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The Educational Journal.

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

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

OUR thanks are due to the Chief Superintendent of Education in New Brunswick for a copy of his full and well arranged annual report for the last school year. Some statistical items will be found in our news columns. The wonder is how the schools can be so well kept up, and furnish so good results, while the salaries of teachers are so small.

WE direct attention to the School Stencils advertised in this issue. This method of outlining objects on the blackboard might be used, we should think, to great advantage by teachers who lack the skill necessary for rapid drawing without such aid. A judicious use of such pictures, outline maps, etc., in connection with the work of the schoolroom will add greatly to both the interest and the profit of many exercises. Directions with stencils.

CONSIDERABLE dissatisfaction has been expressed at the plucking of forty per cent. of the candidates at the recent examinations of College of Physicians and Surgeons; but at the matriculation at London (Eng.) University fifty-two per cent. were plucked and nothing was said. In all professions a rigid examination, if of the right sort, is the best means yet devised for keeping the supply down and the quality up, the two great professional needs of the day.

WE call attention to the interesting talk on science teaching, kindly sent us by Prof. Montgomery, of Kalamazoo College, Michigan. One remark in it especially pleases us, that in which the Professor deprecates the method of scientific instruction “that causes the boy to wish to kill every animal he sees and mount its bones and stuff its skin; to rob every bird's nest and shoot the parent birds.” Too often we note scientific paragraphs and articles in some of our exchanges which would leave the impression that such is the true result of cultivating the love of nature, or scientific faculty.

IT is announced that Mr. John Morley will take charge of a bill in the present session dealing in a drastic way with children selling newspapers and other articles in the streets. Under the age of eight no child is to be allowed to sell at all; and under the age of fourteen, not after 10 p.m. in summer and 9 p.m. in winter. Children arrested will be detained, but not in a prison. This bill, which is intended to apply to all towns of 30,000 inhabitants, is the outcome of the

revelations of juvenile immorality recently made by Canon Frankland, of Newcastle. Some stricter mode of dealing with the same schools of immorality is needed in our towns and cities. It is questionable whether girls should be allowed at any age, to sell in the streets.

WE are glad to perceive that a movement is on foot in Toronto to raise a “Children's Fresh Air Fund,” for the purpose of giving the neglected class of children a number of “Outings” during the coming hot season. The plan is an excellent one; it has been tried in London, New York and other large cities, with the best results. Those who take part in such a scheme are helping to put some sunshine into the lives of little ones which are in the main dark and dreary, in many cases almost to hopelessness. It is a grand thing to give those poor little ones a glimpse of the fresh fields and a breath of the pure air of heaven, and at the same time a practical proof that they are not wholly uncared for. Every true hearted man and woman will lend a helping hand, if possible and needed.

THE matron of the Ladies' Protective and Relief Society, of San Francisco, lately adopted the mustard plaster as a corrective of truancy in some of the boys under her care. We are sorry to be obliged to dispute the claim to originality, set up on behalf of the matron by one of our American exchanges. Unless memory betrays us sadly the same remedy was tried a number of years ago in a Canadian institution, but somehow or other public opinion did not approve of it, and the practice had to be summarily dropped. Possibly if such matrons would direct their inventive powers less to the devising of new physical tortures and more to the art of acquiring a genuine influence over the minds, consciences, and hearts of the children, they might save time and trouble, and reach better results.

“THE city school teachers, in session assembled, have solemnly resolved that corporal punishment should be resorted to whenever it is absolutely necessary. Is there anything under the sun that should not be done whenever it is ‘absolutely necessary?’ Would the world not stop right where it is if anything absolutely necessary to be done were left undone?”—*London Advertiser.*

The *Advertiser* is rather sarcastic but its comment touches the core of the problem. The question is, “Is corporal punishment ever absolutely necessary to the true work of the teacher? If so, when?” The resolution adopted by the London teachers implies that those affected have

some means of knowing when corporal punishment is absolutely necessary. If any of them will define the circumstances and conditions which make it so they will render a great service to the profession.

"DON'T hear everything," says *Treasure-Trove*, "the art of not hearing should be learned by all." The writer is speaking of the domestic circle, and how to promote its peace and happiness. But his advice is equally wise for the school teacher. We should be disposed to add to it, "Don't see everything." There is nothing in connection with the art of discipline that requires a finer tact and discrimination than the art of knowing just when it is necessary to see and hear, and when it is better to be a little deaf and a little blind. It is easy to keep oneself and the whole school in a state of chronic ferment by being over exacting about trifles. The opposite extreme must, of course, be avoided. The sound judgment which enables one to decide instantly and wisely, to which of the two classes a given offence belongs is partly a natural endowment and partly an acquisition from experience.

THERE is a volume of suggestions in the following plaint recorded in the *Pennsylvania School*:

"A boy of fourteen said, the other day, to the master of a school, to whom he had been sent because of his misdemeanors, 'I can be a good or bad boy, just as I choose; but my teacher is to blame part of the time. She lets her temper fly at times, and I fight back with the same weapons; and I always get beaten. If she would be patient, why, I would be, too; and it don't cost much for a teacher to say kind words. She snarls at all for the bad conduct of one or two, and that sets me against her.'"

Good and evil are mixed, in very different proportions, it is true, in every child nature. Some teachers have the happy faculty of bringing out all the good. If there are not others who manage somehow to bring out all the evil, things have much improved since we were at school.

MANY of our readers have, we dare say, sometimes wondered why the day which marks the ending of the college session, and of the collegiate career, should be called in many institutions "Commencement Day." Several explanations, more or less fanciful have been current, but the correct one is probably that quoted in "The Contributor's Club" of the *Atlantic Monthly*, from the *Encyclopædia Britannica*. "The bachelor, or imperfect graduate, was bound to read, under a master or doctor of his faculty, a course of lectures; and the master, doctor, or perfect graduate was, in like manner, after his promotion, obliged to commence (*incipere*), and to continue for a certain period, publicly to teach (*regere*) some, at least, of the subjects pertaining to his faculty." This was in the mediæval universities of Continental Europe. "Commencement, then, existed at first for those taking what are now called the higher degrees, and

was the time when young men ceased to be pupils, and commenced to teach. The bachelor's degree, marking the end of the trivium, or preparatory course, was first given at Paris; and it seems that the bachelors were required to serve an apprenticeship at teaching, as a part of their preparation for the master's degree."

THE teachers of the Dominion and their friends may be glad to learn that the arrangements for the great meetings of the National Educational Association, of the United States, at San Francisco, July 17-21, generously allow any person, of any country, vocation, sex, or age, to avail themselves of them. Railway fares are reduced to a uniform rate of one-half from any station in the States where coupon tickets are sold. From Detroit, for example, the price will be but \$80.50, with \$2.00 added for a membership coupon or by way of tribute to the treasury of the Association. For this sum there is a choice of nine trans-continental routes, returning on different roads at discretion, from the Southern Pacific to New Orleans, to the far Northern or Canadian Pacific. In the former case, however, an additional charge of \$6.00 is made for much greater length of line, and in the latter \$15.00, to cover a reduced cost of travel by Pacific steamer or rail from San Francisco to Portland, Oregon, or maybe to the western terminus of the Canadian Pacific. Professor Ford, of Detroit, has kindly furnished us with many particulars in regard to rates, etc., which we shall be glad to communicate to any one desiring full information.

So far as we are aware the Public School at Dartmouth, N.S., is the first in the Dominion which has tried the savings bank plan. Some time ago a Savings' Bank Depository was organized for each department, in which each child may deposit any number of cents on a fixed day in each week, the various sums being transferred to the credit of the depositors in a chartered bank at regular intervals, and the trifling expenses for books and printed forms being defrayed from the interest. The scheme has only been in operation for four months, yet the aggregate accumulation was over \$806—a sum representing no small amount of self-denial among the 600 children in attendance. The plan seems an excellent one. The universal inculcation of thrift as a principle and as a habit in the children, could not fail to have a most important influence upon the future well-being of the whole country. The system has been adopted in England, Belgium, Prussia, Russia, Australia and some of the United States, but it has probably been most successfully worked in France, where it is compulsory in the Public Schools. A contemporary observes that "it is, no doubt, owing to the habits of thrift thus fostered in childhood that the French peasantry are among the most frugal people in the world, and were, therefore, able to lend their Government enough from their savings to pay off the enormous indemnity imposed upon the nation at the close of the Franco-Prussian war."

Educational Thought.

THE old necessities have passed away. We now have strong and noble living languages, rich in literature, replete with high and earnest thought, the language of science, religion and liberty, and yet we bid our children feed their spirits on the life of the dead ages, instead of the inspiring life and vigor of our own times. I do not object to classical learning—far from it; but I would not have it exclude the living present.—*Garfield*.

ORIGINALITY in the teacher is a prime requisite. Without it he cannot successfully copy the best methods of another. Every teacher must have a power within which can not be bestowed by or upon another. We may learn from books or from the experience of our fellow teachers, what, in a general way, must be done, but we must have an inspiration to guide us in the application of principles, or the very efforts we put forth to do the right thing well prove our ruin.—*C. J. Gruet, in Illinois School Journal*.

THE teacher's profession demands all that is best of him—his time, his ability, his thought, his energy, his enthusiasm. There can be no success without it. Half-hearted interest in anything never produced results that amounted to much in any work—certainly not in teaching. We do not mean that a teacher should be a slave to his calling. We do not mean that his life should become a schoolroom treadmill, with no interests apart, but we do mean that his best should be devoted to his chosen work.—*Virginia Education Journal*.

THE Briton thinks American school children are "babied" in having so much attention paid to comfortable seats in schoolrooms, and a man at Rugby stared to hear of singing birds, blooming plants, and pictures, in the buildings where children learn the multiplication table. We asked a boy, however, one day, in an Edinburgh school, if the teachers ever whipped the boys, and he answered, "Why, of course, they have to." We are glad to know, that the spirit that makes our schoolrooms pleasant places to dwell in has little recognition for this "have,"—the teacher that brings flowers in one hand seldom carries a stick in the other.—*Annie M. Libby*.

SCIENCE is advancing with a vengeance! Here is a French schoolmaster proposing to adopt electricity as a substitute for flogging delinquent pupils, while at the same time the Americans are seriously discussing the propriety of superseding the common hangman by the use of the same power. We should strongly advise our Gallic *confrère* to leave the study of electrical science for a while, and devote himself to that of school management and common sense dealings with budding brains and branching intellects. One result of his new investigations would be the discovery that boys—especially the naughtier *genus*—are apt learners in the art of inventing means of giving pain to others, especially if amongst the "others" we include martinetist teachers. Just fancy what a popular sensation might be created in the classroom by the surreptitious application of an electric fluid to the master's chair! Corporal punishment is perhaps allowable in certain cases, which all the teachers wot of, but its gradual elimination from modern school discipline is one of the characteristics of our admitted improvement in educational methods. The birch has marred more than ever it made, and it is only tolerated in the present day because we have not yet reached the highest stage of disciplinary ethics.—*Educational Times. (Eng.)*

WE would call the attention of the fraternity to the advertisement of the Temperance and General Life Assurance Co., in another column. The Company is a thoroughly reliable HOME INSTITUTION, and easy to work. Inspector Chadwick says:—We print the speech of The Hon., The Minister of Education who is the president of the Company, to which we also refer our readers. An excellent opportunity offers during the vacation for our live men to make their mark as insurance solicitors.

Special Papers.

RELATIONS OF PSYCHOLOGY TO THE SCHOOL-ROOM.

BY E. A. HENRY, WALLACEBURG.*

In the nineteenth century, a confession of ignorance as to the value of science or scientific instruction, or a lack of interest in the great discoveries and problems brought to light by the student of nature, is to be deplored, especially if made by a public school teacher in enlightened Ontario. When all the striking characteristics of our age are fully brought under notice, not one will be found more remarkable than the enormous strides that have been made in searching out the hidden wonders of the universe, by which man may, in the language of a beautiful writer, "see the developments of order and the evidences of design." All honor to the noble intellects whose keenness has brought to light the "exquisite machinery by which the harmonies of nature are preserved."

But as we recognize the existence of mind behind its revelations in the study of nature, we find ourselves in the presence of that which, while it has been studied to a certain extent in its depths and resources, has never been, if it ever can be, fully comprehended.

Enough to know that it is there, enough to know that it too has its own order of development; enough to know that if we go against nature here it is the same as going against her elsewhere. With this knowledge, surely if nature is worthy of study, that by which we study nature, that by which we are what we are, that by which we hold communication with others, is equally if not more worthy.

This fact is now beginning to be recognized more fully than formerly, and on our professional curriculum psychology takes a prominent part.

