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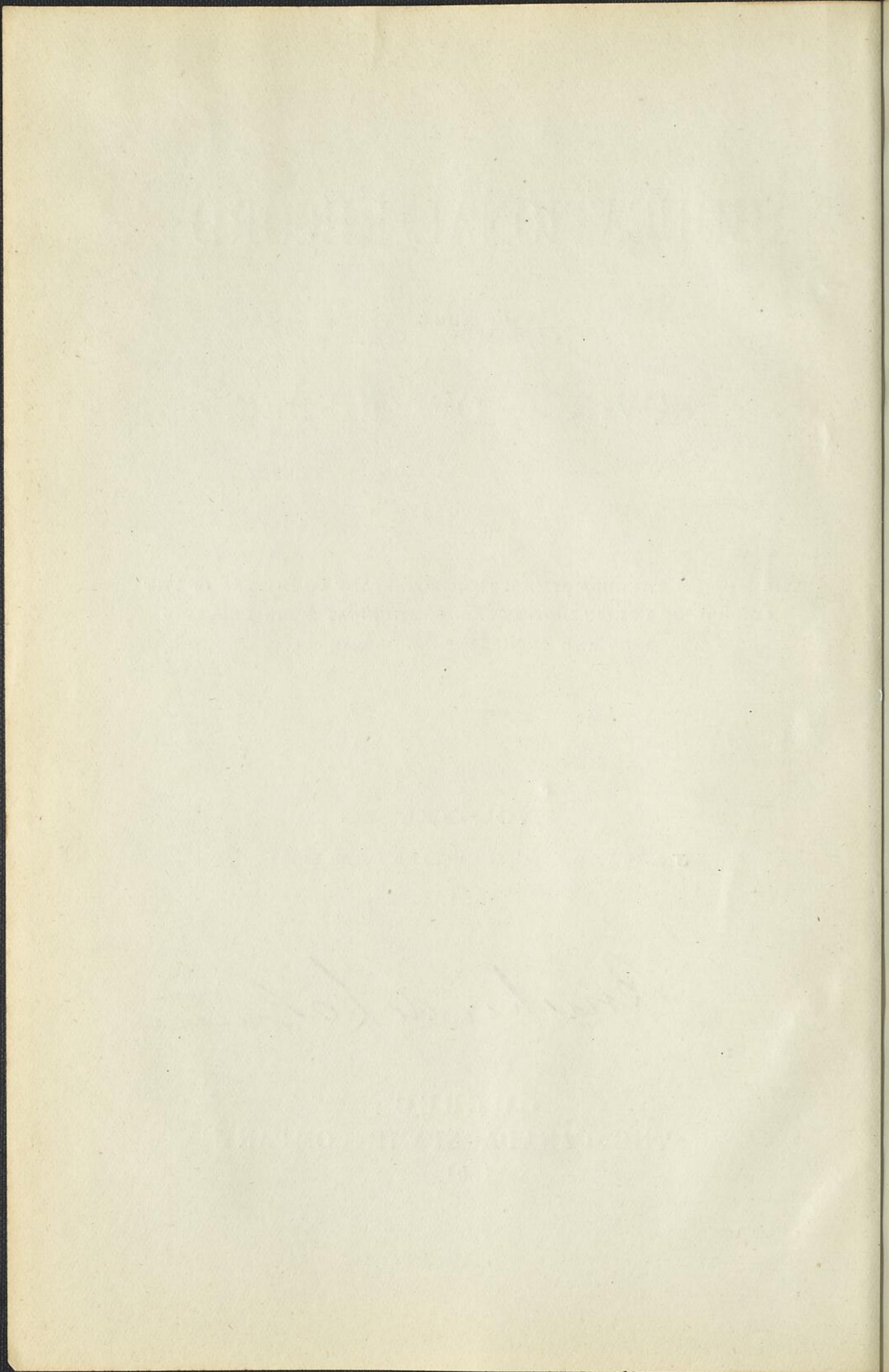
THE  
EDUCATIONAL RECORD  
OF THE  
PROVINCE OF QUEBEC.

THE MEDIUM THROUGH WHICH THE PROTESTANT COMMITTEE OF THE  
COUNCIL OF PUBLIC INSTRUCTION COMMUNICATES ITS PROCEED-  
INGS AND OFFICIAL ANNOUNCEMENTS.

VOL. XXI.  
JANUARY TO DECEMBER,  
1901.

*Boucher de LaBrie*

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No. 1.

JANUARY, 1901.

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**Articles : Original and Selected.**

**NATURE STUDY IN ELEMENTARY SCHOOLS.\***

CARRIE M. DERICK, M.A.

Although, to the majority of teachers, a "practical talk" is of more use than a discussion of theories of education, it is difficult to make suggestions as to methods or courses of study which will admit of general application. Therefore, the following remarks are offered with diffidence, but in hope that they may prove of some assistance to teachers who are trying to harmonize unfavourable conditions with modern ideas.

So long as it was held that for the many nothing could be better than submission to authority and the imitation of good models, studies were valued only because they furnished means of discipline or ensured familiarity with the best literature. Experience showed, however, the futility of the study of forms which embodied ideas having little in common with the experience of children. Then came a demand for a so-called practical education, the imparting of information which could be directly applied in the work of later life. At the same time, the belief that knowledge is gained through the senses turned attention towards studies which would especially develop the perceptive faculties, and "observation lessons" were regarded as the most effective means of training immature minds. But it was soon

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\* A summary of an address given before the Provincial Association of Protestant Teachers, Montreal, October, 1900.

found that subjects taught from a purely utilitarian standpoint lack educational value, and that the teaching of mere series of facts about the material world is equally inadequate. Failure resulted from every attempt to arouse interest in any subject without appealing to the reason and imagination of children; therefore, the older methods of nature-study fell into disrepute. So long as the natural sciences were thought lacking in "culture value," many good teachers opposed their introduction into elementary and secondary schools. There was a tendency to revert to the standards of a time, when reading, writing, and arithmetic were the only subjects taught to little children, when a study of symbols was considered more educative than the investigation of things symbolized, and thought was believed to be of less importance than the manner of expressing it.

But studies of the mental life of children combined with the results of careful experiments have induced modern teachers to readjust their ideas, though retaining many gained from each of the older schools of thought. All subjects are still valued in proportion to the mental discipline they afford; but, it is believed that the whole of a child's nature must be brought into harmony with its environment and adapted to the requirements of a complex civilization. The primary importance of an accurate knowledge of the mother tongue is recognized, familiarity with great writers is considered necessary, some knowledge of the history of the race is believed essential, and it is thought that the artistic, emotional, and ethical sides of a child's nature should be developed. But, it is also granted that thoughts worth expressing must come before expression, and material for thought must precede thinking. Although every subject furnishes mental food to the mature mind, it is otherwise with children. To them, all lessons become dead and deadening unless closely related to their experiences. During the first years of life, children are engaged in acquiring familiarity with the material world, and are full of curiosity about natural phenomena and living beings. Hence it is, that nature-study proves a fruitful subject in elementary schools, giving interest and vitality to all the work.

To some, it may seem impossible to find room for anything new in a curriculum which is already overcrowded,

but it can easily be accomplished by readjustment and correlation. The amount of time and energy given to arithmetic could be lessened with profit; grammar and spelling should be taught in connection with other subjects and not as separate branches of study; and a subject furnishing the material for thought should be made the centre, about which all others are grouped in constantly widening concentric circles.

There is some difference of opinion as to the subject which should occupy the central position; but the majority of teachers prefer geography because of the ease with which it may be connected with history, literature, and the natural sciences. When rightly taught, elementary geography and nature-study are practically the same. Both include a study of familiar phenomena and objects, lessons upon clouds, dew, rain, hail, snow, winds, rocks, minerals, hills and valleys, brooks and ponds, plants and animals, the sun, the moon, and the stars.

Methods of basing the work of the school upon such lessons will occur to every one. An excursion or some natural object or phenomenon observed at the school would furnish material for study. Simple sentences used by the children and written upon the blackboard might constitute the first reading, writing and language lessons. An appropriate song could be learned, a suitable story or myth told, a poem or prose description read, and an illustrative drawing made. A few examples of nature-lessons which have been taken from the work of successful teachers may be of interest.

The first day a preparatory teacher met her class, the usual preliminaries led to a discussion as to which child was the tallest. Measurements were made, and the fact that all were taller than the year before was stated. "Children grow" was then written upon the blackboard. The cause of growth was next sought, and soon "Children eat" was written below the first sentence. When asked what other things grow, the children answered plants, and said it must be because they eat, but none of them knew the nature of plant-food. They were left in doubt. The next day, however, an excursion was made to a neighbouring field, and, in a short time, the children decided that plants must get some food material from the soil. Returning to the school, several new sentences were added to those

previously written and were read and copied. Songs, stories, and poems all emphasized the idea of growth. Other lessons followed in natural sequence. At the end of six weeks printed copies of the sentences used in that time were given to the children and were read easily.

No better subject, for the first day of school-work can be chosen than "the Sun." First would come a talk about its apparent form, its position, its rising in the east and setting in the west, and the benefits derived from it. A song, such as "Good-morning, Merry Sunshine," could be learned; one of Hans Andersen's stories or Longfellow's "A Day of Sunshine" should be read; and a weather-record might be begun. Later might follow several lessons upon the clouds, their forms, causes, motions, uses, and the weather indicated by different kinds. Poems, such as Mrs. Browning's "The House of Clouds," and "The Cloud," by Shelley, would make appropriate readings; the story of Apollo's white oxen would prove of interest; and drawings of the various forms of clouds would fix the impressions made by the lessons. A study of the motion of the clouds would probably lead to a talk about the wind. In this connection, use might be made of stories of Mercury, the Wind God, of Æsop's fable of the North Wind and the Sun, and of Stevenson's "Wind Song," from "A Child's Garden of Verse."

There is still more room for variety in work with older children, who can read and write at least a little. The changing seasons afford an endless amount of material. In the winter, which may seem an unfavourable time for nature-study, a long series of suggestive lessons could be given upon the evergreen trees. If possible, walks should be taken to pine-groves, branches of several kinds of pine with the leaves and cones might be gathered by the children, and portions of stems could be obtained from wood-yards. A study of the form and branching of the trees, the size of the trunks, the colour and texture of bark and wood, the needle-shaped leaves, the form, size, and position of the cones, the habitat and distribution of the trees, and a comparison with other conifers would occupy several days. Selections from the reading-books might be supplemented by Longfellow's "Hemlock Tree," extracts from Hiawatha, Andersen's story of "The Fir Tree," and "The Law of the Wood," by Mrs. Gatty. From these

sources could be drawn material for drawing and language lessons. And, what is unusual, the pines could be utilized in simple arithmetic lessons. The white pine with five leaves in each cluster, the red pine with two, and the pitch-pine with three or four might illustrate all possible combinations of these numbers.

