cost  $18\frac{3}{8}$  c., how many lbs. can be bought for  $26\frac{1}{4}$  c. ? Analysis:

$$18\frac{3}{8}, \text{ or } \frac{147c.}{8} \text{ will buy } 5\frac{1}{4} \text{ or } \frac{21}{4} \text{ lbs.}$$

$$\frac{1c.}{8} \text{ will buy (less) } \frac{21}{4 \times 147} \text{ lbs.}$$

$$\frac{8}{8} \text{ or } \frac{4c.}{4} \text{ will buy (more) } \frac{21 \times 8}{4 \times 147} \text{ lbs.}$$

$$\frac{1c.}{4} \text{ will buy (less) } \frac{21 \times 8}{4 \times 147 \times 4} \text{ lbs.}$$

$$26\frac{1}{4}, \text{ or } \frac{105}{4} \text{ will buy (more) } \frac{21 \times 8 \times 105}{4 \times 147 \times 4} = 7\frac{1}{2} \text{ lbs.}$$

In proving, the class will proceed as before. Further. The following directions are given: Write out in detail, and give the solution of, questions requiring:

1. The cost of carpeting and papering a room.
2. The capacity in gallons, of a rectangular (and circular), water tank.
3. The total cost of bushels and pounds of wheat, oats, barley and potatoes at the usual price of each per bushel.
4. The cost of lumber for a board fence (giving number of boards high, and length and width of boards), on both sides of a railway (distance in miles given), at a certain price per thousand.

These are merely examples of scores of questions that will readily suggest themselves to the mind of the teacher.

Once more. As one of our constant practices is to require the class to translate into written language ideas on general subjects dictated by means of the sign language, we also require them to translate the arithmetical formula which, after all, is nothing more than a sign, or symbol, expressed in arbitrary characters. As an illustration, we direct the pupils to write questions for the following:

1.  $\frac{48}{3} = 16$  (yards). The question here is, how many yards? and the class is supposed to know what denomination it is that divided by 3 will produce yards; hence he writes: How many yards are there in 48 feet?
2.  $\frac{20 \times 18}{9} = 40$  (square yards). In this case, a superficies is to be obtained in a certain denomination which divided by 9 will give square yards. Question: How many square yards in a floor (or other surface), 20 ft. long and 18 ft. wide?
3.  $\frac{484 \times 480}{30\frac{1}{2} \times 160} = 48$  (acres). Question: How many acres in a field, 484 yards long and 480 yards wide?

$$4. \frac{\$146 \times 6 \text{ (rate)} \times 90 \text{ (days)}}{100 \times 365} = \$2.16 \text{ interest.}$$

This is formula for a question in simple interest.

$$5. (4c. \times 6) + (24c. \times 3) + (40c. \times 2) = \$1.76.$$

The pupil here must form a question requiring the total cost of a given number of separate articles at a given price per unit.

$$6. 12 \text{ men working } 10 \text{ hours a day, cut } 192 \text{ cords in } \dots \dots \dots 8 \text{ days.}$$

$$1 \text{ man, working } 10 \text{ hours a day, cut } 192 \text{ cords in } 8 \times 12 \text{ days.}$$

$$30 \text{ men, working } 10 \text{ hours a day, cut } 192 \text{ cords in } \frac{8 \times 12}{30} \text{ days.}$$

$$30 \text{ men, working } 1 \text{ hour a day, cut } 192 \text{ cords in } \frac{8 \times 12 \times 10}{30 \times 12} \text{ days.}$$

$$30 \text{ men, working } 12 \text{ hours a day, cut } 192 \text{ cords in } \frac{8 \times 12 \times 10}{30 \times 12} \text{ days.}$$

$$30 \text{ men, working } 12 \text{ hours a day, cut } 1 \text{ cord in } \dots \dots \dots \frac{8 \times 12 \times 10}{30 \times 11 \times 192} \text{ days.}$$

$$30 \text{ men, working } 12 \text{ hours a day, cut } 288 \text{ cords in } \dots \dots \dots \frac{8 \times 12 \times 10 \times 288}{30 \times 12 \times 192} = 4 \text{ days.}$$

The class must first write the question for this analysis; then write and analyze a question making "cords" the unknown term; and, lastly, a question having "men" for the unknown quantity.

Good common sense is the best of apparatus you can have in your school-room. It is handy to have about when you deal with children, and especially handy when you confront the whims of the parents. As long as you cannot purchase it ready-made, you will be under the necessity of cultivating it. Give it a chance to grow, and keep it well in form by constant exercise, and you will find your stock improving every day. Don't make any mistake, but be sure you have the old-fashioned kind, such as our fathers and mothers had.—*Country Schools.*

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MR. J. K. CRANSTON, of Galt, so well and favorably known to the readers of THE EDUCATIONAL JOURNAL, as a dealer in school supplies and teachers' aids, has disposed of his business in Galt and is removing to Toronto. He announces in another column a closing out sale for thirty days, when the new proprietor takes possession. A perusal of this advertisement will enable purchasers of such goods to effect a considerable saving.

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**WITH THE DEAF AND DUMB.**

BY

THE deaf-mute is grievously burdened in the educational race with his more favored brother. The language that a hearing child had already naturally learned on entering school at the age of five or six years, is mechanically imparted to the deaf and dumb only after years of technical instruction. Indeed, the deaf-mute is far from being on an equal footing even with the foreigner in learning the vernacular, inasmuch as the latter has methods of thought and a language of his own as a means of communication. If, then, the latter seldom perfectly acquires the idiom, what shall be said of the deaf-mute who has neither thought nor language!

It is the object in this article to give, briefly, some simple details of school-room work in an advanced class of the deaf and dumb.

Take arithmetic. When a problem is presented, the pupil is first required to show that he comprehends its meaning; and as an aid in doing this, it is necessary that he reproduce on his slate the various forms in which the question may be written. For instance, the question: If  $5\frac{1}{4}$  lbs. of sugar cost  $18\frac{3}{8}$  c., what will  $7\frac{1}{2}$  lbs. cost? is also written,

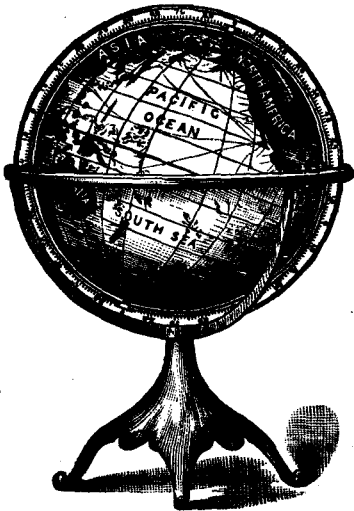
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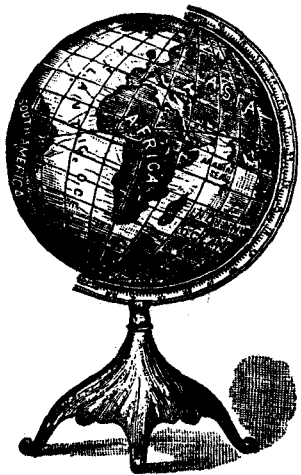
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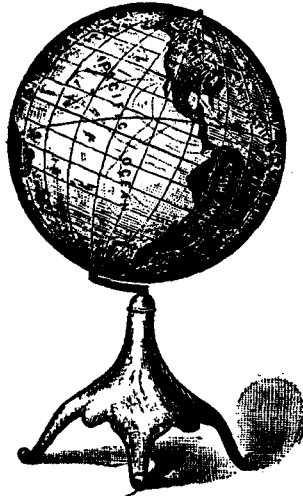


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