There are some, however, who, going on the backwoods principle that the boy is only to learn to "read, write, and cipher," claim that it is of no practical utility or benefit, merely because to their intelligences the results are not so apparent as an answer to a question in addition.

Is it possible for us to convince ourselves that in studying mind, in all its phenomena, we are receiving benefit, which we can apply in the practical work of the schoolroom?

In considering what the relations between psychology and the schoolroom are, we take up a subject so deep and complex that it can only have justice done it by one who has taken a finished course in its study; by "freshmen" and beginners it can only be presented in a freshman's style.

The whole question of school work is very broad. There are two potent factors in the work to be considered: 1st, the teacher; 2nd, the pupil. The teacher has a mind. That mind is to be used in conveying truth and imparting knowledge to others.

The scholar has a mind. That mind is to be used in the reception of knowledge.

These two are to be brought into connection by means of what are technically called "methods." These methods we would desire here to look at not simply in the technical sense of the training schools, but as applied to everything made use of in bringing about sympathy between the minds of the teacher and taught, and in causing that sympathy to take shape in a vital union of ideas, so that an outcome may be seen in the acquisition of knowledge and the growth of intellectual tone and power. All modern educators and educational papers agree that it is absolutely necessary that the teacher's mind should be trained and strengthened by a broad culture, and that his professional training should carry him deeply into all the most approved methods of applying educational principles. It is also generally admitted that while good has been accomplished in the past by the old systems, with no special attention to adaptation in methods, a vast improvement has resulted from the teachers of our day being versed in the best educational methods. All the great educationalists of the past groped their way in darkness, and had very partial success in their own day and generation, but now we recognize their genius, and give praise in proportion to the amount of care be-

stowed in studying the mind of the scholar, and adapting teaching thereto.

If so, surely it is of the first importance and advantage to a teacher to have a thorough acquaintance with the tools used in accomplishing his work, in order that he may have skill in using them.

But as another has well said, every mechanic or artificer must have a knowledge of the material on which he is working. In like manner the teacher must be acquainted with the material with which he has to do, viz., the minds of his pupils.

But mind study is the object of psychology, and no matter how we look at it, it is eminently a practical study for the teacher. The authors of all our teachers' text-books point out that all teaching methods to be right should be based on the principle of the order of development. Mind, to reach mind, must do so by using instruments that will connect with mind. It is clearly shown on all hands that minds differ, and that the teacher of cast-iron methods will be a failure, or but a partial success, for while he follows unvarying rules he is apt himself to violate one of the fundamental principles of teaching; that the best attention, the involuntary, is gained through interest: aroused by suiting the method to the mind. Spencer says that harm will follow if we do not conform ourselves to the laws of supply and demand disclosed by psychology. We take our stand before a class in an ungraded school in a country section, and there we realize to its fullest extent the duties and responsibilities of a teacher's position.

Forty or fifty or more young minds are before us, to be impressed and fashioned for weal or woe. Various ages and types are represented, from the plastic five-year-old up to the self-conscious and sometimes self-important lad or maiden, with mind half formed, and character developing.

In the midst of such diversities the teacher must proceed to present to those susceptible minds that which is designed to expand them. Can we regard as unpractical the study of that very mind which we are undertaking to mould, and of that very order of development we learned as students we must follow?

Can we "fashion the carriage and form the mind, and work in the pupil a love and imitation of what is excellent and praiseworthy, and in the execution of it give him vigor, activity and industry," if we are ignorant as to what is the lowest and what the highest manifestation of mental activity, what affects the sensibilities and what moves the will?

For, as a writer has said the teacher is to cultivate the emotional nature, chiefly through the imagination, and the will through the intellect and the emotions. If, as some say, the object of education is the harmonious development of faculty and the evolution of character, we must know what the development is, what gives it harmony, and how all combined are to be made manifest in character.

Thus, before we enter upon the general work of the schoolroom, the study of mind is seen to have a very practical bearing upon that work. Now at the outset we must have constructed courses of study, but our text-books say that these must be adapted to mental development, and that in order to construct them we must know the plan of the mind and understand the laws, means, and methods of culture. Again, "Educational symmetry requires that courses of study be arranged so as to harmoniously develop body, intellect, emotion, and will." The student learns that in old Baldwin at the beginning of his course. So we are again at the same point as to development.

It is very important not only to have an aim, but to have that aim properly directed. How many fail in all professions and callings, not because of lack of motive, but because of ignorance as to the best method of carrying out their designs. Now different teachers have different aims. There is the money-maker, whom we will pass over, because we believe that the great majority of teachers are now actuated by a higher motive. Well, I enter a school determined to exert myself to the utmost in fastening principles of industry, intelligence and integrity in the minds of my pupils. I desire to lead them to see that

"Life is real, life is earnest,
And the grave is not its goal."

(To be Continued.)

English.

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

THE FORSAKEN MERMAN.

By N. S. McKechnie, English Master, Woodstock College.

SOMETHING of melancholy interest gathers around the study of this poem owing to the very recent death of its distinguished author, Matthew Arnold. A brief sketch of the author's life and works, such as appeared in a late issue of this JOURNAL, should be read to the class. It would also deepen the pupils' interest in the author to hear a few of his best short poems read.

The theme of this beautiful selection is suggested in the word *forsaken* of the title; it is the wail of the Merman (A. S. *mere* a lake, and man) and his children for the lost mother.

The poem should be read over and over for the class with all the expression that a thoughtful study of it commands. The turns of narrative should be explained and the class, either individually or simultaneously, should be required to read the poem aloud. After the poem has thus been carefully studied and thoroughly understood, both in its parts and as a whole, most of the class will probably be able to quote striking expressions, and even passages, beautiful in thought and form.

It will now be well to point out what the elements are upon which the interest of the poem chiefly depends. These are:—

1. The characters—half human, weird, strange creatures of fable and poetic fancy, now drawn by the "wild white horses," that "champ and chafe and toss in the spray," now dwelling in "sand-strewn caverns, cool and deep."

2. The pathos of their story. Margaret, the wife of the Merman and mother of his children, hearing "the sound of a far-off bell" in Easter-time, goes up to pray in the "little gray church" among her kinsfolk. Merman and his children left long alone seek to bring her back. They rise through the surf in the bay, go to the little church, stand without in the cold, climb on the graves, look through the windows, see the lost one and beseech her return; but she heeds not the voice of even the children. After vain solicitation both of look and voice they go

"Down, down, down!
Down to the depths of the sea!"
And "alone dwell for ever
The kings of the sea."

3. The diction and metre. The language is simple, easily understood, and expressive. This is, in some measure, due to the fact that it is chiefly of Anglo-Saxon origin. The descriptions are made bright and picturesque by such phrases as, "Wild white horse play," "white-walled town," "little gray church," "sandy shore," "lights quiver and gleam," "great whales come sailing by," "the gleam of her golden hair," etc.

The stanzas are of varying length to suit the sense, possess rhyme, and the metre is generally trochaic. The following is a specimen of the metrical scheme:—

Co'me dear | chi'dren, | le't us a | wa'y
Do'wn and a | wa'y be | lo'w!

There is a rhythmical swing in these lines and throughout that is perhaps intimitive of persons that have to do with the sea.

4. The play of Imagination.—The poem as a whole is a finely imagined conception, but there are passages of exceptional quality. See the description of ocean depths and their inhabitants, the suggestions of immeasurable distance and remoteness in "Down, down, down!" and other expressions, and the poetical conceptions of the music of bells heard at long distances.

There is much poetic imagery through the poem but this and other particulars such as the meaning of words, etc., I make no reference to. I have preferred to suggest a few broad lines along which it seems to me the selections may be profitably studied. Each teacher can easily adjust and adapt and develop as to him may seem best.

* Read before the Teachers' Convention at Chatham.

Mathematics.

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

CORRESPONDENCE.

MR. W. LINTON, NEW HAMBURG, solves No. 3 of the 3rd class paper in May No. as follows:—A, B, C, do $\frac{1}{10}$ per day. Suppose A had continued working with B, these two would have done $\frac{2}{10}$ extra work while C was finishing the original job; thus the total amt. of work done by the three hands would have been $1 + \frac{2}{10} = \frac{12}{10}$, and the total time required to do it would be $\frac{10}{\frac{12}{10}} = 8\frac{2}{3}$ days.

2. J. C. L., CLINTON. "May not the sign \times be read times? Thus in the JOURNAL of May 1st may we not read 1 acre costs \$85, \therefore 5 acres cost $5 \times \$85$, i.e., five times \$85?" ANS. We see no special objection to this, so far as the sense is concerned, but the sign \times has a name, viz., "into." If we read 5×85 thus, why not also read 5 + 85 five added to 85? That is the meaning; but we are not in the habit of reading the definition of a sign instead of its name. If the pupil does not know the meaning of the sign \times or $+$, he ought to learn that as a preliminary step. By the way, will any correspondent tell us who originated the mathematical barbarism "a over b," for $a \div b$ or $\frac{a}{b}$? It is common among students from Lake St. Clair to the St. Lawrence. No standard writer, so far as we are aware, ever reads a or $a \div b$ otherwise than "a by b."

3. H. F., PORT. B.—Your solution of No. 17, p. 347 is sound as regards the first factor, but it does not seem to follow that the second factor can be written down by symmetry.

MISS L. H., CORRUNNA. The total increase of criminals = $2\frac{1}{2}\%$, while there is a decrease of $7\frac{1}{2}\%$ of males, and an increase of $10\frac{1}{2}\%$ of females. Compare the antecedent numbers of males and females.

SOLUTION. $2\frac{1}{2}\% = \frac{1}{40}$; $7\frac{1}{2}\% = \frac{3}{40}$; $10\frac{1}{2}\% = \frac{1}{10}$
 $\therefore \frac{1}{40}$ (No. of males + No. of females) = $\frac{1}{10}$ No. males $\times \frac{4}{3}$ No. females.

i.e. 410 No. males - 370 No. males = 441 No. females - 410 No. females.

or, 40 No. males = 31 No. females. Thus the relative proportions must have been 40:31.

INQUIRER, MORRISBURG, wishes to see solutions "in a plain way for pupils who wish to pass the entrance," to the following examples:—

4. If two men and five boys can do a piece of work in twenty days and one man and eight boys can do it in eighteen days in what time can one man and one boy do it?

5. If seven men and five women can do a piece of work in two and two-thirds days and three men and eight women can do it in three and eleven forty-thirds days, in what time can one man and one woman do the work?

6. If 3 men and 2 boys can do a work in $6\frac{2}{3}$ days, and 2 women and 3 boys can do it in $7\frac{1}{2}$ days, in what time can 1 woman and 1 boy do it?

7. A man invested \$300 more than $\frac{2}{3}$ of his money in a house, and \$600 more than $\frac{1}{4}$ of the remainder in a lot, and had now \$900 left; how much was he worth?

8. 10 men can do a piece of work in 12 days. After they have worked at it 4 days, 3 boys join them in the work, by means of which the whole is done in ten days. What part of the work is done in ten days by 1 boy in 1 day?

9. I buy a number of boxes of oranges for \$600, of which 12 boxes are unsalable. I sell $\frac{2}{3}$ of the remainder for \$400, and gain on them \$40. How many boxes did I buy?

10. By the same. "M is the middle point in the base, B C, of an isosceles triangle, A B C; N is a point in the side A C. Prove that the difference between M B and M N is less than that between A B and A N."

SOLUTION. B M = M C, and A B = A C.
 \therefore Diffce. between A B and A N = A C - A N = M C
 Also, diffce. between B M and M N = diffce. between C M and M N.
 Hence we have to prove N C less than diffce. between C M and M N,
 i.e., the diffce. between two sides of a triangle less than the third side.

But (1.20), $x + y > z$, where x, y, z, are the sides of a triangle.

$\therefore x > z - y$, by subtracting y from both sides; thus the proposition is true, for if we read the equation from right to left we have diffce. between z and y < x.

MR. T. C., COMMANDA, sends the following from "Commercial Arithmetic" p. 246.

11. A man has a plank 1 ft wide, $22\frac{1}{2}$ ft. long, and $2\frac{1}{2}$ inches thick. He wishes to make a box whose width shall be twice its height and its length twice its width. How many cubic inches in the box? Ans., 5719 cu. in.

12. A man purchased 84 lbs. hair for which he gave a sum such that $\frac{1}{3}$ of the cube of the price diminished by $\frac{1}{5}$ of the same cube equals \$0.6591. How much did the 84 lbs. of hair cost him? Ans., \$163.80.