At first, the objects studied and the order in which they are considered matters little. Young children should be chiefly occupied in becoming familiar with and interested in their surroundings; later, the knowledge gained can be systematized and gaps filled. Gradually, nature-study will be combined with industrial, commercial, and political geography, and the literature of the world will be drawn upon for legends, poems, stories of great men, descriptions of peoples and places. The fauna and flora of each new locality considered will be compared with familiar forms, pictures often supplying the place of living examples. Not only will objects be drawn and language lessons illustrated, but maps showing the distribution of animals and plants, weather maps and historical maps may be made. History, as easily as literature, may be correlated with geography, if a beginning is made with the personal experiences of the children and the life of the community, and natural steps lead to the consideration of relations more distant in time and place. Arithmetic seems to stand apart, for it is necessarily taught by means of type-forms. But it can be combined to some extent with nature-study, giving definite ideas of quantity, size, and the relation of parts.

It may be said that a course of study such as that indicated would require graded schools, libraries, museums, and a perfectly flexible curriculum. As to the last, it has been proved that the added interest given to reading, writing, and language lessons, by making the children's own experiences the foundation of each, will enable a teacher to do much more than the prescribed amount of work within a term. The difficulties of the teacher of an ungraded country school are, however, great; but, surely they would be lessened by such a combination of subjects as that suggested. In an elementary school, much of the work of different grades could be done in unison. The same short excursions, objects of interest, stories, poems, and descriptions could be made the basis of lessons given to several classes; but, more finished draw-

ings, more elaborate maps, longer language lessons, and more difficult reading would be done by the older than by the younger pupils. The trials of the country-teacher may be great, but the opportunities are greater. An unlimited amount of material for nature-lessons is always at hand, the children are closely associated with the objects studied, and the world may be constantly viewed in the process of making.

But, if nature-study is to be a living centre from which other subjects draw much of their vitality, careful and earnest preparation must be made by the teacher. Book lessons are worse than useless, and oral teaching must take their place. Nothing should be told which the children can discover for themselves; and the scheme of work should be sufficiently flexible to admit of the discussion of subjects which unexpectedly but naturally present themselves. Relations of cause and effect and the biological relations of animals and plants should be considered rather than mere resemblances and differences, which are comparatively uninteresting; and accuracy should never be sacrificed for the sake of simplicity. It is true that method can never take the place of knowledge; therefore teachers should read good, modern books trusting only to final authorities, and, when possible, confirming even these by personal investigation. An extensive acquaintance with science is unnecessary; for thorough reading, careful observations, and enthusiasm will enable a teacher to guide children in their work, studying with them and often confessing ignorance, as must the most learned.

The results cannot fail to be better than those obtained by the monotonous, mechanical methods of teaching which formerly prevailed. Not only will children acquire the quickness and accuracy in observation, the painstaking habits, and the love of nature once supposed to result from "object lessons," but they will gain greater facility in the use of their mother tongue; the habit of definition will create a horror of vague or meaningless terms, and clear thoughts will naturally be expressed in clear language. As the truest appreciation of great literary works is felt when the ideas involved are related to the reader's experiences, a love of good literature will be developed. The same is true of drawing and other modes of expression, the thought is all that gives vitality to the form. Both a knowledge of

facts and the ability to use them, placing each truth in proper relation with others, will follow from such training. The imagination will not be neglected, but even that side of it which enables one to appreciate the visions of great scientists will be developed.

Nature-study cannot fail to give that impulse to virtue which comes from knowing a thing well, "a state which results from direct contact with nature's laws and facts, and from feeling that they are inevitable." The attempt to discover and to do for himself will start the child in the right way upon his struggle against wrong and his fight for truth. Not only will he find unity among his ideas, meaning in his own life; but he will perceive a general plan underlying all phenomena, and new beauty in a universe, where law prevails and cause and effect are indissolubly united. Lastly, he will be taught that judgment must be suspended until the facts of the case are known, and that reason and not authority should be the basis of opinion and belief.

#### BOOKS WHICH WOULD BE USEFUL TO THE TEACHERS OF ELEMENTARY SCHOOLS.

- |                      |   |
|----------------------|---|
| Atkinson .....       | Elementary Botany.  |
| Bailey .....         | Lessons with Plants.  |
| Blanchan .....       | Nature's Garden.  |
| Buckley .....        | The Fairy Land of Science.                                  |
| " .....              | Life and Her Children.                                      |
| " .....              | Winners in Life's Race.                                     |
| Burroughs .....      | Birds and Poets, etc.                                       |
| Burt.....            | Little Nature Studies from Bur-<br>roughs (Vol. I).         |
| Chapman.....         | Bird-life.  |
| " .....              | Hand-book of Birds of Eastern<br>North America.             |
| " .....              | Four-footed Animals.  |
| Coulter .....        | Plant Relations.  |
| Dana .....           | Plants and their children.                                  |
| Erye .....           | First Steps in Geography (Brooks<br>and Brook Basins, etc.) |
| Ganong.....          | The Teaching Botanist.                                      |
| Gibson .....         | Sharp Eyes, etc.  |
| Hicks and Locke..... | The Prang Primary Course in Art<br>Education.               |

Howe .....	Systematic Science Teaching.
Kemp .....	A Handbook of Rocks for Use without the Microscope.
MacDougall .....	Plant Physiology.
Newell .....	Outlines of Lessons in Botany.
Poulsson .....	In the Child's World.
Redway .....	Elementary Physical Geography.
Redway and Hinman...	Natural Geographies.
Shaler.....	Outline of the Earth's History.
" .....	The Story of our Continent.
Weed .....	Life Histories of American Insects.
Wilson .....	Nature Study in Elementary Schools.
Wright .....	Bird-craft.
Wright and Coues.....	Citizen-bird.
The Quarterly Bulletin of the American Bureau of Geography.	

N. B.—Excellent language lessons based upon nature-work might easily be given, following a similar method to that suggested in "The Mother Tongue" by Arnold and Kittredge.

### Editorial Notes and Comments.

—THE Editors of "The Record" wish the teachers of the Province a very happy and prosperous New Year. The most satisfying happiness is that which comes from work well and faithfully done.

—IF we would only be content with trying to do the best possible in our own peculiar sphere, how rapid would be our progress. Much valuable time is often lost in a criticism of the work of other teachers—work whose difficulties and trials can only be appreciated by those who know the real state of affairs. All told, in relation to Protestant education in this Province, we are only 200,000 in number and a much scattered 200,000. How necessary is it that we pull heartily together to advance the cause of education which lies so near our hearts. We may not see eye to eye in this matter, but we must strive earnestly to recognize the great ends of education, and not keep our thoughts narrowed down to a few petty details. Those of us who believe that we have solved the educational prob-

lem should show the truth of the solution by actual test in our own locality. We may say to ourselves as the final test, "Is this part of the province sending out the highest types of manhood and womanhood?" Let us pull together with a will. We are all members of one body. An injury to one part is an injury to the whole. A criticism that is wise, kindly and founded on fact, no matter how severe it may be, is valuable not only to those immediately concerned in it, but to those who read it, while the criticism that is mere name calling or preposterous exaggeration is the sort that reacts upon the critics. It is the kind that is sometimes described as "kicking." Now Dr. Taylor, of Emporia, Kansas, has a word of warning to such critics when he says: "A horse cannot kick and pull at the same time. Neither can a teacher. He may imagine that he can spend his strength in fault-finding, but one day he wakes up and finds himself a long distance behind the procession. There used to be a man in Kansas who delighted teachers' conventions with his humorous kicks at all sorts of real and imaginary evils in teachers, pupils, school boards, and the public generally. After kicking himself out of several good places, he finally kicked himself out of the state and clear over the mountains. He was a good man in many ways, but having spent his strength in kicking, he had none left for pulling. Stop kicking, my brethren, and PULL."

A RECENT ADDRESS BY THE HON. S. H. BLAKE,  
Q.C., BEFORE THE POLITICAL SCIENCE  
CLUB, TORONTO.

Possibly the noblest ideal of a National University that can be entertained by any mind, is that of one great centre of learning, where, within ample halls, under the guidance of the wisest, most refined and most richly endowed of the race, the sons and daughters of the nation gather, not merely for the acquisition of knowledge, but for that wide and free interchange of thought, for that kindling of youthful sympathies and for that generous emulation in worthy endeavour, which, growing with successive generations of students, issue at length in a grand national character. In a country stretching from the great lakes to the frozen

ocean, and from the Atlantic to the Pacific, and in a generation that has not yet completed the work of shaping the crudities of its first rude organization, such an ideal is not within our immediate grasp. For this reason we may hold the Hon. S. H. Blake excused that in his recent lecture entitled by himself "A Talk on our National University," he made no slightest reference to the desirability or to the remote possibility of such an institution in this rapidly developing northern half of the North American continent;—an institution which, were it but attainable, would weld the fragments, called provinces, into that august whole, which loomed up vast in the dim future before the eyes of those who prophetically named it the Dominion of Canada.

All broad-minded Canadians, however, are both surprised and disappointed that the lecturer, so long and so closely associated with university education, when treating such a subject, should have had no word of kindly appreciation for the work accomplished by other universities than his own, should not even have contented himself with ignoring them, but should have indulged in more than one unworthy sneer. Was it too much to expect that "the solicitor of the University," as he is termed, to such an audience, on such an occasion, would express some hope for such a good understanding among existing universities as, conducing to mutual respect and tending to unity of aim, would at once eliminate whatever may be unseemly in their rivalries, and prepare the way for ultimate confederation of action?

