

THE EDUCATIONAL REVIEW.

FOR THE ATLANTIC PROVINCES OF CANADA.

VOL. XVII. No. 11.

ST. JOHN, N. B., APRIL, 1904

WHOLE NUMBER. 203.

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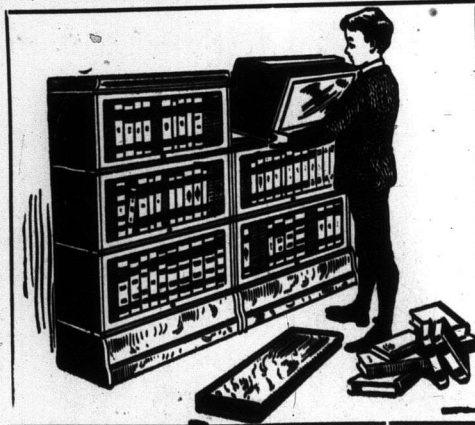
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Copies of Calendar containing full information may be obtained from the undersigned.

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EDUCATIONAL REVIEW,
St John, N. B.

IF SOME teachers cannot find time to outline lessons on insects, birds and plants, they should give the REVIEW to the larger scholars to read. Mr. Swayne's article in this number on apparatus for the collection of insects, Mr. Robinson's timely references to early spring plants and how to know them, Mr. Allen's outlines of birds, with others, may help to make nature students of many young people. The contributors to the REVIEW are successful teachers, and they desire to help others. Let them help you, if you are busy, in the way mentioned above.

THE preliminary programme of the Dominion Educational Association (July 26-28, at Winnipeg), has been received. The names of Dr. J. R. Inch, Dr. A. H. MacKay, Hon. J. W. Longley and Principal Soloan are mentioned among the number of those who will take part in the proceedings. Fuller details are promised later.

THE calendar for the Summer School of Science, which meets at Charlottetown in July, has been received. It presents an inviting course, at a season when study and recreation may be most charmingly combined. Copies may be obtained from the secretary, Mr. J. D. Seaman, Charlottetown.

WE HAVE received the calendar of the University of New Brunswick for the present year. It is an interesting record of the history of the institution and of the advantages which it affords to students. Copies may be obtained by addressing Chancellor Harrison or the registrar of the University, Fredericton.

THE three books containing the late Dr. Rand's works, mentioned in this number, may be had of the publisher, Wm. Briggs, Toronto, at the following prices: At Minas Basin and Other Poems, \$1.00; Song Waves and Other Poems, \$1.00; A Treasury of Canadian Verse, \$1.25.

These are beautiful books, with choice title pages, clear print and attractive binding—a credit to Canadian book making. The educational work of Dr. Rand in Nova Scotia, New Brunswick and Ontario, his gift of poetry and the critical taste which he displayed in his selections for Treasury of Canadian Verse will preserve his memory fresh among us.

THE *Educational Outlook* of Charlottetown has cast in its lot with the *Prince Edward Island Magazine*, and the result is a promise of increased usefulness and greater permanence. The first combination number is at hand, consisting of 68 pages of varied reading matter with twenty pages of advertising. The *P. E. I. Magazine* has been in existence for five years, under the excellent management of Mr. Archibald Irwin, and during that time has done

good work by the publication of many original articles relating to the island, from able contributors, and for this reason has won deserved popularity. Mr. Irwin continues to edit and publish the combined magazine, the educational interests being well looked after by Mr. G. J. McCormac and his associate editors.

THE Educational Institute of New Brunswick will meet in St. John during the last three days of June. The outline of an interesting programme will be found in another column. As it is two years since the Institute met, a large attendance is looked for, and the advantages offered to teachers of closing their schools at the end of the week previous to the meeting will no doubt induce a large number to be present.

THE letter of the Rev. Hunter Boyd, on another page, shows how the study of art may be made practical in our schools, and not only have an educational value but create a love for the country and agricultural pursuits. The after results of such a use of pictures as he has outlined should be of far reaching extent, creating a more intelligent interest in nature, a greater power of observation and imagination and some cultivation of the artistic faculty. Mr. Boyd has taken a great interest in the subject of art in schools as well as in agricultural development, and his suggestions are worthy of careful consideration.

MR. PERCY J. SHAW, instructor in nature work of the Macdonald rural schools near Truro, Nova Scotia, writes of the progress made in school gardens, and the results that may be derived from them. He says: "The school garden seems to furnish a thread on which to attach a vast amount of interesting and profitable nature work, such as the study of insects, injurious and beneficial, the study of weeds, the struggle for existence among plants, conditions of soil favorable and unfavorable for plant growth, etc. All this comes naturally when the pupil has started with the aim of growing plants. The garden also provides an abundance of material for botanical and entomological work in the school room. It is a great convenience to have this supply of material near at hand when it is wanted."

If we expect our children to live the beautiful, and love the beautiful, we must surround them with beautiful influences in home and school. A child is educated by every influence with which he comes in contact, is being changed for better or for worse every moment of his life. I pity the man who has no pleasant recollections of his school days; but how can he have such happy memories if his school life is associated in his mind with a tumble-down building, a barren school-room, and constant contention to preserve the school playgrounds from the encroachments of animals and tramps?—*Supt. Chas. R. Skinner, New York State.*

The Schools of New Brunswick.