13. A reservoir whose length is to its breadth as 13 is to 5 and depth as 13 is to 3, contains 99,840 cubic feet of water. What are the dimensions of the reservoir? Ans., 104 ft. long, 40 wide and 24 deep.

14. A man bought a quantity of pearlshells. By paying \$1.35 a lb. and multiplying the square of the sum he laid out by $\frac{1}{8}$ of itself it gives a product of 59049. How many lbs. did he buy? Ans., $35\frac{1}{4}$ lbs.

15. How much must a man pay at 55 cts. a lb. for a number of bales of wool, each bale weighing 145 lbs. the number of bales being such that in multiplying together $\frac{3}{8}$, $\frac{5}{8}$ and $\frac{1}{4}$ the product will be 8640? Ans., \$3828.

By G. G., LONDON.
 16. A lets B have 30 lbs. of wool to spin on shares. B is to charge $12\frac{1}{2}$ cents per lb. for spinning A's yarn and take his pay in wool at 30 cents per lb. For every 10 lbs. of wool there is a waste of $1\frac{1}{4}$ lbs. in spinning. How many lbs. of yarn should A receive and how many lbs. of wool should B keep in payment of his work? By Arithmetic.

SOLUTION. $1\frac{1}{4}$ lbs. on 10 lbs. is $\frac{1}{8}$ of the whole wasted, $\therefore \frac{1}{8}$ wool becomes yarn, i.e., $\frac{1}{8}$ A's wool at $12\frac{1}{2}$ cts = B's wool at 30 cts.

$\frac{1}{8} \times \frac{3}{4}$ of A's wool = B's wool = $\frac{3}{8}$ A's wool
 \therefore A's wool + $\frac{3}{8}$ A's wool = 30 lbs. = $\frac{11}{8}$ A's wool
 \therefore A's wool = $30 \times \frac{8}{11} = 25\frac{4}{11}$ lbs.
 \therefore B's wool = $\frac{3}{8} \times 30 \times \frac{8}{11} = 8\frac{1}{11}$ lbs.

By J. A., HOLLAND LANDING.

17. A, B and C take a contract for \$120, and working together complete the job in $2\frac{2}{3}$ days. If B had done it alone he would have required $2\frac{2}{3}$ times as long as A and C together; C would have required $4\frac{1}{2}$ times as long as A and B together. Divide the money equitably among them.

SOLUTION. A, B and C do $\frac{1}{3}$ in a day. Also A and C do $2\frac{2}{3}$ as much work as B in a day.

$\therefore 2\frac{2}{3}$ B's + B's = $\frac{1}{3}$ per day = $\frac{1}{3}$ B's. Hence B does $\frac{1}{6}$ per day. Again A & B do $4\frac{1}{2}$ times as much as C per day; $\therefore 4\frac{1}{2}$ C's + C's = $\frac{1}{3}$ work = $\frac{1}{3}$ C's.

\therefore C does $\frac{1}{8}$ work per day; hence A does $\frac{1}{8} - \frac{1}{6} = \frac{1}{24}$ per day

Thus the money must be divided as 18:9:6, or 6:3:2
 \therefore A's share = $\frac{1}{3}$ of \$120 = \$65. $\frac{2}{3}$

B's share = $\frac{1}{6}$ A's = \$32. $\frac{1}{3}$
 C's share = $\frac{1}{8}$ A's = \$21. $\frac{1}{4}$

By D. McG., NORWICH.

18. I invested a sum of money in debentures at 125 which paid 4% half-yearly; also 44% more than that sum in shares at 135, paying 4% half-yearly; and 39% less than that sum in stock at 95, paying 3% half-yearly. I found that the income from the shares was \$12.75 less than that from the debentures and the stock together. Find the amount invested in each?

SOLUTION. For 100 invested in debentures, there were 144 shares, $60\frac{2}{3}$ in stock

The investments were as 1: $\frac{3}{5}$: $\frac{7}{5}$, i.e., as 125:180:76
 The half-yearly returns were ($4\frac{1}{2}$ on 125); ($4\frac{1}{2}$ on 135); ($3\frac{1}{4}$ on 95)

Now 180 = $\frac{3}{5}$ of 135, and 76 = $\frac{1}{5}$ of 95
 \therefore returns were ($4\frac{1}{2}$ on 125; (6 on 180) and ($1\frac{3}{4}$ on 76):—

Or returns are as $4\frac{1}{2}$:6: $1\frac{3}{4}$:—i.e., $\frac{9}{2}$: $\frac{12}{2}$: $\frac{3}{2}$
 Hence $(85 + 52) - 120$

$\frac{20}{20}$ represents \$12.75
 i.e., $\frac{1}{10}$ represents \$ $\frac{15}{10}$
 or, $\frac{1}{20}$ " " $\frac{3}{20}$
 \therefore 125, 180, and 76 represent \$1875, \$2700, and \$1140 respectively.—ANS.

By S. M., BROCKVILLE.

19. Bought goods at wholesale price, but obtained a special discount of 4% on the bill. Gave my note at 6 mos. for the reduced amount, and sold the goods forthwith for a note at 3 mos. for \$510.51. Money was worth 8% at the time, and my profit on this transaction was 18.4%. What was the wholesale price of the goods?

SOLUTION. 4% = $\frac{1}{25}$. My note was $\frac{24}{25}$ wholesale price. Present worth of money for 6 mos. at 8% = $\frac{23}{25}$ principal
 \therefore present worth of my note = $\frac{23}{25}$ of $\frac{24}{25}$ wholesale price = $\frac{11}{12}$ wh. price.

My gain was 18.4%, \therefore my selling price was $\frac{11}{12}$ of cost price

i.e. $\frac{11}{12}$ of $\frac{11}{12}$ wholesale price = $\frac{11}{12}$ wholesale price
 But my selling price was the present worth of \$510.51 for 3 mos. at 8%

or my selling price was $\frac{8}{10}$ of \$510.51 = \$408.408
 \therefore my selling price = $\frac{11}{12}$ wholesale price = \$500.50
 \therefore wholesale price = $\frac{12}{11}$ of \$500.50 = \$458.798.—ANS.

By ARGUS, ST. MARYS.

20. If $\frac{m}{x} = \frac{n}{y}$, and $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$, prove that

$$\frac{m^2}{a^2} + \frac{n^2}{b^2} = \frac{m^2 + n^2}{x^2 + y^2}$$

SOLUTION,
 From 1st condition $\frac{m^2}{x^2} = \frac{n^2}{y^2} = \frac{m^2 + n^2}{x^2 + y^2}$ (A)

From 2nd condition $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ $\frac{m^2}{a^2} + \frac{n^2}{b^2} = 1 \times \frac{m^2 + n^2}{x^2 + y^2}$;

Or $\frac{m^2}{a^2} + \frac{n^2}{b^2} = \frac{m^2 + n^2}{x^2 + y^2}$ from A

21. D. A. KINGSBURY, NASSAGAWEXA, proposes the following:—

The base of a triangular field measures 200 yds. A fence parallel to this base bisects the field, find the length of the fence.

SOLUTION. Let x=length of fence, then by Euc. VI. 19. $X^2 : 200^2 = 1 : 2$, whence $X = 100\sqrt{2}$.

A mast is broken off 20 feet from the deck and reaches the deck at an angle of 30°. Find the length of the mast.

SOLUTION. If the mast were perp. to the deck, then the deck and the two fragments must form one half of an equilateral triangle, for the angle at the fracture is 60°. Thus the part left standing is one half of the part bent over, and the total length = 20 + 40 = 60 ft.

The area of an equilateral field is $20\sqrt{3}$ acres. Find the length of a side.

ANSWER. The area of the triangle = side $\times \frac{1}{2}\sqrt{3} = 20\sqrt{3}$. \therefore side = 80.

22. SEND BY J. A., LONDON.

A ladder whose centre of gravity is at its middle point, rests with one end on a horizontal plane, and the other end against a vertical wall, to which it is inclined at an angle of 45°. The coefficient of friction for the lower end = $\frac{1}{2}$, and for the upper end = 1. A man whose weight is half that of the ladder mounts. How far will he ascend before the ladder slips?

SOLUTION. Let a=length of ladder, and x=distance ascended by man. Equate the vertical components and

we get $R + \frac{1}{2} R = W + \frac{W}{2}$. Equate in the horizontal components, $\frac{1}{2} R = R$. Equating moments round the lower end we have also

$W \cdot \frac{1}{2} a \cos 45^\circ + \frac{1}{2} W \cdot x \cos 45^\circ = R_1 \cdot a \sin 45^\circ + \frac{1}{2} R_1 \cdot a \cos 45^\circ$. Solving these equations we get $x = \frac{1}{2} a$.

23. M. T. LYNN proposes the following:—A man rents a house worth \$2,400, which costs the owner \$20 a year for repairs. The rent is \$200 a year in advance. How much a year would the tenant save by borrowing money at 7% and buying the house?

NOTE.—A number of problems in back numbers have not been solved. Our readers would assist the JOURNAL by sending in solutions.

BE PATIENT WITH THE CHILDREN.

THEY are such tiny feet!
 They have gone such a little way to meet
 The years which are required to break
 Their steps to evenness, and make
 Them go
 More sure and slow.

They are such little hands!
 Be kind,—things are so new, and life but stands
 A step beyond the doorway. All around
 New day has found
 Such tempting things to shine upon; and so
 The hands are tempted oft, you know.

They are such fond, clear eyes,
 That widen to surprise
 At every turn! They are so often held
 To sun or showers,—showers soon dispelled
 By looking in our face,
 Love asks, for such, much grace.

They are such fair, frail gifts!
 Uncertain as the rifts
 Of light that lie along the sky,—
 They may not be here by and by.
 Give them not love, but more, above
 And harder,—patience with the love.

—Selected.

Consumption Surely Cured.

To the EDITOR—
 Please inform your readers that I have a positive remedy for the above named disease. By its timely use, thousands of hopeless cases have been permanently cured. I shall be glad to send two bottles of my remedy FREE to any of your readers who have consumption if they will end me their Express and P.O. address.
 Respectfully,

DR. T. A. SLOCUM, 37 Yonge St., Toronto, Ont.

Hints and Helps.

WHAT TO HAVE IN THE SCHOOLROOM.

1. Have plenty of fresh air.
2. Have neatly kept desks.
3. Have a clean floor.
4. Have energy.
5. Have order and system.
6. Have a programme where it can be seen.
7. Have a time and a place for everything.

—Central School Journal.

LET THE CHILDREN MAKE THEIR OWN PROBLEMS.

J. G. EXCELLALA.

RELATIVE to the title given above, I am sure I hear some teacher say "it is as much as I can do to get my children to work the problems I give them, without expecting them to write out problems which they must work." Well, it is an old saying that one cannot tell what one can do until one tries. I must confess that I am a firm believer in this old saying.

Have you ever tried this method in your class? Require each pupil to bring in a problem on the subject being studied.

If you are a careful, watchful teacher, you will learn more from this exercise than the class will. I don't mean to say that the advantage will be altogether on the side of the teacher, for it will not be so. I mean that teacher and pupil will be advantaged, with the odds slightly in favor of the teacher.

Teachers will find that one great trouble—getting pupils to understand the relation of terms—will gradually be removed from the mind of the pupil by requiring him to state in clear unmistakable language, problems in the four fundamental rules, fractions, denominate numbers, and percentage. This is where teachers will learn so much. The various problems submitted will need correcting, for the childish ideas will so very often have only a glimpse of the right way of stating things, that in correcting them the teacher's mind is opened to possibilities that would never otherwise have been dreamed of.—S. *Western Journal of Education.*

A DEVICE FOR THE LITTLE ONES.

BY MRS. C. SIMPSON.

I SEND you a little device which I use in the primary room to inculcate good manners. I found these lines in a paper:—

"A bunch of golden keys is mine
To make each day with gladness shine.
'Good morning!' that's the golden key
That unlocks every day for me.
When evening comes 'Good night!' I say
And close the door of each glad day.
When at the table, 'If you please,'
I take from off my bunch of keys.
When friends give anything to me,
I'll use the little 'Thank you' key.
'Excuse me!' 'Beg your pardon!' too,
When by mistake some harm I do.
Or, if unkindly harm I've given,
With the 'Forgive me' key I'll be forgiven.
On a golden ring these keys I'll bind,
This is its motto 'Be ye kind.'
I'll often use each golden key,
And then a polite child I'll be."