Mr. Blake's conception of a nation is the Province of Ontario, his conception of a national university is the university of Toronto, to which nearly a score of times in his lecture he alludes as the "National University." Now the Province of Ontario is a magnificent province, which sooth to say, has more nearly reached its full development than any of its sister provinces. To them rather than to it belongs the future. It ought not to be necessary to remind Mr. Blake that Ontario, magnificent as it is, is but a part of Canada. The University of Toronto is a fine institution, which has done and is yet doing a great work, but which, neither having attracted the munificence of the wealthy men of its city, nor having won the unreserved confidence of the government of its province, suffers from an ill.

deserved penury. Mr. Blake regrets that "our students" "drift to the east." He evidently dreads the growing strength of an institution known to most of us as Queen's University of Kingston, but which with something less of courtesy than becomes a member of the Senate of the University of Toronto, he designates "the Presbyterian College at Kingston." But no such surpassing excellence as can be claimed for the Toronto University, still less its past opulence of mismanaged endowment, or its present narrowness of resources, can establish a right to be considered "Our National University." Besides, it is impossible to admit that Mr. Blake, by the wisdom of his course in making a direct attack on President Loudon, whose recent outspoken criticisms of state education in Ontario, are evidently distasteful to the authorities, or by his polite treatment of sister institutions, has acquired the right to designate his own provincial institution "The National University."

In the admirable school system of Ontario, albeit over-governed and too narrowly organized, many things are taught, and some are well taught; but if the grace of modest bearing and restrained statement were appreciated, and that crowning excellence of refined manners, the ability generously to recognize the worth of others, were sufficiently inculcated, such an address as that of Mr. Blake would have been received by such a society as the Political Science Club, with the frigid politeness due to a speaker who has misused his opportunity. We write more in sorrow than in anger. The lecture is less serious in itself than as a symptom of a narrow sectional feeling. Most unhappily, as recent events have clearly shown, the greatest obstacle to the development of a truly national sentiment in this Dominion is the supercilious self-sufficiency of a few prominent men in Ontario.

We extract from the *'Varsity*, the Toronto University organ, a letter which expresses the feeling of more than one of its readers regarding Mr. Blake's ill-considered address:—

7th December, 1900.

*To the Editor of the 'Varsity:*

SIR,—I have just read, in your issue for the current week, the address recently delivered by Hon. S. H. Blake

Q.C., on the "Ideal of our National University." In other articles inserted in the same number—by such contributors as Mr. Goldwin Smith, Principal Caven, and Principal Sheraton—the reference is not to the "National," but to the "Provincial" University.

This verbal discrepancy leads me to invite your readers to ponder the true inwardness of Mr. Blake's statement that "while the University of Toronto has of graduates teaching in High Schools 283, Trinity College has 13, and *McGill has 1.*"

The italics are mine. Let all possible credit be given to the solitary McGill man, who has succeeded in forcing his way into the fastnesses which the Ontario Education Department guards so jealously from foreign intrusion. The other McGill graduates are probably more profitably employed in other operations. But is there not some inconsistency on the part of Mr. Blake? Is it open to him, or to any one else, to speak in one and the same breath of a "National" University and to plume himself on what is obviously a mark of the narrowest provincialism?

Yours faithfully,

"MCGILL."

—THE Teachers' Lecture Course for this winter consists of four Bickmore illustrated lectures: "Alaska and the Klondike", "The Yellowstone", "Hawaii", and "Birds", two lectures on educational topics "Practicalities in Education" and "Old and New Ways of Teaching History"; one literary subject: "The Prose Writers of Canada," and one distinctively Canadian problem: "Forestry in Canada."

—THE first lecture of the Teachers' Lecture Course, delivered by Prof. A. B. Hart, of Harvard University, set before teachers the great educational demands of the day. Facts, not fancies, are demanded of education and educational institutions. This is an age of hurrying actualities and material inventions. Hence many of the American institutions of learning are bringing to the front commercial and business courses. Some tangible results are expected from colleges and schools. This is a period of great things; the greatest railways, the biggest buildings, the largest ships. The theorists and dreamers have had their day.

The world is now plentifully supplied with theories. What is wanted from the schools is that children shall be fitted to take their place in a practical and material world. The schools and colleges must prepare pupils to meet the demands that will be made of them. In this age of fact and hard headed materialists, these demands are three in number, namely : first, that people shall know something ; secondly, that they shall be able to do something, and thirdly, that they shall accumulate something—save. The benefactors of the university, and the tax payers who support the public schools have the right to demand that the present day education give this learning and this training. The twentieth century demands of the colleges experts in their line of work. The hero of the people is the man who touches the most closely the everyday life of the people. The three most talked of men of the present day, omitting military leaders are, in order, Tesla, Edison and Marconi—men who have dabbled in “electrical fluid.” The schools, too, must provide that which is valuable and practical, or they will be swept aside and others appointed to take their places.

Some of the practicalities of education were enumerated. The fundamental work of the school is training the memory. The changed methods of education have brought about the disastrous result that to some extent people are losing the power of remembering distinctly. That a man may have knowledge, he must remember, and that he may have valuable knowledge, he must remember that which is worth while. Facts that are worth remembering are associated with other facts and are well established. Darwin first formally promulgated the principle that facts should be established before they are accepted.

The educated man is not he who can tell you what he has eaten for dinner forty years back, but he who can apply his knowledge to obtain valuable results. There is no power in mere information. To be able to use a fact is all important. So the child should not simply learn facts, but learn how to learn facts and how to use them. That the child goes to school not only to learn, but also to learn how to learn, is the trend of the present great reform movement in education. Manual training is valuable, because it helps to transform facts into performance. The classics are valuable because they help us to use our own language and

to use our minds generally. The test of the money value of education is whether it does or does not enable a man to cope more intelligently with the problems of the time.

The great advantage of education comes from the power it gives us of taking long views. Prof. Hart deplored the passing away of Aristotles, Gladstones and Lowells—men familiar with the knowledge of their time.

The great end of education is the production of men and women who shall contribute something to the state. The greatest source of a country's wealth is in the minds of its great men, not in its forests or mines or lakes or wheat fields.

The last practicality and the most important from the point of view of the speaker was the training of the imagination. The great fault in the school systems of the North American Continent is lack of imaginative training. For increasing the power of enjoyment of life, and, when wisely directed, of promoting success in the affairs of life the imagination stands without a rival. Is not the imagination the stock-in-trade of most professional men? This is so of the electrician, the musician, the doctor, the lawyer, the inventor, the statesman. It shows the lawyer and the politician what is in other men's minds and the inventor how his machine will operate when complete.

Lastly, these ideas form the practical bases for the attainment of the eternal and unseen—the highest which we can attain.

—"THE Coming of the Kilogram," a plea for the adoption of the metric system of weights and measures, is the title of a recently published work by H. O. Arnold Foster. Whatever of good the coming of the kilogram may bring, it will deprive us of numbers in the tables that lend themselves readily to the obtaining of fractional parts of quantities. Ten has only the factors 2 and 5, while twelve has 4 and 3, 6 and 2, 2 and 2 and 3. Thus we may have halves, thirds, fourths, sixths and multiples of these.

—AT a recent meeting of the Teachers' Association in connection with McGill Normal School, interesting and helpful papers on the English of the third, fourth, fifth, sixth and seventh years of school were read by Misses Stewart, Forsyth, Kruse and Cox, and Mr. Ives, B.A., respectively.

The stupendous task of teaching children to speak English correctly, who never hear English spoken correctly except at school, was referred to.

The value of supplemental reading as an aid to good English, was brought out in several papers.

In composition it was shown that thought should precede writing, not writing thought.

The pen moves quickly when the mind is full of ideas. So a talk on the subject of the composition might advantageously precede the composition exercise.

Very young children can be taught to appreciate to some extent the literary merit of an author, if their sympathies are enlisted in the author's life and times, and in the subject on which he is writing.

Talks on current events were suggested as useful aids to breaking up the monotony of children's letter-writing.

If the statements respecting the standing in formal grammar of pupils entering the High School were based on sufficient data, it would appear that either we must get better methods of teaching "formal" grammar or defer the teaching of the subject until a later period in the school course, when the minds of pupils will be better able to grasp the difficulties of the subject. The parrot-like conning of definitions and rules will never meet the difficulty.

### Current Events.

—CHILDREN under twelve years of age found on the streets of Havana during school hours are arrested by the police. Mayor Rodriguez intends to have the school laws strictly enforced.

—MAJOR-General Baden-Powell is a strict abstainer from tobacco. An anti-cigarette league, bearing his name, has been formed among English boys. A roll containing 100,000 names of boys between twelve and eighteen years will be given him as a Christmas present.—*Our Times*.

—THE first lesson for a mule-trainer, says a writer in an agricultural journal, is to learn to govern himself. Strike out "mule-trainer" and insert "public school-teacher," and the statement is equally true and far more important.—*Youth's Companion*.

—PREMIER Roblin announces his intention of introducing at the next session of the Manitoba Legislature an act to make the attendance at school of children between the ages of six and fourteen compulsory.

—THE lady teachers of Toronto are agitating for increased salaries. Teachers now get \$324 a year at starting, with an increase of \$24 a year, until the maximum of \$360 per annum is reached. They contend that it is impossible to live properly on \$324 a year, and they want the initial salary at a higher figure, and after that an increase of \$25 a year until they are receiving \$850.

So long as they do as good work as male teachers they think that they should be as well paid.

—DR. Hamilton has been installed as Chancellor of Bishop's College, Lennoxville, in place of Dr. Heneker. Bishop Dunn, on behalf of the corporation, presented Dr. Heneker's picture to the University and at the same time paid a high tribute to the value of the services rendered by Dr. Heneker to Bishop's College.

—A NEW YORK paper says, speaking of the United States:—The money spent upon our public schools at present is equal to the combined outlay for public education of Great Britain, France and Germany. In 1897, 409,193 teachers were employed, of whom only one-third were men. Twenty-one per cent. of the total population, and seventy per cent. of the children of school age were registered in the public schools. The public school children now comprise about nine-tenths of all who go to school.

—THE Olympian games, a revival of the athletic sports of the Greeks of 2,000 years ago, are to be held in the United States in 1904.

—RUSSIA has adopted the metric system of weights and measures.

—PROF. Sargent, of Harvard, has invented a gymnastic machine which, he says, will exercise every muscle of the body. We shall soon be able to take our necessary exercise without exertion, by merely sitting down on this machine.

#### FOOT-BALL VS. EDUCATION.

J. C. Hanna, Principal of the Oak Park High School, believes the paramount issue with him and his pupils is edu-

cation. The pupils, and many of their parents, seem to believe it is foot-ball. The difference of opinion has resulted in strained relations between the two forces.

The condition is due to the great rivalry between the High Schools of Austin and Oak Park over foot-ball. The Oak Park boys consider their team the best, and were, as they believed, about to demonstrate it last Saturday, when the last game of the season with the Austin boys was played. Before the day of the game Principal Hanna found that the low standing of the three best players of the school team made them ineligible to play. The boys pleaded for a relaxation of the rule. Mr. Hanna was obdurate and the game came off without the delinquent three. The result was a serious defeat for the Oak Park team. The blow to the pride of the school was keen and some of the students are in a state of rebellion against the Principal. Instead of giving the head of the school their support many of the parents are siding with their children, and the path of Mr. Hanna is not a smooth one.

It would seem proper that the parents of these pupils, who have invested so much money and whose pride is their educational plant, should rate ephemeral success in foot-ball subsidiary to educational results, and that instead of augmenting the feelings of the pupils against their Principal the mothers and fathers should give him their most cordial endorsement and earnest support.—*The Philadelphia Teacher*.

—It is proposed at McGill University to establish an Alma Mater Society to manage the affairs of the students as a whole. The idea took form through the general dissatisfaction with theatre night, and the plan by which it was always held on the evening of sports' day, without any consideration of the quality of the plays that happened to be here on that date. The custom was an old-established one, and as long as the committee in charge of the affair was elected merely temporarily, and represented five different faculties, rather than one university, it was hard to get it altered. With the concurrence of the authorities, the faculties have elected representatives, who, with the advice of Principal Peterson, are now drawing up a constitution of a university society to manage matters which affect the whole student body. When completed, the draft will be submitted to the faculties, and, if adopted, the Alma Mater Society will be formed.—*The Witness*.

—THE United States Government is so well satisfied with the success of the effort to bring the Cuban teachers into touch with their educational system, that it now proposes to bring some Filipinos to the United States to receive an English education.

—MR. John D. Rockefeller has again donated a large sum to the University of Chicago, \$1,000,000 as an endowment fund, and \$500,000 to be drawn upon for immediate needs.

—AT the last quarterly meeting of the Executive Committee of Dunham Ladies' College, a very satisfactory financial report was submitted by the bursar. Although five hundred dollars were expended in improving the college property, a substantial balance yet remains on hand. The attendance numbers 41 resident and 19 day pupils.

### Model Lessons.

#### I. A LESSON IN ARITHMETIC ON "STOCKS."

BY MISS E. BINMORE, M.A., SENIOR SCHOOL, MONTREAL.

Perhaps we might occasionally, with advantage, vary the general hints upon teaching a subject by particular suggestions as to one definite portion thereof. As Secondary Schools are less numerous than Primary Schools, and are in charge of the more experienced teachers only, we naturally find less attention devoted to their work in educational articles. Such attention is often of great assistance. Consequently I venture to address this to the minority of my fellow-teachers, whom it concerns directly, trusting others may find it also suggestive and helpful.

Personally I have only lately, after many fruitless efforts, begun to feel satisfied I am able to give even a minority of my classes an insight into, and interest in stocks. A few days ago one of the girls told me her predecessors had advised her to wait till she reached stocks, and she would know how difficult arithmetic was. However, she thought, stocks the easiest thing she had yet learned in arithmetic. A test paper from the whole class averaged about 80 p. c. (as against a customary 40-50 p. c.) showing that the chorus of assent to her remark was not empty boasting.

The first point is to make the subject a living one.

It is a point gained when a pupil prefers not to give his answer, because it is absurd.

Because stocks are sure to fluctuate at such times, I chose to start the subject just after the general election of November 7. We prepared for the first lesson by my asking every pupil to cut out all the stock reports, from whatever paper his father took at home, for the week beginning November 5. November 10 was entirely devoted to scanning these lists, and seeing a series of fictitious men through each day's sales. We found their losses, and entered into reasons affecting rise and fall in the price of stocks, *e. g.*, war, overstock, supply and demand, strikes, change of tariff, etc. We observed that most stocks were in \$100 shares, except mining stocks, which were in \$1.00 shares. Then followed a discussion on risks attending both cheap stocks and those paying high per cent. I gave them, and drew from them, several stocks whose value had immensely increased, (*e. g.*, New River, London, Eng., Water-works,) and decreased, (*e. g.*, Banque du Peuple,)

Seeing how many days passed wherein certain stocks never changed hands, we deduced the use of brokers, and discussed their usual amount of commission, with some explanation why it was so high for mining stocks. We observed incidentally why brokerage was important in *speculative* stocks only, because in those purchased for *investment* they occur only once in many years. From our lists we found the highest premiums paid, and greatest discounts in price of stock. Here I described to them an hour I spent once in the Bradford, Pa., Oil Exchange, during a phenomenal change in price of oil. As the men grew more excited they shrieked, threw off their coats, shouted and gesticulated. Immense sums of money changed hands, and many brokers were ruined.

This occupied several lessons, and scores of examples were given for mental work only—care being taken to make the figures within the mental grasp of the pupils. To counteract the human tendency to speculation, I told them of my first investment in stocks. I held my stock several years without receiving any interest, sold it for 50 p.c. of its cost, and went on a trip to New York with the proceeds.

Here I showed them that all stock examples fell under a few general heads, and that others were modifications of

these. Hoping these heads may be useful to others I give them below:—

1. A large group are profit and loss per share ; *e.g.*

(a) What did I pay for 5 p.c.'s if they yield  $4\frac{1}{2}$  p.c. on my investment ?

(b) Which is the better investment 3 p.c.'s @ 90 or  $3\frac{1}{4}$  p.c.'s @ par ?

2. Income given.

(a) What did I invest in 3 p.c.'s @ 90 to get an income of \$135 ?

(b) What did I pay for  $3\frac{1}{2}$  p.c.'s if an investment of \$5,000 gave me an income of \$75 ?

3. Amount of stock given.

(a) What did I pay for 3 p.c.'s if \$5,000 brought \$4,800 ?

(b) Find change of income in transferring \$3,000 from 3 p.c.'s @ 90 to  $3\frac{1}{2}$  p.c.'s @ 5 p.c. premium.

4. Income demanded.

(a) What income do I derive from \$5,000 3 p.c. stock @ 90 ?

( $\xi$ ) What income do I derive from \$5,000 invested in 3 p.c. @ 90.

So far the examples had been chiefly mental.

The next step was to spend several days in matches, sometimes boys versus girls, often in sides chosen by rank alternately. In the latter case if the number be odd, the extra member went to the side which lost in the last match. This is the first time pencils were used systematically.

To ensure honesty no one is allowed to count for his side who works, speaks or exposes his answer face upward upon his desk. A mark is given to the first one right, and the answer is taken as soon as all of either side are standing. Each question is worked with fresh numbers till half the whole room is right, when another form of question is used.

The next step is to take the text-book, (we use Part IV. of Mr. Arthy's) and read the examples in rotation, each child reading and explaining one. As far as possible he works out his example mentally. Then an example is assigned to each member of the class to work in his scribbler, the more abstruse ones being assigned to several. As he thinks he has the solution each pupils rises, and I look at his work. If correct he has the privilege of putting it

(with its *number* at the upper left-hand side) upon the blackboard. All who have the same examples are at once assigned others. About four pupils fill my blackboard space, when the whole class is called to attention. About two minutes is given to comparing with the book and answering questions, when the whole is erased, and a fresh group sent to the blackboard. The home work of the next day is usually all the examples worked that day upon the blackboard.

This may seem a long road, but I have found short cuts to difficult work seldom pay. We all know the advantage of repetition as an old proverb says, "The longest way round is often the shortest way home."

## II. GEOGRAPHY.

### The Continent of Africa.

1. Our relation to Africa. Current news of Africa. Read *Current History*, *The Outlook*, *The Great Round World*, etc. Relation of other countries to Africa.

2. Location: Direction from us. Distance. How to get there. Time necessary. Its location with regard to other continents.

3. Size: Shape, length, width, area, coastline, average height compared with other continents. Effect of these features on the history of the country.

4. Surface: Model in sand the mountains, plateaus, rivers, lakes, and plains. Compare with other continents.

5. Character: Locate desert regions. Locate regions of greatest rainfall and monsoons. Locate highest and lowest average temperature. Where is the sun at noon to-day in North Africa? In South Africa? (Correct the judgment of climate by use of Longman's Atlas.)

6. Locate forests. Locate the animal life of the continent.

7. The people: Their life and industries. The natives. The principal cities. Where are the possessions of the chief powers?

Draw relief map of the continent. Draw or paint typical landscapes, characteristic occupations and types of people.

CHILDREN'S READING: McCabe, *Our Young Folks in Africa*; Kingston, *In the Wilds of Africa*; Manning, *The*

*Land of the Pharaohs*; Scribner's *Geographical Reader*; Heawood, *Geography of Africa*; Knox, *Boy Travellers in Egypt*; Longmans, *School Geography*; *Young Folks' Cyclopedia of Persons and Places*.

#### REFERENCES.

Reclus, *Bird's-eye View*: *Encyclopedia Britannica*; Stanford, *Compendium of Africa*; Reclus, *The Earth and Its Inhabitants*; Brown, *Countries of the World: Africa*; Vincent, *Actual Africa*; Guyot, *Earth and Man*; Ratzel, *History of Mankind*, Vol. II; Stanley, *Through the Dark Continent*; Stanley, *The Congo*; Keltie, *Stanley's Letters*; Hinman, *Physical Geography*; Keipert, *Manual of Ancient Geography*; Macturk, *Africa*; Marsh, *Earth as Modified by Human Action*; Ritter, *Comparative Geography*.

The Chicago Institute Courses of Study.

### Practical Hints and Examination Papers.

#### REMINDERS TO TEACHERS.

To reach the heart of a boy:

1. Study his parentage and home influences.
2. Observe closely his likes and dislikes, aptitudes, temper, companions, reading.
3. Converse often with him in a friendly way.
4. Ask as to his purposes and ambitions.
5. Lend him books.
6. Interest yourself in his sports.
7. Speak to him of the lessons in the lives of good men.—

*The Moderator*.

It is not a question of how many years a teacher has taught; some teachers have taught 50 years, and are young; some have taught five years, and are superannuated.—*Supt. Jno. H. Willets, New York*.

There are unsympathetic people who have a way of making children feel ashamed of their ignorance, and rather than be laughed at, a sensitive child will pretend to know.—*Sarah Grand in The Beth Book*.

That teacher will always be in good company who makes her life full of good deeds and rich in good thoughts.

—Most valuable lessons on geography may be obtained from *good* wall maps. These exercises give the child skill in observation, in drawing inferences, in expression of thought through description, etc. Read the map, interpret the map with the child.

—“Temperature in school-rooms should never be permitted to go under sixty-five degrees or over seventy-six degrees F.

“When the outside temperature will permit, windows should be raised at recesses for ten minutes. At close of school each day all windows should be raised for one hour, unless rain or snow prevents.