The principal of the school, who is a fine artist, drew for me a picture of a barefoot child holding a scroll. On this scroll is drawn a ring of golden keys. The lower part of each key is ingeniously drawn to represent an initial letter of the little expressions to be learned. For instance, the lower part of one key has the letter I, suggestive of "If you please," another the letter T for "Thank you." At the bottom of the scroll are these words: "Golden Keys." It is a charming picture I think. A child takes the pointer and goes to it, recites the lines, pointing to the keys while reciting.—*North-west Teacher.*

"TOMFOOLERIES OF THE SCHOOLS."

ARE there any "tomfooleries of the schools?" Here, for example, is a class in spelling patiently studying and writing out a list of words which hardly one of them ever fails upon. They knew those words before the exercise was given out as a lesson, and they are simply going through an empty and useless form. Here is another engaged with a reading lesson which most of the children can repeat verbatim without their books. Another is doing such work as this: "Three times three are how many?" "Nine." "Now count your sticks and see." And another is spoiling copy-books by writing each successive line a little worse than the one preceding. Tomfoolery all of it! Foolish trifling with pupils! and the aimlessness of it at length affects their spirits, so that they yearn to get into a world of realities, where what one does amounts to something. Or, again, witness these formalities. The class is to have an exercise in penmanship: "Position. Monitors. Pens. Books. Blotters. Open your books. Take your pens. Write as I count, making one letter for each number: one, two, etc." Or, again, with grown pupils who ought to be learning independent self-direction if they have not already learned it, "First section to the board: rise; pass; turn; erase; write your name, etc." Tomfoolery again, a roundabout, rignarole, wasteful and stupid way of doing a very simple thing. We do not wish to be understood as condemning all set forms of doing things in school. These are necessary and very helpful in securing rapid work. But they should be sought and used because they are found to expedite the proper work of the school, and not because some one else, in entirely different circumstances, it may be, used them effectively. In short, genuineness is as valuable in the school-room as anywhere else; a practical, direct, business-like way of doing what ought to be done, with as little nonsense as possible. Hold to useful forms, but strip off all useless ones, to useful work and throw aside the useless, and let thoroughly business-like spirit and ways characterise the school.—*Wisconsin Journal of Education.*

SCHOOLROOM DECORATION.

A CLEAN schoolroom is pleasant, even if wholly unadorned, but a dirty room is unsightly in spite of the most elaborated decoration. Before we begin to beautify our schoolroom, therefore, let us make it clean. The greatest source of untidiness is ink. No loose inkbottles should be allowed in the room. Ink-wells sunk in the desk are the best to use. To keep the floor free from papers it is only necessary to provide a large waste basket. This should be of simple and chaste design, and may be made ornamental as well as useful.

Now, having our room bright and clean, we are ready to decorate. Maps and globes of soft and well-arranged hues should be preferred to those of brilliant and inartistic coloring. Passing to these things not commonly considered necessary, I will first mention window-shades. Even where there are inside blinds, it will be found that shades or curtains give the schoolroom a home-like look, and not only aid in furnishing it, but also afford great relief to the eyes.

Pictures are within the reach of all. Good pictures exert a constant influence, gradually and insensibly raising the taste of the pupils, and refining their thoughts. But cheap pictures are far better than none; always provided they be good of the kind. A good wood-cut is better than a poor steel engraving, and a good steel engraving is better than a poor painting. Nothing is better than the portraits of eminent men. Views of noted places are of great interest and value. The geography lesson is more pleasantly committed if the pupils can have meanings given to the long, hard names by a glance at pictures of the places they are studying.

Photographs of ancient sculpture illustrating classical mythology, are eminently appropriate. So are photographs of classic scenes and buildings, such as the plain of Troy, the ruins of Pompeii, the Coliseum, and the Parthenon.

Mottoes are very pretty decorations for a schoolroom. They have also a greater moral power than most persons would suppose. Who can estimate the potency of the world's aphorisms and proverbs?

Nothing can be more beautiful or fitting for school adorning than flowers. It is a pretty custom of many rural towns for the little children to bring a bouquet of wild flowers each morning to a "teacher." It will be well to have a few pots of flowers always blooming in the window.

In a corner of the room should be a handsome bookcase filled with well-bound books of reference—the dictionary and cyclopædia, of course, and a good atlas and gazetteer. Then add as many books of travel, history, and science as possible. In another corner I would have a table covered with baize, on which should be laid a daily and a weekly paper, and one or two of the leading monthly magazines. A few comfortable chairs about this table would be attractive on rainy days, before school, and during the "nooning."—*Youth's Companion.*

DR. BREWER'S rule for the words *ie* and *ei* is a comfortable and a safe guide, even for grown-up folks, while scholars at school may daily use it, and find it valuable:—

i before *e*,
Except after *c*,
Or when sounded as *a*,
As in *neighbor* and *weigh*.

There are a few exceptions to this, but not enough to disturb the working of the rule.—*Exchange.*

DID NOT PASS.

FOR MANY A GOOD BOY.

"So, John, I hear you did not pass;
You were the lowest in your class,
Got not a prize of merit,
But grumbling now is no avail;
Just tell me how you came to fail,
With all your sense and spirit?"

"Well, sir, I missed, 'mong other things,
The list of Egypt's shepherd kings
(I wonder who does know it?)
An error of three years I made
In dating England's first crusade;
And, as I am no poet,

"I got Euripides all wrong,
And could not write a Latin song,
And as for Roman history,
With Hun and Vandal, Goth and Gaul,
And Gibbon's weary 'Rise and Fall,'
'Twas all a hopeless mystery.

"But, father, do not fear or sigh
If 'Cram' does proudly pass me by,
And pedagogues ignore me;
I've common sense, I've will and health,
I'll win my way to honest wealth;
The world is all before me.

"And, though I'll never be a Grecian,
Know Roman laws or art Phœnician,
Or sing of love and beauty,
I'll plow, or build, or sail, or trade,
And you need never be afraid
But that I'll do my duty."

—Mary E. Burnett.

THE average salary of male teachers of the first-class in New Brunswick, is \$521.30; that of female teachers of the first-class, \$324.40; male teachers, second-class, \$307.92; female teachers, second-class, \$226.87; male teachers, third-class, \$231; female teachers, third-class, \$187.57.

THE committee appointed by the Wentworth Teachers' Convention to report upon the teaching of temperance in the schools, drafted the following resolution, which was adopted:—"The teachers of Wentworth are pleased to recognize that the teaching of scientific temperance has been made compulsory; that in teaching the subject teachers should present at least all the facts contained in the authorized text books; that the use of the text book in the hands of pupils in the second and third forms be left to the discretion of the teacher, but that it is desirable that the book be in the hands of all pupils of the fourth form; that at least two lessons of thirty minutes each be given every week; that it is desirable that this book find a place in every home in the country."

Examination Papers.

EXAMINATION QUESTIONS.
ELOCUTION.

THE following questions in Elocution were submitted to the pupils of Loretto Convent, Stratford, at a recent examination held there by Mr. Thomas O'Hagan, M.A. :—

1. Name the three elements requisite for good reading, with the essentials of each.
2. Explain what is meant by articulation; and point out some of its most common faults in readers.
3. Give the seven sounds of "a" illustrating each by a word.
4. When is the letter "u" equivalent to "yoo"? Give some words in which this letter is commonly mispronounced.
5. Indicate the pronunciation of the following words by dividing each into syllables and fixing the seat of the accent:—Finance, bronchitis, brigand, granary, hymeneal, maritime, enervate, construe, recess, coadjutor, precedence, precedent (adj.), paths, sacrilegious, refutable, reputable, allopathy, comment (verb), comparable, carbine, integral, canine, banquet, doth, contumely, amenable, learned, jugular, legislature, visor, sinecure, reasoning, suite.
6. What letters are silent in the following words: Trestle, coil, bacon, often, beckon, chasten, and fallen.
7. Mark the sound of "u" in the following words: Brute, lute, duty, fruit, sure, dude, issue, and elocution.
8. When have "e" and "i" the tilde sound? Give six words as examples. What is the common fault in the pronunciation of this letter?
9. Give the steps by which you reach proper expression in interpreting the sentiment of a passage.
10. Explain clearly what is meant by pure and impure voice, and state the mental basis of each.
11. Define clearly orotund voice. Give its three divisions and the character of reading suitable for each.
12. Explain what is meant by an emotional pause, and point out an example of it in your reading.
13. Give the general principles that govern the slides or inflections of the voice.
14. What are the requisites for pathetic reading? Give examples.
15. Give the general principles that govern emphasis.
16. What quality of voice, pitch, tune, etc., would you employ in reading the following selections?

(a) Break! break! break!
On thy cold gray stones, O sea!

(b) Into the jaws of death
Into the mouth of hell
Rode the six hundred!

(c) Seated one day at the organ
I was weary and ill at ease,
And my fingers wandered idly
Over the noisy keys.

17. What are the essentials of common readings?
18. How should a parenthetical clause be read?

MIDSUMMER EXAMINATIONS, 1887.

THIRD CLASS TEACHERS.

ORTHOËPY AND PRINCIPLES OF
READING.

Examiners { James F. White.
M. J. Kelley, M.D., LL.B.

Time—One hour and a-half.

NOTE—75 per cent. counts a full paper.

1. "With respect to the abruptness and rapidity of expiration there are three modes of utterance."—*Text-book*.

State what they are, and how each is produced. Give sentences illustrating the proper use of each mode.

- 2 (i) What quality of voice should be employed in reading each of the following sentences?—

(a) "I bring fresh showers for the thirsting flowers
From the seas and the streams."
(b) "But, soft!
It is the midnight hour when comes
Torbay to claim his bride."

(c) "You sum of treacheries, whose wolfish fangs
Have torn our people's flesh—you shall not live!"

(d) "Ye clouds! that far above me float and pause,
Whose pathless march no mortal may control!"

(ii) Of what feeling is each quality the suitable expression?

3. What is force, and how is it distinguished from stress? In each of the following indicate what force should be used, and why?—

(a) "King Francis was a hearty king, and lov'd a royal sport,
And one day, as the lions strove, sat looking on the court."

(b) "Curse on him!" quoth false Sextus, "Will not the villain drown?"

(c) While thronged the citizens with terror dumb,
Or whispering with white lips, "The foe! they come! they come!"

(d) "Who touches hair of yon grey head,
Dies like a dog! March on!" he said.

(e) Mighty victor, mighty lord!
Low on his funeral couch he lies!
No pitying heart, no eye, afford
A tear to grace his obsequies.

4. (a) Give the pitch suitable for each of the above sentences.

(b) State, with reasons, the proper rate of movement for each.

5. "Ruin seize thee, ruthless king!

Confusion on thy banners wait;
Though fann'd by Conquest's crimson wing,
They mock the air with idle state.
Helm, nor hauberks' twisted mail,
Nor e'en thy virtues, Tyrant, shall avail
To save thy secret soul from nightly fears,
From Cambria's curse, from Cambria's tears!"

Such were the sounds that o'er the creste i pride
Of the first Edward scatter'd wild dismay,
As down the steep of Snowdon's shaggy side
He wound with toilsome march his long array.
Stout Glo'ster stood aghast in speechless trance:
"To arms!" cried Mortimer, and couch'd his
quiv'ring lance.

(a) What are the predominant feelings in lines 1-8, and what modes of utterance would fitly express them?

(b) Mark, with reasons, the emphatic words in lines 1-4.

(c) From the extract select three words that require the rising interval (inflection) and three the falling; give reasons.

(d) Show what care is to be observed for the proper rendering of lines 9-12.

(e) What is the difference in feeling between l. 13 and l. 14? How is this to be shown in reading?

6. Divide into syllables, accentuate, and mark the correct sound of the vowels and italicized consonants in:—brigand, nuptial, crematory, orgies, Genoa, orotund, discern, trosseau, choleric, bronchitis, metallurgy, sonorous.

ANSWERS.

(The following is the best paper handed in in answer to the foregoing.)

1. The three modes are:—The effusive, the expulsive, and the explosive.

The effusive is produced by uttering the first part of the word quite abruptly, and prolonging the sound till it vanishes.

The expulsive is produced by uttering the first part of the word more abruptly than the effusive, and prolonging it a short time.

The explosive is produced by uttering the word abruptly, and stopping without prolonging it a bit.

2. (i) Sentence (a) should be read with a smooth tone, and a pure tone, moderate force, moderate pitch, and moderate time.

Sentence (b) should be read with aspirate tone, low pitch, soft force, and moderate time.

(c) Should be read with guttural tone, loud force, loud pitch, and fast time.

(d) Should be read with orotund quality, low pitch, subdued force, and slow time.

(ii) The orotund quality is suitable to the expression of pathos, sublimity, reverence and awe.

The guttural tone is suitable to the expression of intense hatred, malice, and the worst passions of human nature.

The aspirate tone is suitable to the expression of caution, fear, and secrecy.

Pure tone is suitable to the expression of all unimpassioned diction.

3. Force has reference to the volume or intensity of the voice used in uttering a syllable, word, or sentence.

Stress has reference to the form of its application in the utterance of the syllables concrete.

Force has reference to the distinctness and penetrating powers of the voice, and not to the loudness of it.

In sentence (a) moderate force should be used, because moderate force is suitable to express description, narration, and unimpassioned thought, and this sentence is describing King Francis.

Sentence (b) should be read with loud force, because it is used to express anger, loathing, intense passion, etc., and this sentence expresses anger.

Sentence (c) should be read with subdued force, because it is used to express caution, fear, secrecy, reverence, awe, and pathos. Sentence (c) expresses fear.

Sentence (d) should be read with loud force. It is used to express anger, revenge, intense passion, etc. This sentence expresses anger.

Sentence (e) should be read with low force. It is used to express caution, fear, secrecy, reverence, awe, pathos, pity, and tenderness. This sentence expresses pity.

4. (a) The pitch suitable for sentence

(a) is moderate pitch.
(b) "loud"
(c) "very low"
(d) "loud"
(e) "low"

6.

bri-gänd' or brig'-and.

nup-tial = nüp'-shal. The *l* has the sound of *sh*.

crém'-a-tō-ry.

ôr'-gles. The *g* has the sound of *j*.

Gên'-o-a.

ô'-ro-tünd.

discern = diz-zèrn'. The *sc* has the sound of *z*.

tross-eau = trôs-ô'.

chöl'-e-ric.

brôn-chi'-tis. The *ch* has the sound of *k*.

me-táll'-ur-gy.

son-ô'-rous.

â = a as in fat.

i = i as in.

Y = i as in pin.

û = u as in tub.

a = a as in briar.

ê = e as in mete.

ô = o as in old.

ô = o as in nor.

ê = e as in met.

ê = e as in her.

ô = o as in not.

5. (a) The feelings in line 1-8 are those of anger. Loud force, high pitch, moderately fast time, and radical stress, would fitly express them.

(c) Wing, mail, and fears, take the rising inflection, because the thought is incomplete.

Wait, state, and tears take the falling inflection, because the thought is complete.

(d) Care to be observed for the proper rendering of lines 9-12 is to give all the words the rising inflection to array. It takes the falling.

(e) Line 14 expresses excitement, and line 13 fear.

(b) The emphatic words from line 1-4 are: ruin, ruthless, confusion, wait, crimson wing, and idle.

Science.

TEACHING BIOLOGY.*

BY PROF. JABEZ MONTGOMERY, M.S.

BIOLOGY is a discourse on life. I mean by it the study of life as manifested in plants and animals. I am to discuss a method of teaching it. I shall first speak of teaching more advanced pupils and then consider more elementary work.

The object to be attained in each case is practically the same. The following are the more important:—

To cultivate the power or habit of observation. To teach how to see.

To cultivate the power of comparison.

To develop the scientific spirit and method.

To create a love of nature.

To develop taste.

To impart some knowledge of animals and plants.

We teach a sufficient number of subjects that call into activity the memory; there is, therefore, no excuse for committing text-books in science, but there is great need of something that will exercise the powers of observation. I have known a man thirty years old who had never seen the galaxy or milky way. The same man passed a little show with its attendant noise and confusion six times a day for a week and was as ignorant of its presence at the end of the week as if his path had been a mile away instead of less than a rod.

This is an extreme case, but it was that of a man who was not only then in school, but who had spent considerable time in pursuing the usual lines of study. Each of you will think of many persons whose powers of observation are nearly as deficient. How often have I heard men in railroad stations, with everything they wished to know printed in large letters right before their eyes, ask some one about the very thing they ought to have seen. Such people not only have not the habit of observing, but seem to lack the power.

We memorize in almost all studies, should not one subject, at least, be taught in a manner calculated to fix the habit of careful and accurate observation?

Very little can be rightly learned about animals and plants without comparison. Indeed comparison lies at the basis of all classification. We hear much now about the scientific method and spirit. Nearly all that is meant in the common use of the terms is the ability to investigate for one's self, the faculty of getting knowledge at first hand. It is certainly an important thing and an attempt should be made to awaken the spirit and teach the method. How can this be so well done as in the pursuit of scientific studies?

I mean by creating a love for nature, not that method of instruction that causes the boy to wish to kill every animal he sees and mount its bones and stuff its skin, to rob every bird's nest and shoot the parent birds; but rather, that other love of nature that few possess which makes a man enjoy the study of animal and vegetable life as they show themselves in their most natural forms and habits. I should like to see that feeling developed that would make repulsive the killing a beast, bird, or insect unless absolutely necessary.

I have said, "develop taste." Who ever knew an individual who could spend a few hours in the fields or woods watching the activities of animal existence, enjoying the beauty and fragrance of the flowers, who did not possess a fair share of taste; not that kind of taste that sees beauty only in blocks of buildings, stone mansions, geometrical flower-beds, straight rows of trees, properly trimmed, yes, very properly trimmed evergreens, and closely shaven lawns; but, that other kind that enjoys the gurgling brook, the gnarled tree, the tangled forest, the waving grass and grain, the twitter and chirp of the birds and the skipping and playing of the squirrel.

But what about imparting knowledge? Mere

knowledge, though important, does not make men and women.

Right habits of thought, the power of accurate observation, and, of just comparison, purity of taste, tender feelings towards all things, go a much longer way in the make up of true manhood and pure womanhood than the accumulation of so many facts. One should not be a walking cyclopedia, but a living, thinking, feeling man capable of doing something to make himself and others better. Some knowledge, however, ought to be acquired. The fundamental facts of animal and vegetable anatomy; the basis and great outline of classification, the habits, homes and wonders of some plants and animals; above all, that which may be useful in one way and another in after life.

If I have made myself understood as to the objects to be attained, something may now be said about methods of teaching and the work to be done by the pupil.

The first and most important thing is to have the pupil observe. Let him examine something, and then tell what he has seen. Tell him where to find some plant or part of a plant or animal and have him examine it minutely. He will see some things. Intimate that there is much more to see and thus stimulate him to closer investigation.

When a pretty thorough study has been made let him take another specimen. He is thus collecting a fund of facts. After several specimens have been examined let a comparison be made between them, and the points of resemblance and difference noted.

When a large number of individuals have been examined you are ready to consider the principles of classification. Some of these will occur to the pupil, to others his attention must be called. It is this practical work more than anything else that develops the scientific spirit and teaches the scientific method.

The examination of a few plants, or the dissection of a few animals will not necessarily beget the scientific spirit. Drawing inferences will be of little use, especially if the inferences are drawn as a portion of a task that must be done. I have known pupils in chemistry who were told to make an experiment, take observations, and draw inferences, and record all in a book. The experiment was described, the observations noted and the inference drawn with the regularity of clock-work, but it was an observing-and-inference-drawing task that was always ground out in the same set way. The thought of the pupil was to fill the book with descriptions, observations, and inferences, and many an observation went into the book that was not, nay, could not be made, and many an inference was drawn that had not the slightest connection with the experiment performed. Now this will not do. The pupil must somehow learn to do patient work, must somehow learn to distinguish what he really observes from what he has heard or imagined to be true. A love of the study for its own sake must be induced. This task-grinding work so common must be done away with. The student must become so interested that he wishes to be constantly at his science work if the best results are obtained.

I am aware from sad experience that this result is secured with difficulty, especially if the pupil has been a successful pupil under some task-master. When, however, the student once really falls in with the method and gets down to earnest work for its own sake the love of nature of which I have spoken will be implanted and with this will begin the development of taste. To assist in the growth of the latter I would have the pupil read more of what may be denominated the literature of plants and animals. Let him read Maurice Thompson's *Bye-ways and Bird Notes*, Bryant's *Death of the Flowers*, and his description of the *Bobolink*, many passages in *Coleridge*, *Burrough's Wake-Robin* and many others.

To illustrate my meaning I will read a short extract from Thompson's *Bye-ways and Bird Notes* that will show the spirit I should like to see in every student and, at the same time, show how much may be seen in a short time. (Here No. IV. of the *Tangle Leaf papers* was read.)

It does not seem to me that the ideal text-book for the work of the high school and college has yet been written. A few years ago our authors began with man and ended with protozoans, the des-

criptions becoming beautifully less towards the end. Now they begin with the protozoans and give a little smattering of a vast number of things so that the mind of the pupil is filled with a jumble of facts while he gets little definite knowledge of anything.

The text-book for the average student should be a guide to him in his work. It should tell him where to find specimens and how to dissect a few leading types. Laboratory work in considerable variety should be given so that selections might be made according to locality and to the appliances possessed by the pupil. The laboratory work should illustrate the fundamental principles of the science and exhibit the more important structures of both animals and plants.

The book should contain a fuller discussion of the distinctions and resemblances that form the basis of classification. The characteristics of well defined types should be brought out. Finally reference should be made to, and extracts given from literature bearing on the subject.

(To be concluded in our next.)

Book Reviews, Notices, Etc.

School Readings in the Greek Testament. By Arthur Calvert. London: Macmillan & Co.

THIS book consists of thirty-six passages, selected from the Greek New Testament, and forming an outline of the story of our Lord. It is intended to supply a year's work to a junior class. The notes, vocabulary, and maps leave little to be desired.

Practical Lessons in the Use of English. By Mary F. Hyde. Boston: D. C. Heath & Co.

THIS is the second volume of a series which we hope will be continued still further. It is essentially a practical book, and the work is taken up thoroughly and conscientiously. A class taken through it will know how to write and speak with facility and correctness, even if they are unable to repeat the technical rules of grammar.

First Exercises in Latin Prose. By E. D. Mansfield. London: Rivingtons.

THIS is such a book as we used to long for in connection with elementary Latin classes. It contains a great many exercises suitable for off-hand, or *viva-voce* work in a subject that needs continuous review. The book will save the teacher who uses it much needless mental exertion.

William the Conqueror. By E. A. Freeman. *Cardinal Wolsey.* By Mandell Creighton. London: Macmillan & Co.

THESE well-written books are the first published of a series: "Twelve English Statesmen." It goes without saying that books written by authorities so eminent and so careful are well worthy of reading and indeed of study. Our examination of these books leads us to recommend them very strongly to our teachers.

Elementary Classics. By various editors. London: Macmillan & Co.

THIS is a series of beautiful little books complete in every respect, and makes one wish he were a boy again. There seems to be nothing lacking in the series save a stronger binding. The following have been received:—*Cæsar, Helvetian War*; *Ovid, Stories from Metamorphosis*; *Cæsar, Gallic War*; *Latin Accidence and Exercises*; *Virgil, Æneid, Lib. VI.*; *Arrian, Selections*; *Virgil, Lib. IX.*; *Xenophon, Anabasis, Lib. I.*

Practical Education. By Charles Lilard. London: Whittaker & Co.

THE book consists of four parts, *Industrial Art in Education*, the development of memory, increasing the quickness of perception, and the training of the constructive faculty. Each of these parts contains a number of original ideas forcibly expressed. We would especially recommend the second division for consideration at the present time when inductive teaching of itself, through itself, and by itself is supposed to be the cure for all the ills that schools are heir to.

(Continued on p. 62)

* Substance of a talk before the Teachers' Institute of Kalamazoo Co., Mich.

BUSINESS NOTICES.

WE direct attention to the advertisement, 12th page, of the "Concise Imperial Dictionary." It is our intention to handle this Dictionary in connection with the JOURNAL, and we offer it in the best binding, and the EDUCATIONAL JOURNAL for one year, both for \$5.50, plus 14 cents for postage. Subscribers who are paid in advance may deduct the amount they paid for one year, send the balance, and have the book at once.

WE desire to repeat our request that Inspectors and Secretaries of Associations send us programmes of their forthcoming Conventions as soon as issued. We desire to make announcements of such Conventions, with somewhat fuller particulars than may be found on a Departmental list. Moreover, as this list contains only the names of Inspectorates in which Teachers' Institutes are held, a great many Conventions of Teachers, not being upon the list, are unknown to us, and unannounced. Give us an opportunity to make your operations known to the whole body of Teachers, all of whom take an interest in what concerns the profession. Also, please send us a summary of proceedings.

THE JUNE CONVENTIONS.

THE following are the Conventions to be held in June, so far as we can gather from the programmes furnished us, and from the official list. We also give the name of the visiting Inspector in each case:—

MAY 31 AND JUNE 1.

Prescott and Russell, at Vankleek Hill. Mr. Inspector Tilley.

North Hastings, at Madoc. Mr. W. Houston, M.A.