“Sun should be permitted to shine in the school-rooms as much as possible, providing it does not shine in the eyes or on the work of the children.

“Children should be discouraged from eating candy at recess.

“Teachers should forbid spitting on the floors.

“Children should be required to put on their overgarments during recesses in cold weather. They should be urged to go into the open air during recesses.

“When a child appears with soiled skin, a note should be sent home to parents calling attention to the fact.”

The above are some of the hygienic rules of the Philadelphia Board of Education.

—THE TEACHING OF MENTAL ARITHMETIC.—The majority of teachers will agree that in respect to many children, “Mental Arithmetic” is not a name to conjure with in the school-room. There are some children for whom this subject has a fascination, but the number is not as large as we should like it to be. Why is this the case? Is it important that we have mental arithmetic in the school course? If so, how can we obtain the results we desire? We may take the second question first, as the answer to the first question is developed in our consideration of the second and third points.

Is there any need for mental arithmetic in the school curriculum? A few years ago slates and pencils were the universal instruments for recording the work done in the school room. These, because of their clumsiness, the noise they made and their uncleanness, have been superseded by the handier, almost noiseless and more sanitary scribblers and lead pencils. In relation to arithmetic we have had

a new feature introduced within the last few years. This is the arithmetic note-book or slips of paper with examples set down in good large type. The advantages gained by the use of these note-books or slips are many. The books themselves are an admirable object lesson in neatness, order and economy of time. They afford well arranged and well-graded seat work, and are therefore especially valuable in country schools where several classes must be kept profitably employed at the same time by one teacher. They afford an abundance of work for the quick children. In this connection it may be said that children who do correctly their stint of work in the school hours should not be required to do home work. The quick child cannot work as many hours as the slow child. The slips have an advantage over the note-books in that they are fresh and uncrumpled for each day's work, being kept by the teacher. They are devices to save time and eyesight—both of the teacher and the pupil. The pupil is required only to record the results, not to write down the example. But this saving of time is only obtained with reference to the particular examples set down in the books or on the slips. They do not aid the child in regard to the problems that meet him in every day life—the problems of business and of social life, but are confined to the lessening of his mechanical work during the school hours. Now there is a means of recording arithmetical work that is noiseless, swift as lightning, perfectly healthful and that is always ready for use. This is the recording upon the tablet of the mind. The child who has been taught to work mentally has a most useful tool for solving readily the problems of life. He does not need to carry with him slate or book and pencil. He has a tablet that is always clean (self-cleaning), makes no noise, and that takes impressions rapidly without the need of ink or lead or slate pencil. We have mental arithmetic in the school course that the child may be enabled to dispense with note-books, etc., for the problems of every day life, and may learn to work with rapidity and at the same time with accuracy. In the usual way of conducting an exercise in mental arithmetic (that is allowing the child to have his pencil in hand only for the moment necessary to record the result he has obtained), the pupil knows that the answer put down cannot be altered. So he works accurately. He knows also that the answer must be given at a

definite moment, so he works with speed that he may not be left without an answer when the moment comes for writing it down. The rapidity and accuracy of work thus ensured are most valuable for review purposes. The work of previous years may be gone over very rapidly with mental work. Mental arithmetic gives a grasp of the work that is an admirable preparation for the work of the next grade. It also sets the whole mind on the alert. It wakens up the sleepy and prods healthfully the idle boy. Slow and lazy children dislike mental arithmetic. But there is another and quite as important a side to this question. The power of grasping all the conditions of a question at once and keeping these conditions before the mind while showing the relation of the parts of the problem to one another, and to the whole, and at the same time of eliminating non-essentials from the question, is most valuable, not only in relation to arithmetic, but in regard to all the affairs of life. It is this power that distinguishes leaders from led in all departments of life. The question in mental arithmetic is given but once. The child must keep before his mind the whole question, as well as the parts of the question, while getting the answer. But when the problem is on paper before him he may potter away at it as long as he likes. This tends to dissipation of thought, while we see that mental arithmetic is a most powerful aid to concentration of thought and grasp of affairs. Having seen the value of mental arithmetic we are brought now to the third question : how can we most effectively teach the subject ?

The ability to work arithmetic mentally does not come by inspiration, but is the result of definite discipline towards this end. Is this power obtained at too great cost of time and labour ? To answer this question we must see what further work is required, when the child is familiar with written arithmetic, to enable him to work mentally. All that is required is the ability to transfer to the mind clearly and distinctly and keep before it that which has been upon the slate or book or blackboard. Here we must distinguish between the arithmetic that deals with number pure and simple and that which is in the form of problem, *i.e.*, where the numbers bear no relation to the things about the child and where they do bear such relation. To illustrate this point let us consider the first great division of number for teaching purposes—the numbers

from one to ten. And that we may still further concentrate our thought upon the subject under consideration let us confine our attention to the number five. The child is ready for mental work in regard to this number as soon as he knows that this arrangement of dots is five :: . He may now be told to close his eyes and see the dots in a similar position in the dark. He has been prepared for this picturing on the mind by many exercises not connected with arithmetic, as when the teacher holds an object for an instant before the child, then takes it away, and asks him to see it in the dark, having closed his eyes for this purpose. While the child has his eyes closed the teacher rubs the dots from the board, or if blocks, chestnuts or other objects were displayed, they may be removed. To find out whether the child has pictured correctly, allow him to try to place the picture upon the board, or arrange the blocks, etc., similarly. These five dots may be arranged in other ways by the child and a similar process be gone through. Then comes the analysis of the number into parts as :|: three and two, :(-): four and one, etc. These also are to be referred to the tablet of the mind. And finally such questions as these are asked, the child having been told to see five dots in the dark: Two dots and three dots, make how many dots? If I take two dots from five dots how many are left? Picture five chestnuts. Four chestnuts taken from five chestnuts leave how many, etc.?

Mental arithmetic then is the last step reached on the arithmetical ladder.

#### FACTS, NOT FANCY.—*The Open Court.*

There is a vicious habit now in vogue in the kindergarten, which superadds to the facts of nature the imagination of fairy tales. If you wish your children to acquire a sound conception of reality and a sense for genuine poetry, you had better avoid this pseudo-fiction of the nursery, which only distorts and detracts from her intrinsic beauty. Facts as they are, are in themselves sufficiently poetical and need not the false glitter of a fairy-tale imitation. This idea of carrying the romance of the fairy-tale into the realm of science only revives and strengthens the old metaphysicism which personifies abstractions, and is apt later on to mystify the young mind. Thus we read in

Arabella B. Buckley's "Fairyland of Science," a book which otherwise contains many good things, such sentences as these :

"Can you see in your imagination fairy Cohesion ever ready to lock atoms together when they draw very near to each other : or fairy Gravitation dragging rain-drops down to the earth : or the fairy of Crystallization building up the snow-flakes in the clouds ?..... Do you care to know how another strange fairy, Electricity, flings the lightning across the sky and causes the rumbling thunder ?..... And have you any curiosity about Chemical action, which works such wonders in air, and land, and sea ? If you have any wish to know and make friends of these invisible forces, the next question is :

"How are you to enter the fairy-land of science ?

"There is but one way. Like the knight or peasant in the fairy-tales you must open your eyes. There is no lack of objects, everything around you will tell some history if touched with the fairy wand of imagination..... The fire in the grate, the lamp by the bedside, the water in the tumbler, the fly on the ceiling above, the flower in the vase on the table, anything, everything, has its history, and can reveal to us nature's invisible fairies."

This is not the right way of making science poetical. The facts of nature are in themselves beautiful and need not the mythology of fairies created by a personification of scientific abstractions, the erroneously so-called forces of nature. The metaphysical assumption of forces which are supposed to work all the miracles of natural phenomena is the source of much confusion, and should be carefully guarded against. If any personification be needed for the sake of imparting an additional interest to the stories of nature, speak of the actual things as living creatures. Speak of the water-drop as expanding into vapour, as condensing in the cold air into a snow-crystal, as falling upon the ground, as melting in the warm sun and running down hill, but do not people the child's mind with the fairies of crystallization, gravitation, cohesion, electricity and chemism. Teach children to see truth and beauty in the facts themselves, not in imaginary goblins and fairies. Make them watch the phenomena of nature and point out to them that all things are astir with activity and aglow

with an eager disposition to do one thing or another according to circumstances.

### CHINESE GEOGRAPHICAL NAMES.

Chifu (Chee-foo) is one of the treaty ports, the only open port between the mouths of the Yang-tse and Pei-ho. It has the most suitable climate for Europeans of any of the Chinese ports, and is visited as a sanitarium by persons from the southern ports. It is close to Wei-hai-Wei (way-ee-hah-ee-way-ee) on the northern extremity of the Shantung peninsula.

Chekiang (chee-kee-ahng) means central sea. It is the province containing San-mun; which is wanted by Italy.

Chihli (chee-lee) is the northernmost province, and contains the city of Peking.

Kiang-Tsu (kee-ahng-tsoo) is the northern sea-province, containing Shanghai (shahng-hah-ee.)

Niu-Chwang (nee-oo-chwahng) is a flouring port where the British have special commercial privileges. It is the chief seaport of Manchuria, and is 190 miles north of Port Arthur. The Russians have laid out a new town three miles above Niu-Chwang for the terminus of their new railway.

The Pei-ho (pay-ee-hoh), or north river, rises beyond the great wall, and flowing past Peking and Tien-Tsin (tee-yen'-tsin) debouches into the Gulf of Liao-Tung (lee-a-oo-toong), the last eight miles of its course being through mud flats. At its mouth are the Taku forts.

Peking (pee-king), the northern capital of China since 1260, is a very old, evil-smelling town, standing in the middle of an extensive plain twelve miles north of Tung-Chow on the Pei-ho and 160 miles from the sea. It is surrounded by walls sixty feet wide, and is entered through strong gates, all of which are closed at night. Here is the palace, and here are the legations. The populace is anti-foreign with an intensity which is barely conceivable. The estimated population is 1,300,000.

Port Arthur is now the Russian naval base in the East. It was leased to Russia in 1898, with the adjacent seas and territory to the north, the whole forming the province of Kwang-Tung (kwahng-toong.) Port Arthur is reserved as a naval port for Russian and Chinese warships, and closed

to other nations. By Russian efforts it has become a very powerful and important base.