East Victoria, at Lindsay. Lecture on Thursday evening by Rev. W. T. Herridge, B.D., of Ottawa.

North Wellington, at Drayton. Mr. Inspector Smith, of Wentworth. Musical and literary entertainment, and lecture by Inspector Smith, on Thursday evening.

West Bruce, at Kincardine. Teachers' social on Thursday evening.

Muskoka, at Bracebridge. Dr. McLellan will be present.

JUNE 7 AND 8.

Haliburton, at Haliburton. Dr. McLellan.

South Grey, at Durham. Lecture and entertainment on Thursday evening.

Brant, at Brantford. Mr. W. Houston, M.A.

North Essex, at Windsor. Mr. Inspector Tilley.

The South Essex Convention will take place at Amherstburg, June 14 and 15. Mr. Inspector Tilley will be present.

In every case other than those in which we have made announcements above, the Thursday evening's exercise will consist of a lecture by the visiting Inspector.

Editorial.

TORONTO, JUNE 1, 1888.

THE NOBILITY OF INDUSTRY.

ONE of our correspondents made a point a few weeks since, when he remarked that at the same time when teachers are deploring the overcrowding of their profession, they are encouraging and stimulating their pupils to prepare for the non-professional examinations, and thus doing all in their power to increase the number of teachers. We do not see that teachers are to blame for this seeming inconsistency. It is a part of their professional duty to encourage and stimulate their pupils. In order to do this effectually it is desirable, if not absolutely necessary, to have some definite goal in view. The goal of a non-professional or matriculation examination is the one most familiar and available under our present system. The defect, if anywhere, is in the system, rather than in the teacher.

Another correspondent, viewing the question from the opposite side, deprecates any attempt to lessen the number of candidates for teacher's license, on the ground that it would be, in effect, an attempt to discourage education, and so to lessen the number of fairly educated young men and women in the country. This result would certainly be one to be deplored. It could be prevented only by providing some other equally effective inducement to a high school course.

The fact is that the facilities afforded and the inducements held out, for secondary and university education are in these days so far successful that their very success is creating a source of serious embarrassment. All over America one stumbles here and there upon graduates of universities and other educational institutions of high order, who are in distress because of their want of adaptation to their environment. The same thing is occurring in Germany, the land of universities. Prof. Conrad, of Halle, an eminent statistician who has thoroughly investigated the university problem, declares that in the rapid increase in the number of German graduates, constituting a "learned proletariat," lies a very serious menace to social order. Twenty years ago the number of university students in Germany was 13,400; ten years ago it was 17,800; now it is more than 28,000. While the total population of the country has increased only five per cent. in the past five years, the number of students has increased twenty-six per cent.

The ranks of the learned professions, we are told, are full, and the number is constantly increasing of those who have prepared themselves for admission to them, only to be disappointed. As a rule those who find themselves in this strait are helpless, for their special training has unfitted them for the adoption of any other calling than that which they have had in view from the outset. Such men go to swell the ranks of the "learned proletariat," and their talents and

accomplishments, especially in Germany, are too often turned to mischievous uses.

In view of such facts, it is not surprising that many are beginning to cry out that we are in danger of having too much of a good thing, that "higher education" is being carried too far. Even in respect to Canada, it is said, "already the professions in this country are over-crowded, and yet the universities are each year drawing an increased number of young men away from the farms and the workshops and preparing them to be lawyers, doctors, and preachers."

The facts are undeniable, but we most seriously protest against the inference. The fault is not in the number of the educated, but in the quality of the education. It is just as impossible to have too much education as it is to have too much intelligence, or too much virtue, in the land. What is needed is that higher views of the end of education should be reached and instilled, and educational courses and methods modified accordingly. Why should a man who is naturally adapted for success as a farmer, or a mechanic, or in any form of manual industry, be spoiled for such an occupation because he has been made the possessor of a cultivated mind? The notion is a mere narrow prejudice, which has been fostered by the habit of regarding a course of secondary or higher education simply as a preparation for a profession. As we have often said the true reason why a man should be educated is the fact that he has a mind to educate. The highest end of education is to broaden the sphere of thought, knowledge, enjoyment, to expand and elevate the mental and moral life. The farmer, or the artisan, just as much needs these higher sources of influence and of enjoyment as the lawyer or the clergyman. He has just as good a right to them. They would have just as beneficent an effect in sweetening his life, and increasing its power and usefulness. And it may be seriously doubted whether life can shew any happier or more desirable condition than that of the farmer, or manual artist of any kind who, while engaged in his daily labors, is able to hold high converse with his own thoughts, or with those of others, and who, during those intervals of rest and leisure which a diligent use of his cultivated intelligence aids him in securing, is able to enjoy the society of a family and neighbors equally cultivated, or to refresh himself with the books, embalming the best thoughts of the best thinkers, which are now within the reach of all. Every new labor-saving invention, every fresh application of some giant natural force to human uses should be regarded as facilitating this great end, by relieving men and women of the hardest drudgery, shortening the hours of necessary daily toil, and making the industrial occupations more enjoyable. Holding enlightened and advanced views with regard on the one hand to the true value of education as an end in itself, rather than a means to an end, and on the other of the real dignity, comfort, and enjoyableness of the various manual occupations, especially that of cultivating the

soil, the teachers of the country could do much to correct the wrong notions and shallow ambitions of their pupils, and inspire and shew them a more excellent way in which to promote at the same time their own substantial happiness and their country's welfare. In the good time coming the professions will not be permitted to absorb all the men and women of culture, but we shall find them at the plough and the bench, in the kitchen, the sewing-room, and the laundry. And in that good time the lawyer or doctor will no longer be in a position to look down upon the gardener or the carpenter as one occupying a lower position, but all social classifications, as far as any exist, will be made on the only true basis, that of culture and character.

MIMICO INDUSTRIAL SCHOOL.

It was very pleasing to see the deep interest taken in the Industrial school at Mimico by the party of Toronto teachers and pupils that were present on the Queen's Birthday, at what was happily called "Representation Day." Last Christmas the city schools contributed some sixteen hundred dollars to the Industrial School Funds. Since then a new cottage—capable of accommodating sixty boys—has been erected on the school farm at Mimico, the money contributed by the city schools being used to defray, in part, the expense of building. The Industrial School Board in order to show their appreciation of the generosity of the children, decided to give representatives from the school a Queen's Birthday outing, and accordingly some two hundred pupils and teachers availed themselves of the invitation and boarded the excursion train provided for their accommodation. We have not space to describe all that was seen, but it is sufficient to state that every person present seemed well pleased. No high fences, gratings in windows, or other contrivances for enforcing special restraints on the boys were visible. The buildings were like beautiful residences, and the boys themselves were evidently happy and contented.

We congratulate the promoters of the school on the success which has already attended their efforts in this grand and *really educational* work, and are pleased to learn that the advantages of the school are becoming known and appreciated, and that as a result the boys on the school farm are commencing the excavations for a third cottage.

The character and aim of the school may be understood from the memorial cards which were distributed to the city scholars on the occasion of their visit, and which read as follows:—

CHILDREN'S REPRESENTATION DAY.

VICTORIA INDUSTRIAL SCHOOL, MAY 24, 1888.

Ask God to give thee skill
In comfort's art,
That thou may'st consecrated be
And set apart
Unto a life of sympathy;
For heavy is the weight of ill
For every heart;
And comforters are needed much,
Of Christ-like touch.

Inasmuch as ye have done it unto one of the least of these ye have done it unto Me.

HOW TO READ AND WRITE.

THE art of reading with genuine pleasure and profit is one not easily acquired. In these days when attractive stories and entertaining literature abound, the delights of solid reading are harder to attain than in the times of our grandparents. Perhaps it is not too much to say that nine out of ten of the articles and books now published have it for their object to amuse rather than to instruct. Many even of those which aim at imparting useful information, present it so flavored and coated with something pleasant to the palate that all necessity for will-effort is, as far as possible, removed. We do not complain of this. There are times and places in which the wearied mind demands just this kind of refreshment and profits by it. There are also minds so disposed by nature or habit that they cannot be induced to take in truth in any other way. None the less is it the fact that the successful pursuit of either knowledge or truth by an earnest mind demands that the power of attention and concentrated thought be cultivated to the highest degree. Other things being equal, the intensity of effort required for the mastery of a work is the gauge of its real utility, and will, after a time, become the measure of our enjoyment of it.

No doubt many of our readers often lay aside a good book or article with the unsatisfactory feeling that they have not made the most of it. They know from experience that the contents have not been mastered and digested, so as to become a part of their mental store for all the future. In many cases they may, perhaps, feel compelled to acknowledge to themselves that they know now almost nothing about the contents of the work they read with toil and care a few weeks since. We met, the other day, with a paragraph which contains so much sensible advice bearing upon this matter that we reproduce it for the benefit of our readers. The writer says:

"After reading a book, or an article, or an item of information from any reliable source, before turning your attention to other things, give two or three minutes quiet thought to the subject that has just been presented to your mind; see how much you can remember concerning it; and if there were any ideas, instructive facts, or hints of especial interest that impressed you as you read, force yourself to recall them. It may be a little troublesome at first, until your mind gets under control and learns to obey your will; but the very effort to think it all out will engrave the facts deeply upon the memory—so deeply that they will not be effaced by the rushing in of a new and different set of ideas; whereas, if the matter be given no further consideration at all, the impressions you have received will fade away so entirely that within a few weeks you will be totally unable to remember more than a dim outline of them."

To this we should like to add, always keep a notebook within easy reach, and jot down carefully such of the facts, thoughts, impressions,

made upon your mind as seem best worth remembering. It will take a little time to write them out, but you could spend the time in no more profitable exercise. The fact of being required to put your thoughts into words will compel a definiteness and distinctness that is most valuable, and that can be attained in no other way. The pen, or pencil, rightly used, is for child or adult, for pupil or teacher, the very best educational implement.

Nor would we confine this practice to connection with what we read. Let it be resorted to freely on all occasions when opportunity offers. Every active mind must have thoughts of its own, at least, occasionally, which are worth dwelling upon and remembering. Let any one try for a few weeks the plan of jotting down any thought or train of thought of which he is conscious, whenever, or by whatever it may be suggested to him. If he cannot do this at any time let the substance be carefully recalled at the first opportunity and reproduced. How often have we heard students and others complain that they could not write an exercise in composition or even a letter, because they "could not think of anything to say." Such persons would be offended were we to tell them they must have very barren minds. Nor would it be probably true. Let any such person of ordinary intelligence adopt the plan we have recommended and follow it up steadily for a little time and he will, we venture to say, be agreeably surprised at the result. His note-book will rapidly be filled. The time will soon come that when he wishes to write something he will no longer have to complain of dearth of thought, but will be rather embarrassed by the quantity and variety of the accumulated material.

Try it teachers and recommend it to your older pupils.

We are informed that the Faculties of the two Medical Schools of Toronto have each instituted a series of summer lectures. We believe the medical faculty of Harvard is making a similar innovation, with a view to shortening the period required for a medical course. Hurry is the characteristic of the age.

It is announced by the Education Department that the authorized retail price for the Public School Drawing Books on and after the 1st January next will be five cents each.

WHAT about your summer holidays? Our constituency embraces 5,000 readers who have holidays in the warm weather—most of them for two months. In what way can you secure more enjoyment than by the use of a tent—either to erect at home, in a neighboring grove, or to carry to some more or less public resort? Living is as cheap in a tent as at home; while fresh air, and sports, and absolute rest, and a change of experience, are secured in a way which will prove a pleasant memory to the teacher for the whole coming year. Many of our readers now spend their holidays in this way. The National Mfg. Co., of 70 King street west, Toronto, make every description of tent, and will deal liberally with teachers; and, if they are not prepared to buy, will rent for the season at a moderate price. Send for their descriptive circular.

School-Room Methods.

RAPID ADDITION.

1. ADD silently and tell how many tens and how many units in each group. For example $7 + 7 + 7$; two tens, one unit.

$$\begin{array}{r} 6 + 7 + 9. \\ 8 + 8 + 6. \end{array} \quad \begin{array}{r} 7 + 6 + 7. \\ 6 + 5 + 9. \end{array} \quad \begin{array}{r} 3 + 9 + 7. \\ 2 + 8 + 6. \end{array}$$

In adding, keep the tens results in the mind; for example, in $6 + 7 + 9$, think, $6 + 4 + 12 = 22$; $7 + 6 + 7$, think, $7 + 3 = 10$ added to $(7 + 3) 10 = 20$. This habit of separating and combining quickly so as to see all the tens sums is easily acquired, and greatly facilitates the rapidity and accuracy of adding. Give many combinations of *three units*, until the class is quick and accurate. Then take four figures, as: $7 + 6 + 7 + 2$, $6 + 6 + 7 + 9$, $8 + 7 + 8 + 6$. In each of these the thought runs as follows:—

$$10 + 10 + 2. \quad 10 + 10 + 8. \quad 10 + 10 + 9.$$

This plan applies to large numbers equally as well,

$$15 + 16 + 17. \quad 18 + 19 + 11, \quad 17 + 11 + 12; \text{ or,}$$

$$10 + 10 + 10 + 10 + 8; \quad 10 + 10 + 10 + 10 + 8; \quad 10 + 10 + 10$$

—N. Y. School Journal.