Shanghai is the largest and most important of the Chinese treaty ports. It is situated twelve miles from the mouth of a branch of the Yang-tse-Kiang, in the province of Kiang-Tsu. The population is nearly 400,000 including over 3,000 foreigners. It was declared a treaty port open to the world in 1843. The British Government established the supreme consular court of appeals for all China and Japan at Shanghai.

Shan-Tung (shahn-toong) is a province bordering on the gulf of Pi-chi-li (pee-chee-lee) to the south. Contains Kiao-Chou (kee-ah-oo'-chow) and Wei-hai-wei.

The Taku (tah'koo) forts are situated at the mouth of the Pei-ho and consist of three main forts, the North, South and New. At the time when they were captured by the allied forces of England and France in 1860 they mounted about 300 guns. Behind the forts there extends for twenty miles inland an intricate system of moats. Defended by modern artillery and skilful artillerists, they would be practically impregnable. They were taken by the allied forces on June 17 :

—TROUBLESOME PUPILS AND HOW I DEALT WITH THEM was one of the subjects of the *Leisure Hour* Eisteddfod or Prize Essay Competition. A few extracts from the best papers are reproduced below.

“ Kindness is the next shaft in the quiver. By the ordinary boy a teacher is looked upon in very much the same light as a policeman ; and for the master to show kindness is to completely turn, outflank, and neutralise his whole line of defence, and to assail him where he expected no attack. Take an unruly lad, as I am free to confess I have done, and punish him, and what is the result ? He cries quits and continues as before, more cunningly and clandestinely, perhaps, if you are looking, but still as before, especially if your back is turned. He has sinned ; you have punished him ; the accounts balance, and the position is much the same as it was. He is the same boy. He will trick you, defy you, disobey you as much as he dare ; but rebuke him kindly but firmly, make an early opportunity of rendering him a service, show him you are really anxious for his welfare, and the effects are far different. You have

gained immeasurably, the boy is worsted, and, in his heart of hearts, acknowledges his inferiority; your position is stronger, the pupil is under an obligation, and, after perhaps a few more doses of the same treatment, will be transformed and do what is required, not for fear of the cane, but for your sake—surely a better state of things. You have touched his heart, his motives, and made an impression that will live with him when an ‘old boy.’ The master who has helped a boy in his ‘construe,’ shown him how to ‘cut,’ or bowl an ‘off-break’ ball, or send in a ‘screw shot,’ will not, if he is of any use in a class-room at all, be much troubled by that particular young gentleman. For love is a stronger force than tyranny, and strikes at the very root of the matter. It purifies the spring, and the stream must inevitably become clear. Such a system may require more care at first than the muscular force one; but not only are the results far better, the wear and tear of the master’s nerves are far less. To have constant contentions with the pupils, to have to be always on the alert to scold, to punish, to secure the recognition of authority, is most fatiguing work. It is a tread-mill existence. It is purgatory for the teacher, or worse, whatever it is to the scholar. Coercion is a wasteful policy.”

“The most troublesome pupil I ever had was one in whom I unconsciously aroused a feeling of antagonism. Perhaps I offended her without knowing it, or perhaps my very personality roused her enmity. She was stubborn and proud with me, and her devices to annoy me were many and various. I always seemed to rub her up the wrong way and to make matters worse instead of better. One day as I took my solitary stroll around the grounds before going to afternoon preparation, I came suddenly upon my rebellious pupil. She was standing by the side of her little flower garden with the tears trickling slowly down her face. She had sowed seeds, and hoed and watered diligently, and now the rabbits had eaten off all the young green shoots. She was a big girl to be seen crying, and I expected her to make an ugly retreat, or to buckle on her armour as usual at sight of me, and prepare for war. But grief had softened her, and I had a magnificent opportunity for showing her how wrongly she had treated me, and how sinful had been her behaviour. Instead, we walked round the woodland path together, and

I found myself talking of the garden at the old home' which was ours no longer; talking of the yewtree walk, the grass paths and the mossy banks, and the old wall covered with roses. And I told her of the orchard with its blossoms in the spring, and how the foxgloves grew up tall and fairy-like, with hundreds of poppies at their feet, and how the forget-me-not was bluer than anywhere else, and the mignonette smelt sweeter, and how we used to stroll down the garden path in the summer twilight and see the tall white lilies shining out of the gloom, and a thousand other reminiscences of the days that are gone.

"The bell rang before I had half finished, and away went my antagonist without a word. 'Another lost opportunity, another failure,' I thought. But it was one of those mysterious failures, out of which spring success, for the child was nice to me from that day, and we grew to like each other well. However I cannot explain or recommend my treatment of her."

—PERHAPS the lesson on cities is the most uninteresting one to your students of Geography. Why? Possibly because you have never set yourself deliberately to find out what a child ought to know about a city. Possibly because you have never lived in a city and therefore know very little about its life. Possibly because you think the name of the city and the position of the city the only important facts in respect to it. Will the accompanying suggestions, taken from the *Teachers' World* be of use to you?

### PRINCIPAL CITIES OF THE WORLD.

By using the following outline pupils may arrange information concerning the principal cities of the world in an orderly fashion, and be able to intelligently compare one city with another. Encourage them to make collections of all the pictures they can find referring to these cities:

#### I.—Location.

1. In country.
2. Part of country.
3. Natural advantage of location.

#### II.—Importance.

For what especially noted?

## III.—Size.

1. Population.
2. Area.
3. Compared with other cities in the same country or in other countries.

## IV.—History.

When and by whom settled ?

## V.—Plan of the city.

1. General outline of the city as a whole.
2. Arrangement of streets.
3. Business section.
4. Home section, rich, poor.

## VI.—Important sights of the city.

## VII.—General facts.

1. Methods of transportation.
2. Methods of lighting.
3. Water supply.
4. Sewerage.
5. Cleaning of streets.
6. Churches.
7. Libraries.
8. Schools.

—PRODUCTION maps have proved of inestimable value in my work, and with care they can be made artistic and attractive.

I had production maps of North America made first, United States next, then our native state, and home county ; lastly, foreign maps.

I announce Monday morning that we will make a production map, say of the United States, on the following Friday, after we have studied the states in sections thoroughly. Interest and zeal is awakened, and all during the week I am receiving wheat, red, yellow, and white corn, oats, cotton, tobacco, gold and silver foil from tobacco, bits of sheep hide and wool, orange peel, leather, small sticks split (for the lumber states), coal broken fine, iron particles almost dust from the blacksmith ; raisins, sugar, salt, small bundles of grass for the grazing section, silk and cotton thread and scraps for the manufacturing

section, so that by Friday everything is at hand, and we are ready for work.

With the map drawn on stout manila paper, and good mucilage, we begin work geographically, in sections. Each pupil is expected to be prepared to put in any state and its productions correctly, and I have found them so prepared every time.

We talk about the climate and give reasons why it affects the productions ; rivers, and why they affect manufacturing and commerce of sections ; minerals, and their location.

The map completed, we place wooden strips on the top and bottom, put in the oceans with ordinary laundry bluing, and when all is thoroughly dry, usually in twenty-four hours, our work is ready to be hung upon the wall.

I have found this work the most attractive, instructive, and beneficial that I have undertaken along new lines.

On one occasion, the pupils remained an hour after school, without their noon lunch, so interested were they in the work.—*Fannie L. Leverette in the Teachers' Institute.*

—WORK IN ETHICS. AN ACTUAL INCIDENT.—There was one pupil in Miss Beebe's class who puzzled her ; Roger was a smart boy and could manage fractions better than any other of the pupils ; he seemed to have a good understanding. He was not lazy, nor troublesome, but he was not doing well—that was plain. He came into the class without any preparation, day after day.

"How many have their examples?" the teacher would ask. "I've got four," Roger might sometimes say ; oftener he would not say anything.

"Why didn't you prepare yours?"

"I had a good deal to do ;" or "I hadn't time."

This troubled Miss Beebe ; Roger was in the Sunday school ; his parents were intelligent and cultured ; but his teacher felt he was not under her influence ; that he was neglecting duty and getting into a habit of it and not at all uneasy about it now ; there was a time—a month ago—when he acted ashamed to say he was not prepared, but he had passed that stage.

Miss Beebe was a thoughtful teacher ; Roger "managed to get along," for he had activity and brain power and worked diligently in school ; but she wanted to have him employ his school time in other ways ; he needed to do his

drawing there especially. But the worst thing was the habit of neglecting duty. What could she do?

She asked the A and B classes (to the latter Roger belonged) to take slips of paper and pencils.

"Merchants always once a year take an account of stock, that is, put down on paper, a list of the things they have; then they know whether they have made any gain. It is a good thing for all of us to do this with reference to our mental stock. We ought to be more truthful, earnest, and industrious than we were six months ago. Let us take account of stock. Put down on your paper your name, your age, the date; then put down at the left hand side, leaving a margin of half an inch, these words: Courage, Truthfulness, Industry, Politeness, Helpfulness, Attention to Duty, Knowledge-Seeking, Good Name, Honor, Respect for Authority.

"Now I will explain these words to you. They are moral qualities. By courage I mean that you can face things that cowards run away from; you need courage to be truthful sometimes. By truthfulness, I mean not only that you say what is true but that you act it. If I say to one, 'Study your spelling lesson,' and he says, 'I am studying it,' he is not truthful if his mind is not on it.

(In a similar way she explained the other terms *briefly*.)

"Now I want you to put figures opposite each of these words; if you think you are really as courageous as you ought to be put 10; if only half as much, put 5; if you have no courage, put 0. I want you to think over this matter. You are not to try to know what others write; it is of no consequence to you what others think about themselves. I shall not speak of the figures to any one; it is a private and confidential communication. I wish to know what *you* think of yourselves."

The papers were taken up by the teacher and put in her desk, and nothing was said for two days. Then Miss Beebe said:

"I have not yet looked at the estimates you handed me the other day. If you want to change the figures, you may make out a new one; you may, if you choose, write me a letter explaining the figures."

This brought out several notes, especially from the girls. On examining the paper Roger handed in, Miss Beebe found, as she expected, that Roger had marked himself up

pretty well. "Attention to Duty, 9." Now she felt she had a basis for a conversation; before she did this she told a series of stories illustrating each of the virtues in the list, calling for similar examples of their own observation.

She felt she had now ploughed up the field pretty well and then came a talk with Roger. She did not seek to convict him of sin, but to set him to self-examination. She felt she must get him to ask at every act, "Is this right?" The "estimate" was an analysis of the right. The result was that Roger admitted he was neglecting duty. No promise was exacted of him as to amendment, for that, as an experienced teacher, she knew would be useless; it was not amendment she sought so much as a quickened conscience. Roger thought his attention to duty should be marked about 3.

A week passed and Roger was carefully watched. Yes, there were signs of improvement. Only once had he come unprepared in arithmetic. Miss Beebe called him to her and, smiling, said: "You have done better than 3, Roger, this week." The progress he made was by no means rapid, but he was on the road, and that was what the teacher sought.

—CHARLES Dudley Warner has said "to teach a child how to read and not what to read is to put a dangerous weapon into his hand."

—THERE are many men with natures so small that, if there is anything in transmigration, they will probably appear as microbes.

#### THE SAYINGS OF TEACHERS AND CHILDREN.

—THE ONE TO BE PITIED.—The lesson was from the prodigal son, and the teacher was dwelling on the character of the elder brother. "But amidst all the rejoicing," he said, "there was one to whom the preparation of the feast brought no joy, to whom the prodigal's return gave no pleasure, but only bitterness; one who did not approve of the feast being held, and who had no wish to attend it. Now can any of you tell me who this was?" There was a breathless silence, followed by a vigorous cracking of thumbs, and then from a dozen sympathetic little geniuses came the chorus: "Please, sir, it was the fatted calf!"

A little girl drew a dog and cat on her slate, and said to her mother, "A cat oughtn't to have but four legs; but I drew her with six, so she could run away from the dog."—*Ex.*

—UNIDENTIFIED.—The writer's mother relates an incident which occurred when she was but a child, when large families were not rare. One night her mother was called to the door by urgent rappings. On opening she was greeted by a neighbour's son, of perhaps seven years, who said: "Ma'd like you to come over to our house. One of us is dead."—*Current Literature.*

—A STUDENT recently asked the President of Oberlin College if he could not take a shorter course than that prescribed by the institution. "Oh, yes," was the reply, "but that depends upon what you want to make of yourself. When God wants to make an oak he takes a hundred years, but when he wants to make a squash he takes six months."—*Ex.*

—A HARVARD professor, dining at the Parker House, ordered a bottle of hock, saying, "Here, waiter, bring me a bottle of hock,—hic, haec, hoc!" The waiter, who had been to college, smiled, but never stirred. "What are you standing there for?" exclaimed the professor. "Didn't I order some hock?" "Yes, sir," replied the waiter. "You ordered it, but afterwards declined it."—*Exchange.*

—THE following incident occurred in a school during the present week: A teacher was questioning a class on the meaning of the word "brittle," and obtained the answer, "Things easily broken." Examples of such things were asked for, cups, slates, chalk, etc., being given. I noticed one boy of about eight years particularly eager to answer, therefore questioned him, and to my utter surprise received the answer, "The Ten Commandments."—*Current Literature.*

—THE late Professor Cohn, the famous botanist of Breslau, thus opened his course of lectures on botany: "The four chief constituents of plants are, carbon, C; oxygen, O; hydrogen, H; and nitrogen, N." Then writing down these four letters, with apparent carelessness, on the blackboard—COHN—he smiled, observing: "It is clear I ought to know something about botany."—*Argonaut.*

—MAGISTRATE Bartlet, of Windsor, tells a good story that has just been wafted over from Scotland. One day recently the medical students of Edinburgh University, on entering the lecture-room found on the blackboard the announcement that their professor had been appointed physician to the Queen. One of the students wrote underneath, "God save the Queen."

—TEACHER—Willy, please give me a sentence in which the verbs "to set" and "to sit" are correctly used.

Willy (after a brief deliberation)—Great Britain is a country on which the sun never sets and on which no other country ever sits.

—TEACHER—"What do you know about the early Christians?" Tommy—"Our girl is one of 'em. She gets up in the morning and goes to church before breakfast."—*Indianapolis Journal*.

—BOY—"Papa, where's Atoms?" Papa—"Athens, you mean, my child." Boy—"No, papa; Atoms—the place where people are blown to." Answer postponed.

—A SERIOUS IMPLICATION.—Dr. Macnamara, a noted ex-teacher of England, once asked a boy in a rural school the definition of the word "pilgrim." "A pilgrim," answered the boy, "is a man who travels from place to place." "I do that," said the inspector. "Am I a pilgrim?" The answer came: "No sir; a pilgrim is a good man."—*Current Events*.

—A LADY was teaching her little girl one day, how to spell. She used a pictorial primer, and over each word was the accompanying illustration. Polly glibly spelled "o-x, ox," and "b-o-x, box," and the mother thought she was making "very rapid progress," perhaps even too rapid. So she put her hand over the picture, and then asked: "Polly, what does o-x spell?" "Ox," answered Polly nimbly. How do you know that it spells ox?" "Seed his tail!" she responded.

—IT was a French musician of the old school who, having listened to a performance of the more modern style, said, "Autrefois on jouait fort bien: maintenant on jou bien fort!"—*Transcript*.

—DOCTOR (to Gilbert, aged four)—“Put your tongue out, dear.” Little Gilbert protruded the tip of his tongue. Doctor—“No, no ; put it right out.” The little fellow shook his head weakly, and the tears gathered in his eyes. “I can’t doctor ; it’s fastened to me.”—*Tit-Bits*.

—THE late Charles H. Spurgeon distinguished himself in school by a continuous session on the “dunce-bench” throughout one cold winter. The bench happened to be next to the stove. At last the teacher suspected “’possum tactics” and had all the seats reversed, bringing the bench next to the door. Spurgeon at once rose to the head of the class.

—A LADY once asked Rowland Hill if he would examine her son, as she felt sure he had some special talents for the ministry, although they were hidden. The preacher examined him, and then wrote to the mother: “Madam, I have shaken the napkin ; but I cannot find the talent”  
*Selected.*

—HE DIDN’T REALLY MEAN IT.—“Good-bye, Professor,” said the sweet girl graduate ; “I shall always remember you kindly, for to you I am indebted for all I know.” “Say no more,” replied the professor, “say no more. Such a trifle is not worthy of a thought, I assure you.”—*Chicago News*.

—THE following is a remark of Sydney Smith, made on hearing a little girl read who persisted in reading “partridges” for patriarchs.” Said the great wit, “She is determined on making game of the patriarchs.” A prominent writer declares this to be the most perfect pun he had ever heard.—*Ex.*

## REPRODUCTION STORIES

—AN HISTORIC DOG—Lothbroke was a Danish prince (the father, by the way, of Humber and Hubba whose names always come as a boon and a blessing to the child-student of history), who, having one day put to sea in a small craft with only his dog for a crew, was blown by a storm upon the coast of Norfolk. Edmund who was a mighty hunter, was at that time King of the East Angles, and he received the distinguished castaway with honour, and “perceiving his singular dexterity and activity in hunting and hawking, bore him particular favour.” This made Berick the king’s falconer so jealous, that one day when

they were out hawking alone together he killed the prince and concealed the corpse. But Lothbroke's dog remained by the body, only leaving it now and again to go to the court, "fawning upon the King and dismally entreating him to follow." This at the last the King did, accompanied by his wicked falconer, and the faithful hound led him to the body of Lothbroke, and, having thus revealed the murder, at once attacked the murderer Berick.

"Inquisition was made, and by circumstance of words and other suspicions, Berick, the King's falconer, was pronounced to be the murderer." By Edmund's orders he was set adrift in the same boat that had brought Lothbroke to England, and as it happened, the wind blew it back again to Denmark, where it was at once recognized by the natives, and its occupant put to the torture. To save his life, Berick denounced King Edmund as Lothbroke's murderer, "and this"—says Wanlay in his 'Wonders of the little World'—"was the first occasion of the Danes' invasion of this land.

If children at school had interesting "facts" like these told them, they would learn history much more pleasantly and quickly than they do. After hearing the story of Lothbroke's dog once, only once, no child I fancy would fail to answer the question, "why did the Danes invade Britain?"—*Bernard Jones, in Good Words.*

—AS BRAVE AS MICE.—Some little mice lived in the unfinished attic of a house.

There they could dance and frolic, or run races down the walls.

As this attic was used for a storeroom, the mice could find snug little places in which to make their nests, and also plenty of rags, from which they could get threads to line them.

They had one trouble, for in the same house was a cat—"A very wicked cat, too," they said.

One night they had a meeting, where they talked about their trouble.

They all said, "Something must be done." There were Black-eye, Brown-back, Gray-paw, and ever so many more.

"We are not safe anywhere," said Gray-paw. "If I go to the pantry to nibble the cheese or to get a few crumbs of bread, the cat is sure to come too. She watches every hole that we make. If we gnaw the wood, she hears it."

"Really, I am afraid to do anything, or go anywhere."

"What can we do?" asked little Black-eye. "Shall we make strange noises and frighten her away? Or shall we all jump at her and bite her, so she will be glad to let us alone?"

"Oh, no!" said Gray-paw; "she is so large and bold that we can neither frighten nor hurt her. But I have thought of something which will let us know when she is near. If we can put a bell on her neck, it will ring if she moves. When the bell rings we shall hear it, and know just where she is. Then she cannot get her paws on our backs."

"Oh, yes!" cried all at once. "That is just what we will do. We will bell the cat! Hurra! the mice will bell the cat."

Brown-back, a very thoughtful little mouse, said, "I think that is a very fine thing to do, but who will put the bell on her neck? I can't, for I have so much to do."

Gray-paw said that he could not, because his foot was sore.

"Black-eye, will you bell the cat?" asked Brown-back.

"Really, I should like to try it, Brown-back, but my eyes are weak. I cannot see well to-day."

At last Brown-back said, "Is there a mouse here that will try?"

All was still; not a word was spoken.

By-and-by Brown-back said, "What shall we do? No one seems willing to hang the bell on the cat's neck."

"Go home to our nests," cried all, "and just keep out of the way of that wicked cat."--*The Canadian Teacher.*

--A STORY FOR THE TRAINING OF THE IMAGINATION.--  
From the following heads make a connected story:

Roy Shaw, a country boy--heard much about a great city near his home--visits it--delighted with every thing--meets a courteous stranger--the stranger undertakes to show him the city--the stranger makes out that they are related--asks him for the loan of fifty dollars--gives him a cheque for twice the sum as security--Roy hands him over the money at once--the stranger suddenly disappears--Roy endeavors to cash the check--finds out that it is valueless--sadder and wiser.--*The Canadian Teacher.*

## FROM MY NOTE-BOOK.

About twenty years ago Charles C—— graduated from College and I followed the next year. I had observed him carefully from the moment I entered the school. He was my ideal of a young fellow. When I spoke my valedictory he was present, and afterwards congratulated me ; a strong friendship sprang up between us. I found he had decided to be a teacher ; possibly that led to my choosing the same occupation.