WORDS FOR A SPELLING MATCH.

If you wish to have a spelling match use these words. They are common, every-day words and every pupil should know them:—Bureau, pharmacy, croquet, mechanic, conceit, chestnut, caterpillar, weapon, sacrifice, initial, wretched, squirrel, saucy, ascertain, isthmus, cornice, medicine, glacier, ancient, icicles, partial, catarrh, privilege, pamphlet, mucilage, crevice, epitaph, secrecy, prejudice, vehicle, neutral, ludicrous, battalion, vicious, receipt, machinery, treacherous, participle, audacious, clemency, parallel, separate, definite, truthful, meridian, calendar, welfare, college, frigid, control, corrals, defendant, premises, allowance, millinery, opportunities, itemized, analyze, sycamore, imagination, holiday, mortgage, pennies, latitude, peninsula, scholar, lizard, kerosene, precipice, eraser, surcingle, restaurant, musician, business, cylinder, integer, ledger, mosquito, surgeon, misfortune, reverence, qualities, accommodation, magazine, important, memorizing, ninety-nine, literature, modifiers, accuracy, personal, experience, exercises, watchfulness, warrants, gazetteer, necessarily.—*South-Western Journal of Education.*

GEOGRAPHY.

ORDER OF TOPICS FOR THE STUDY OF THE GRAND DIVISIONS OF THE EARTH.

1. STRIKING characteristics.
2. Brief history.
3. Position, etc.
4. Surface.
 - a. Highlands.
 - b. Lowlands.
 - c. Profile.
 - d. Progressive map.
5. Drainage.
6. Political divisions.
7. Natural divisions.
 - a. Border water.
 - b. Peculiarities.
 - c. Isthmus.
8. Climate.
 - a. Causes.
 - b. Projections.
 - c. Healthfulness.
9. Life.
 - a. Vegetable.
 - b. Animal.
 - c. Human.
10. Productions.
11. Exports.
12. Imports.
13. Prominent cities.
14. Journeys.
15. Comparisons.

—“*School Devices*,” by Shaw & Donnell.

LEAST COMMON DENOMINATOR.

In my opinion, reducing to least common denominator in order to add or subtract fractions, is supreme folly.

Ill.—Add $\frac{1}{3} + \frac{1}{4} = \frac{7}{12}$. Whence comes 19? $11 + 8 = 19$. $88? 8 \times 11 = 88$. $\frac{1}{2} + \frac{1}{3} = \frac{5}{6}$ or $\frac{1}{2}$. Let

me ask you, reader, to reduce to lower terms $\frac{11}{12}$! My way is to subtract numerator from denominator, which here leaves 152—a composite number. Factor 152, and you get 2, 2, 19. Now 19 is the divisor, if there be one. $171 \div 19 = 9$. $9 + 2 \times 2 \times 2 = 17$. ans. is $\frac{17}{19}$. This will work in all cases,—viz., $\frac{527}{1007}$; $\frac{188}{1001}$; $\frac{168}{1001}$. To many the subject of multiplication is a long, tedious and irksome task. Ex., $75 \times 19 = 1425$. How? $75 \times 20 = 1500 - 75 = 1425$. By dividing the multiplier into convenient parts, the work can be much abbreviated.

The computation of interest for less than two months, should be a mental operation.

For example, find the interest of \$340 11, for 60 d., \$3.40; for 30 d., \$1.70; for 1y. 8m., \$34.01. All done by moving point and division.

Is this indicated line of work feasible in my district school? Yes; I used it for a year in such a school, numbering fifty pupils, averaging eleven years of age, and with good results.

This line of work is what I delight in; and I hope by these unpretending hints, to induce some conservative teacher to abandon, in a measure, the idea that written arithmetic is the only means whereby we may attain the degree of accuracy demanded by the nineteenth century genius.—G. A. Cadwell in *Popular Educator*.

LANGUAGE EXERCISES.

BY LIZZIE E. MORSE.

Different Kinds of Language Lessons for a Primary School.

1. WRITE sentences from list of words put upon the board.

[Be sure that each child knows the meaning of each word.]

2. Write sentences from words failed in spelling.

3. Fill blanks left in sentences.

4. Fill blanks in a paragraph.

5. Substitute words in sentences.

[John was surprised when his father told him he might go to Boston one school day. Have the children write the sentence, using *astonished* or *amazed* instead of surprised.]

6. Substitute words in paragraph.

[Put the paragraph upon the board like this:—“You have read that the *proud* Caonabo died while on the *passage* to Spain. But Columbus had taken with him Caonabo's brother and his nephew, the latter a boy of ten. These two he *carried* about with him in Spain wherever he went. He *presented* them to Ferdinand and Isabella.” Where the words are italicized have the children write two or more synonyms.]

7. Write sentence from words pronounced alike, but spelled differently.

8. Write what they have seen coming to school.

9. Write about their playthings or pets.

10. Write what they have seen in the stores.

11. Write letters.—*Ex.*

OUTLINE OF LESSON ON THE ST. LAWRENCE SYSTEM OF RIVERS.

1. GREAT Lakes. Why so called?

Origin of name of each.

Chain of lakes. Rivers or straits that join these lakes.

Height of each above sea level. Which are called the upper lakes? Why?

Comparative size? Depth? Inlets? Outlets? Which lies farthest north? south? east? west?

How is Lake Erie connected with the Hudson river?

Which forms boundary line between U. S. and Canada?

Which lies wholly in U. S.?

What is this a boundary of?

How is Lake Michigan connected with the Gulf of Mexico?

2. Niagara Falls. Origin of name?

Location in river; height of American Fall?

Rapids in Niagara river; whirlpool; how have persons passed through the lower rapids?

Suspension bridges? The cantilever?

3. Navigation between Lake Erie and Ontario?

Relative situation of Welland canal and Niagara river?

What a canal is?

Descent in Welland canal?

Number of locks?

What is a lock in a canal? What makes locks necessary even in a level country?

4. St. Lawrence river? Origin of name? Direction of this river? Length? The Thousand Islands? Located where? Navigation through the rapids? Tide in the St. Lawrence to what point? Ocean steamers navigate St. Lawrence, how far? St. Lawrence forms boundary line of N. Y. to what parallel? Tributaries of St. Lawrence: from the north? from the south? Which of these rivers is noted for its picturesque scenery?
5. Cities—At the head of Lake Superior? Near the head of Lake Michigan? On the west shore of Lake Michigan? On Detroit river? On southern shore of Lake Erie? At head of Lake Ontario? At foot of Lake Ontario? Two important cities on the St. Lawrence? Which is farther north? farther south?
6. History—St. Lawrence river discovered by whom? Quebec founded when? Montreal? Who first entered Lake Champlain? What great lake did the French first navigate? How did the French go from Lake Michigan to the Mississippi river? Give ten names bestowed by the French in this region?—*Southwestern Journal of Education.*

Book Reviews, Notices, Etc.

(Continued from page 59.)

Historie D'Ali Baba, par Antoine Galland. Edited with an Introduction, Notes, and a Vocabulary, by Emile Clare, French Master at Cheltenham College. 6d.

Doctor Westpe, Lustspiel in Fünf Aufzügen von Julius Roderich Benedix. Edited by Franz Lange, Ph.D., Professor. 2s. 6d.

The Public Examination French Reader with a complete Vocabulary to every Extract, arranged for students preparing for a French examination. By A. M. Bower, F.R.G.S., etc.

THESE three volumes are from the publishing house of Whittaker & Co., Paternoster Square, E.C., London, Eng. The two first named form parts of Whittaker's French and German Series respectively, the second being printed in the German character, with useful notes and a vocabulary. The French Reader is a finely printed volume of nearly 400 pages. It contains, in addition to vocabulary, lists of irregular verbs, and of frequently recurring words with their meanings.

Second German Reader. Die Blinden—Die Entscheidung Bei Hochkirch—Brigitta, Tales by Paul Heyse, Frederike Lohmann, and Berthold Auerbach. With Notes by B. Townson, B.A. 2s. 6d.

Accidence and Essentials of Syntax. By Eugene Pelissier, M.A., B.Sc., LL.B.

THE two foregoing books are from the prolific press of the Rivingtons, Waterloo Place, London. The three tales comprised in the German Reader have been selected as being simple and interesting, and at the same time of high literary merit. The work by M. Pelissier is a new French grammar, containing many excellent features in method, and beautifully clear in its typographical arrangement.

First Course in the Study of German, according to the Natural Method, with special reference to the instruction of children. By Otto Heller, Professor of German in the “Sauveur College of Languages.” Philadelphia: J. Kohler, 911 Arch Street.

THIS attractive little book begins with the well-known “finger” lesson of Pestalozzi. Beyond that the author claims to have avoided following any other existing work in the selection and treatment of topics for conversation. The typography and illustrative cuts are good.

German Exercises By J. Frederick Stein, Instructor of German in the Boston High Schools. Boston, Mass.: Ginn & Company.

THIS, the first and only book of its kind in German, is based on the reproduction plan, like Collar and Daniell's “Beginner's Latin Book.” It is designed as supplementary to any good grammar or “Lessons,” and will answer as a first reader in German.

For Friday Afternoon.

GRANDMA'S GLASSES.

"WHEN grandma puts her glasses on
And looks at me—just so—
If I have done a naughty thing
She's sure somehow to know.
How is it she can always tell
So very, very, very well!

"She says to me: 'Yes, little one,
'Tis written in your eye!'—
And if I look the other way,
Or turn and seem to try
To hunt for something on the floor,
She's sure to know it all the more.

"If I should put the glasses on
And look in grandma's eyes,
Do you suppose that I should be
So very, very wise?
Now, what if I should find it true
That grandma had been naughty, too?"

"But, ah!—what am I thinking of?—
To dream that grandma could
Be anything in all her life
But sweet and kind and good!
I'd better try, myself, to be
So good, that when she looks at me
With eyes so loving all the day,
I'll never want to turn away."

—Sydney Dayre.

THE SAILOR'S CONSOLATION.

THE night came on a hurricane,
The sea was mountains rolling,
When Bonny Buntline turned his quid,
And said to Billy Bowling:
"A strong nor'wester's blowing, Bill;
Hark! don't you hear it roar, now?
Lord help 'em; how I pities all
Unhappy folks on shore now.

"Foolhardy chaps who live in towns—
What danger they are all in!
And now are quaking in their beds
For fear the roof should fall in.
Poor creatures! how they envies us,
And wishes, I've a notion
For our good luck in such a storm,
To be upon the ocean.

"But as for them who're out all day
On business from their houses,
And late at night are coming home
To cheer their babes and spouses;
While you and I, Bill, on the deck
Are comfortably lying—
My eyes! what tiles and chimney-pots
About their heads are flying.

"And very often have we heard
How men are killed and undone
By overturn of carriages,
And thieves and fires in London;
We know what risks all landmen run,
From noblemen to tailors;
Then, Bill, let us thank Providence
That you and I are sailors."

—Ex.

THE STATE OF TULAIT.

IN spite of mamma's reproachful eyes
She was always, always late to rise;
And late at breakfast, and dinner, and tea,
And late at school, and at church was she;
Till at last after going too late to bed
A wonderful dream came into her head,
With stories weird
And with warning great,
Of a place to be feared;
Twas the State of Tulait,
O dear!
How crazy and queer
Was the careless State of Tulait.

She thought she had strangely and suddenly come
To King Bizzibe in the land of Hum,
Who eyed her gravely, and said "Alas!
She rose too late to look in the glass,
Her buttons are wrong, and her collar is gone,
And, worst of all, there's her night-cap on!

By this I know
Of her horrible fate;
She is bound to go
To the State of Tulait,
Ah, me!
'Tis sad to see
Fair maids in the State of Tulait.