We corresponded ; I remember the first letter ; it was full of high thoughts and noble ideals : "Life is greater than our occupation ; we must employ every means to realize our ideals ; too few of us understand that a mechanical way of teaching (or preaching, for that matter) is a hollow mockery ; we must attain and keep a spiritual elevation ; there is no standing still, it is either moving forward or backward."

Every letter contained something that beckoned me onward and upward. He became principal of an academy ; the salary was small, but, as he remarked, the opportunities for usefulness were great. Here I visited him and drank inspiration. I had been asked to join with another young man in the hardware business. I applied to C—— for advice. "If you love to be useful to others then stay in the school-room ; you will not make money, but you will have the enjoyment Peter, Paul, and Timothy and the vast army of their followers had. If you want money go into the mercantile business. As for me, I am here to stay ; I delight to see children grow."

I went back to my school-room and have never regretted that I chose to be a teacher. I have craved for money at times very much, for I have wanted to buy a horse, or a house, or go to Europe, etc., but I have learned to be content. The young man who wanted me to join him in hardware became wealthy, but has had his troubles. I met him two years ago ; he said, "Lucky dog, you have no worry ; you don't have as much to trouble you as I do. I am simply scraping together to pay for things I don't want."

It has been my effort to teach so that the truths of life would sink into the souls of the children to comfort and strengthen them in the trials they must meet. I had a girl pupil in those early days who watched me most intently. She became a teacher. She passed through the saddest of

trials ; was married, lost husband, father, mother, and three children, and returned to teaching. She wrote me a letter saying, " I learned a great deal more at —— than was in the text-books ; I learned, how, I cannot say, to bear up under troubles and sorrows. I can look back even calmly : I can look forward hopefully. I cannot thank you enough for the lessons you taught."

I never obtruded moral lessons. We read "Evangeline" in the highest class. We learned Gray's matchless "Elegy," and Keat's sonnet, "The Poetry of Earth is Never Dead." We read the Psalms of David and other portions of the Bible. I was satisfied simply to have them interested, and leave the results to the working of their own minds.

The other letters from my friend C——were pitched on an equally high key. Does anyone expect me to say that as a proof of his success he was appointed to the superintendency of the schools at ——with a fine salary ? Is that "success" in teaching ? I have received some copies of a paper called *Success* ; in it Jay Gould, Andrew Carnegie, etc., are "successful" people. Is that the correct view to take ? I think not. In my eye one of the most successful men in the world was my friend C——. I wish I could mention his name. If I outlive him I should like to raise a monument, and on it inscribe his virtues ; but that would be useless ; his monument is in the hearts of a thousand men and women in active life.

We must, as teachers, be more contented and willing to take an obscure position where the possession of riches and display are pronounced success. Every honest clerk, every honest labouring man is a success, and this we must tell the boys. In a school where I was an assistant, the principal told the boys, one morning, that a former pupil named F——, was the possessor of a million dollars made in Wall street. He hinted that it was the result of coming to that school. I asked : " Was he the most promising boy in his class ? " " No, rather lazy." " And what has become of the promising boy ? " He is a travelling salesman." Then the principal spoke up : " That is right, boys, there is a lottery in life ; Mr. F—— has made a great deal of money ; P—— has not made much ; there are but few here who will make much money, possibly none will. But you can enjoy life and be self-respecting men if you use the shovel. I would not have any boy say : ' My aim shall be to get

rich.' Aim to live honorably, intelligently, industriously, and helpfully, money or no money."

Thank God there are many thousands of teachers like C—— in this land! "May their tribe increase."

L. C. F., in *The Teachers' Institute*.

UNCATALOGUED BOOKS BELONGING TO THE PROVINCIAL  
ASSOCIATION OF PROTESTANT TEACHERS.

- Tarbell's Lessons in Language, Book I.  
 " " " " Book II.  
 " " " " Teachers' Manual.  
 The Mother Tongue, Arnold & Kittredge., Vols. I. and II.  
 Speer's Primary Arithmetic.  
 " Elementary "  
 " Advanced "  
 One set of Speer's Number Blocks.  
 Evolution of Plants, Campbell.  
 Groom's Botany.  
 Plant Relations, Coulter.  
 Atkinson's Elementary Botany.  
 Eye Spy, Gibson.  
 Sharp Eyes, "  
 Systematic Science Teaching, Howe.  
 Little Nature Studies, Burroughs, Vols. I. and II.  
 Nature Study in Elementary Schools, Nilson Reader I.  
 " " " " " " " II.  
 " " " " " " " Teachers' Manual,  
 Playtime and Seedtime, Parker.  
 On the Farm. "  
 Uncle Robert's Visit, "  
 Harold's First Discoveries, J. N. Troeger.  
 " Rambles, " " "  
 Nature Study by Months, Boyden.  
 Studies in Education, Earle Barnes.  
 A Series of Ten Numbers.  
 The Study of a Sand Pile, Stanley Hall.  
 A " of Dolls. " "  
 Contents of Children's Minds, " "  
 Psychology of Childhood, Tracy.  
 Study of the Child, Taylor.  
 Method of Mind Training, Aiken.

- Animals at Work and Play, Cornish.  
 Four-Footed Americans, Wright.  
 Lessons in Elementary Astronomy, Proctor.  
 Natural Elementary Geography, Redway & Hinman.  
     "    Advanced                    "                    "  
 Four of the Physical Geography and "Geology of Canada,  
     Dawson.  
 Physical Geography, Redway.  
 Bulletin of the American Bureau of Geography, published  
     quarterly.  
 Lakes of North America, Russell.  
 Glaciers " " "  
 Hans Andersen's Fairy Tales.  
 Grimm's Fairy Tales.  
 One hundred Perry Pictures.

### Correspondence

#### GYMNASTIC EXERCISES.

(Concluded.)

- VI. Wing standing, trunk backward flexion. Commands  
 —"hips firm"—"trunk forward bend"—"upward  
 stretch"—"position".  
 The body is bent forward, back caved in, head up,  
 knees straight.
- VII. Facing  $45^{\circ}$  Command—"right face" or "left or  
 right turn".  
 Left face—turn on the left heel and support the  
 motion with the ball of the right foot, then place  
 right foot besides the left foot, heels together, right  
 face—vice versa.
- VIII. Wing, close standing, trunk rotation. Commands—  
 "hips firm"—"feet close"—"trunk to the left  
 turn"—"to the right turn"—"forward turn".  
 The trunk is rotated to the side named, head al-  
 lowed to turn with the body.
- IX. Double arm extension sideways. Commands—"arms  
 sideways stretch, "one"—"two"—"position".  
 On "one", take position No. IV, on "two" stretch  
 the arms quickly to a horizontal position, elbows and  
 wrists stretched, palms turned down.

- X. Wing, stride standing position. Commands — “ hips firm ”, “ left foot sideways place ” — “ position ”.  
Feet should be about twice their own length apart.
- XI. Head rotation. Commands—“ head to the left turn ”, “ to the right turn ”—“ forward turn ”.  
Move head but not the shoulders.
- XII. Wing standing, double knee flexion. Commands—“ heels lift ” — “ knees bend ” — “ knees stretch ” — “ heels sink ”.  
When knees are bent the body should go down in a vertical line, not bent forward.

“ Baron Possi’s Handbook of School Gymnastics ” gives full directions and many illustrations of movements, also one hundred progressive tables of exercises, and should be in the hands of every teacher attempting to teach gymnastics, and particularly those without training. Price 50 cts. — *V. M. Holmström.*

We have been asked by two teachers to solve the following problem :

A boy on counting his marbles 3 at a time, or 4 at a time, or 5 at a time, has always one marble over ; but on counting them 7 at a time he has none over. What is the least number of marbles he can have ?

In the first place it may be remarked that the above question is not within the grasp of children. It can be solved by them by a process of “ trial and error ” in a more or less systematic way. But this method has no value educationally. It is not used in arithmetic except in those cases that come within the limits of the multiplication table. Questions of this nature should be relegated to the sphere of “ fancy gymnastics.”

Solutions :

1st. The L. C. M. of 3, 4 and 5 is 60. The number 61 would therefore leave a remainder of 1 when divided by 3, 4 or 5. As each sixty is exactly divisible by 3, 4 or 5, 60 and 61 would leave 1 remainder. If sixties be added to 61 until a number divisible by 7 is obtained, the sum will be the required number ;  $61 + 60 + 60 + 60 + 60 = 301$ . Because each sixty when divided by 7 leaves a re-

remainder of 4, 5 sixties may be considered as leaving a remainder of 20. The 61 will leave another one remainder, in all 21, which is itself divisible by 7; therefore the whole number 280 and 21 or 301 is divisible by 7. It is evident from this that we are seeking the sum of a series of which the first term is 61, the common difference 60 and the number of terms, 5, calculable.

2nd. The following method requires least trial:

The number is divisible by 7, but when divided by 3, 4 or 5 leaves a remainder of 1,  $\therefore$  1 less than the number is a multiple of 60; that is it is a multiple of 6 by some number ending in 0. But this latter number when divided by 7 leaves a remainder of 6,  $\therefore$  7 less than the original number is a multiple of 6 by some number ending in 9. But this multiple of 6 by some number ending in 9 is divisible by 7  $\therefore$  this number ending in 9 is divisible by 7. But the smallest number ending in 9 that is divisible by 7 is 49. Therefore 7 less than the original number is  $6 \times 49 = 294$ , and the original number is  $294 + 7 = 301$ .

### Books Received and Reviewed.

[All Exchanges and Books for Review should be sent direct to the Editor of the *Educational Record*, Quebec, P.Q.]

The Copp, Clark Company, Toronto, and University Press, Cambridge. We have received a copy of Sir Joshua Fitch's latest work, "Educational Aims and Methods." This is a valuable contribution to the science of education especially from the historic point of view. Price \$1.75.

The Copp, Clark Company, Toronto, and Longman's, Green & Co., London. Longman's British Classics contains an edition of Macaulay's Essay on Clive with copious and valuable notes. This fruitful study of English prose would prove valuable for collateral reading in the higher classes of the school.

D. C. Heath & Co., Boston. Home and School Classics. Several new books have been added to this admirable set of children's classics: "Chapters on Animals," by P. G. Hamerton; "Goody Two Shoes," attributed to Oliver Goldsmith; "Jackanapes," by Mrs. Ewing; "The Comedy of the Tempest," Shakespeare.