"Would you like to know what the farmers do
In the State of Tulait? I'll tell you true—
They dally and dream in the spring-time sweet,
They plant their cross in the harvest heat,
They hoe their corn in the frosty fall,
And winter finds them with nothing at all.
You'll hunger and thirst,
And want and wait,
And that isn't the worst
In the State of Tulait.
Oh, no!
And yet you'll go
To the desolate State of Tulait.

"Would you like to know what will happen to you?
In the State of Tulait? I'll tell you true—
You'll go to the show at the end of the fun;
To the concert hall when the music is done;
You'll come to the table too late for the pie;
And you'll see the parade when it's just gone by.
You'll never be wise,
Nor rich nor great;
No fortune lies
In the State of Tulait.
Oh, why
Did you choose to try
The sorrowful State of Tulait?"

"Would you like to know what your fate will be
In the State of Tulait? Ah, listen to me:
You will long in vain for your native land:
Your speedy return will oft be planned;
You'll hurry and strive with might and main,
But you'll never be able to catch the train!
So you'll sob and cry,
And worry and wait,
And you'll live and die
In the State of Tulait.
For ever more
Can you leave the shore
Of the terrible State of Tulait."

At this she woke, so great was her fright,
And she saw the gleam of the morning light;
'Twas the first pale gleam, but she bravely rose;
And quickly and carefully donned her clothes;
"For oh," she said; "I could never endure
To live in that horrible place, I'm sure!
No longer I'm bound
For the State of Tulait;
And I'd never be found
In the State of Tulait.
No! No!
I never will go
One step to the State of Tulait."
—Eudora S. Bumstead in *Youth's Companion*.

Educational Notes and News.

PICTON High School has about 150 pupils. Large additions have been made to its library and the apparatus for scientific purposes is about being considerably increased. The staff consists now of three University graduates and one first-class lady teacher.

EDWARD EVERETT HALE is inclined to believe that, so far from America having taken its name from Americus Vesputius, the renowned navigator, was named for America. Why he inclines to this belief he sets forth at some length in the leading article in *The Critic* of May 12.

WEST KENT Teachers' Association has elected officers as follows:—President, Mr. Ayres; vice-president, Mr. White; treasurer, Mr. Nicholls; secretary, Miss Abram; Misses Rice and Atkinson and Mr. Donovan were elected to the Executive Committee, Mr. J. D. Christie delegate to the Provincial Association.

It is said, on pretty good authority, that Mrs. McMaster, the widow of the late Senator McMaster, is about to imitate the munificence of her lamented husband by endowing a Ladies' College of a high order, in the city of Toronto. The fine

substantial residence on Bloor Street is, it is understood, to be enlarged and fitted up for the purpose. The idea of the chancellor of McMaster University, Dr. McVicar, is to make the new institution a true University College for women.

THE corner stone of a new building at Alma College, St. Thomas, was laid a week or two since with appropriate ceremonies. Mrs. Dr. Carman, of Belleville, wielded the trowel. The new wing, as described by Principal Austin, is to be 40 x 75 feet, five storeys, and will contain a complete gymnasium, a convocation hall, natural science and commercial classrooms, an art room 40 x 60, and dormitory accommodation for sixty additional students. The estimated cost is \$20,000, of which \$11,000 has been raised.

THE Public School Board of Ottawa has adopted a report of its School Management Committee providing for the adoption of a complete system, grading and fixing the salaries of all teachers of both sexes, according to class of certificate and term of service. Lady teachers holding second-class certificates commence at \$300 per annum for first years service and increase at the rate of \$24 per year up to \$420. First-class certificates range from \$432 to \$648. Assistant masters, holding second-class, commence at \$540 and go up to \$660; Assistant masters, first-class, range from \$660 to \$780. Principals from \$804 for first year, up to \$1,200 for twelfth and subsequent years, etc.

SPEECH OF HON. GEO. W. ROSS

AT THE ANNUAL MEETING OF THE TEMPERANCE AND GENERAL LIFE ASSURANCE COMPANY.

The Hon. Geo. W. Ross, President, in moving the adoption of the report, said:—

GENTLEMEN,—It affords me more than ordinary pleasure to move the adoption of the report of the Directors just read. It is very gratifying to know that, although we have been organized less than two years, the business shows the vigor of a company of many years' standing. I had the pleasure of congratulating you last year on a business of \$400,000; this year I have the pleasure of congratulating you on a business of \$1,605,600. We have now 1,099 policies in force (representing 999 lives), amounting in all to \$1,874,100. Between the two annual meetings the business of the Company has exceeded \$2,000,000. When we take into consideration the number of policies that we have issued during the year, and compare that number with those issued by much larger companies than ours, the superior position of this Company is very evident, and the fact is apparent that we are rapidly gaining the confidence of the insuring public. The Canada Life issued 881 policies for \$1,156,855 in its twenty-second year; the Confederation for its fifth year, 1,005 for \$1,383,000; the Sun Life for its tenth year, 573 policies for \$926,371; the North American Life for its third year issued 687 for \$1,347,088, while THE TEMPERANCE AND GENERAL for its second year put in force 967 policies for \$1,605,600. These figures shew, first, that the Company has been pushed vigorously by its Manager and Directors, and, second, that our Company fills a place to-day never taken by any other Canadian Company. If we compare our Company with some in Great Britain, it is very gratifying to observe that the Canadian insuring public appreciate the advantage of a company giving total abstainers the benefit of their good lives in a greater degree than British assurers. The United Kingdom Temperance and General Provident Institution of Great Britain, established on principles similar to our own, secured in its fifteenth year only \$1,339,250; the Scottish Temperance Life Assurance Company, recently established, secured only \$732,228 in its third year.

Another feature of the year's business, which will I am sure, be very gratifying to the Shareholders and Policyholders, is that while the business of some of the oldest and strongest institutions has decreased, owing, probably, to the tightness of the money market, the reverse has been the case with our Company.

Now, in securing business for the past year, the cost has been comparatively small, compared with other companies, viz.: \$1.28 per \$1,000 in our second year; while in two other companies, looked upon as very economically managed, the business cost \$2.37 and \$3.48 respectively for the second year. The intention of the Directors is to continue to extend the business as they have been doing for the past year, and to open up territory that is at present unoccupied. I can say nothing more than simply this: We have met frequently, and at every call the Directors were prompt and attentive to the duties incumbent upon them.

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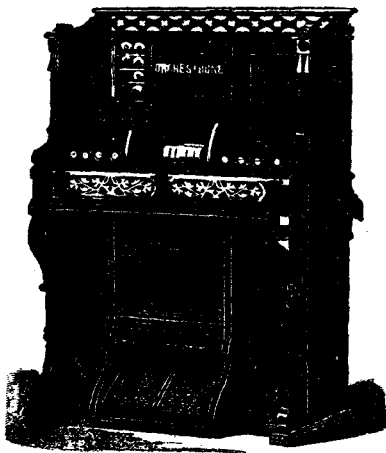
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The presiding Inspector will please give sufficient public notice respecting the Examinations.

The Head Masters of Collegiate Institutes and High Schools will please send the applications of their Candidates to their Local Public School Inspector, and in case of there being more than one Inspector in a County, to the one within whose jurisdiction the School is situated, together with the required fee of Five Dollars from each Candidate, or Ten Dollars if the Candidate applies for the First C. as well as Second Class Examination. A fee of Five Dollars is also required from each Candidate for a First Class Certificate, Grade C, which is to be sent with form of application to the Secretary of the Educational Department.

Where the number of candidates necessitates the use of more rooms than one, those taking the University examination are, in order to prevent confusion, to be seated in the same room.

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DAYS AND HOURS.	THIRD CLASS SUBJECTS.
<i>Tuesday, 3rd July.</i>	
A.M. 8.40-8.55.....	Reading Regulations.
9.00-11.30.....	English Poetical Literature.
P.M. 2.00-4.30.....	History and Geography.
<i>Wednesday, 4th July.</i>	
A.M. 9.00-11.30.....	Arithmetic and Mensuration.
P.M. 2.00-4.30.....	English Grammar.
<i>Thursday, 5th July.</i>	
A.M. 9.00-11.30.....	Algebra.
P.M. 2.00-4.30.....	English Composition and Prose Literature.
<i>Friday, 6th July.</i>	
A.M. 9.00-10.15.....	Reading and Orthoëpy.
10.20-11.30.....	Drawing.
P.M. 2.00-3.30.....	Bookkeeping.
3.35-5.05.....	Precis Writing and Indexing.
<i>Saturday, 7th July.</i>	
A.M. 9.00-10.30.....	Latin Authors.
	French do
	German do
9.00-11.00.....	Physics,
P.M. 2.00-4.30.....	Latin Composition and Grammar.
	French do
	German do
2.00-4.00.....	Botany

Oral Reading to be taken on such days and hours as may best suit the convenience of the Examiners.

SECOND CLASS OR PASS MATRICULATION EXAMINATION.

DAYS AND HOURS.	SUBJECTS.
<i>Tuesday, 3rd July.</i>	
A.M. 8.40-8.55.....	Reading Regulations.
9.00-11.30.....	English Poetical Literature
P.M. 2.00-4.30.....	History and Geography.
<i>Wednesday, 4th July.</i>	
A.M. 9.00-11.00.....	Arithmetic
P.M. 2.00-4.30.....	English Grammar.
<i>Thursday, 5th July.</i>	
A.M. 9.00-11.30.....	Algebra.
P.M. 2.00-4.30.....	Chemistry.
<i>Friday, 6th July.</i>	
A.M. 9.00-11.30.....	Euclid.
P.M. 2.10-4.00.....	Botany.
<i>Saturday, 7th July.</i>	
A.M. 9.00-11.30.....	Physics,
P.M. 2.00-3.30.....	French Authors.
3.35-5.35.....	do Composition and Grammar.
<i>Monday, 9th July.</i>	
A.M. 9.00-11.00.....	Latin Authors.
11.05-12.35.....	do Composition and Grammar.
P.M. 2.00-3.30.....	German Authors.
3.35-5.35.....	do Composition and Grammar.
<i>Tuesday, 10th July.</i>	
A.M. 9.00-11.30.....	English Composition and Prose Literature

FIRST "C" OR HONOR EXAMINATION FOR MATRICULATION.

DAYS AND HOURS.	SUBJECTS.
<i>Tuesday, 10th July.</i>	
A.M. 8.40-8.55.....	Reading Regulations.
9.00-11.30.....	English Composition and Prose Literature.
P.M. 2.00-4.30.....	Greek—Pass (for matriculants only).

Wednesday, 11th July.

A.M. 9.00-11.30..... Algebra.

P.M. 2.00-4.30..... English Poetical Literature.

Thursday, 12th July.

A.M. 9.00-11.30..... Euclid.

P.M. 2.00-4.30..... History and Geography

Friday, 13th July.

A.M. 9.00-11.30..... Trigonometry.

P.M. 2.00-4.30..... English Grammar.

Saturday, 14th July.

A.M. 9.00-11.30..... Chemistry.

P.M. 2.00-4.30..... Botany.

Monday, 16th July.

A.M. 9.00-11.30..... Latin Authors.

P.M. 2.00-4.30..... do and Greek Grammar.

Tuesday, 17th July.

A.M. 9.00-11.30..... Latin Composition.

P.M. 2.00-3.30..... French Authors.

3.35-5.35..... do Composition and Grammar.

Wednesday, 18th July.

A.M. 9.00-10.30..... German Authors.

10.35-12.35..... do Composition and Grammar.

P.M. 2.00-4.30..... Greek Authors.

TORONTO, February, 1888.

MEMORANDUM RE FIRST-CLASS EXAMINATIONS.

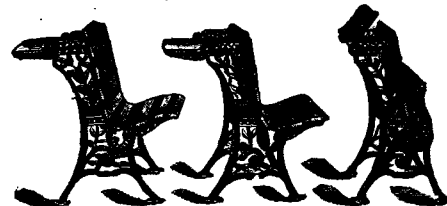
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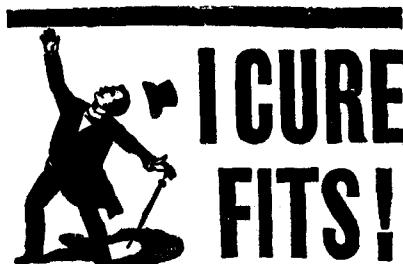
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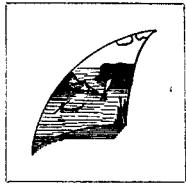
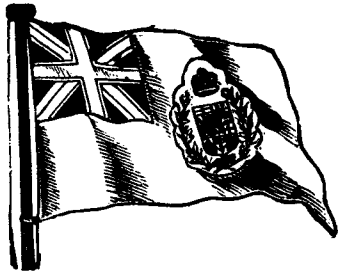
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