The report of Chief Superintendent Dr. Inch on the schools of New Brunswick, for the year ending June 30, 1903, has been received. While the interest manifested in educational matters in many directions is very gratifying, Dr. Inch regrets that the number of schools in operation during the year, as well as the number of pupils enrolled, has fallen off in comparison with recent years. This decrease has chiefly affected the country schools, but it is shown that in the cities and towns where population has increased more rapidly than in the country, the school enrolment has varied but little in the past seven years.

Several causes are given for the decreased attendance: The difficulty of maintaining certain schools owing to scarcity of efficient teachers; the prevalence of contagious diseases during the past four years; the changing of the age of entrance from five to six years; and the neglect and indifference of parents. The first and last are evidently the most potent causes, and Dr. Inch has some practical recommendations to make which should receive the attention of thoughtful business men. He refers to the fact that rarely, except in cities and towns, is the teacher's salary increased. Hence teachers leave for more remunerative employments, or drift away, and novices take their places. He looks for increased permanence by recognizing long service and experience and recommends that the provincial grant be increased to first and second class teachers after two years of service—ten per cent. each year until a maximum is reached of \$200 a year for first class male teachers, \$60 for second class male, \$150 for first class female, and \$120 for second class female teachers. In addition to this special grants should be made to properly qualified teachers of horticulture and agriculture as are now given to those teaching manual training and domestic economy. He further recommends an increase in the county fund and a better system of local assessment, the latter to be made possible by the establishment of parish school boards, which would take the management out of the hands of illiterate and incompetent trustees and provide for a more intelligent administration of the law, secure better school privileges and increase the local salaries of teachers. Dr. Inch very aptly observes that "Unless the rate-payers and trustees of districts can be influenced in some way to recognize the necessity of contributing

much more liberally than heretofore, by local assessment, to the salaries of teachers, any possible increases from the provincial revenues and the county fund will fail to meet the exigencies of the case." He suggests that "it might be well to require from districts a minimum sum equal to the amount of the provincial grant and county fund combined."

The superintendent thinks that permission ought to be granted any school boards that wish it to assess their districts for the purpose of supplying free textbooks for pupils.

Attention is drawn by the superintendent and the inspectors to the proper observance of Arbor and Empire days. Inspector Steeves, in his report, says: "It is my intention in the future to exact more closely than in the past compliance with the spirit as well as the letter of the regulation regarding Arbor day. In view of the fact that for eighteen years Arbor day has each year been observed in this province, there should be a very much larger number of school grounds well laid out, shaded and ornamented, than can at present be found." This fact, coupled with other reports of the loose observance of the day and that trustees and ratepayers do not share in its observance, should lead teachers and school officers to take a renewed interest in Arbor day.

When we plant a tree, we are doing what we can to make our planet a more wholesome and happier dwelling place for those who come after us, if not for ourselves. As you drop the seed, as you plant the sapling, your left hand hardly knows what your right hand is doing. But nature knows, and in time the power that sees and works in secret will reward you openly. You have been warned against hiding your talent in a napkin; but if your talent takes the form of a maple key or an acorn, and if your napkin is a shred of the apron that covers "the lap of the earth," you may hide it there unblamed; and when you render in your account, you will find that your deposit has been drawing compound interest all the time. I have written many verses, but the best poems I have produced are the trees I planted on the hillside which overlooked the broad meadows, scalloped and rounded at their edges by loops of the sinuous Housatonic. Nature finds rhymes for them in the recurring measures of the seasons. Winter strips them of their ornaments, and gives them, as it were, in prose translation, and summer re-clothes them in all the splendid phrases of their leafy language.—O. W. Holmes.

Arbor Day.

If Arbor day is not observed as it should be and the results do not appear in improved and ornamental school grounds, with abundance of shade trees, we should not be discouraged but seek out the fault and go to work with a determination to find a remedy. The REVIEW has a great many hints and suggestions that will help all its earnest readers.

Every teacher can arrange days beforehand, to have flowers for the adornment of the school room; to have the room neat and clean, and the premises carefully cleared of every bit of rubbish that may have accumulated during the winter; to have seeds planted in window boxes so that growing plants may be studied and enjoyed later in the season. The exhilaration that will come to every teacher and school from heartily entering into all these preparations will communicate itself to a whole neighborhood.

Along with this feeling of exhilaration that comes from planning and working out something that everyone can do—and everyone can do what is outlined above—scholars will have a newly awakened interest and feel that they would like to accomplish other things. They will want to know something about trees, and the early wild flowers coming into bloom. The stories of trees in this number of the REVIEW and the many references to plants will impress on the young minds something of their beauty and value.

If trees have been planted in the school grounds in former years and these have been uncared for and have not grown well, do not go on repeating that mistake. Study the conditions of planting and caring for trees and try to have the children understand these conditions. If they know the needs of a tree and that it should be treated like other living creatures, the experiment may be tried of planting *one* this season—an elm or maple. If that grows and thrives under their care, next year they may be anxious to plant another. How much more will they be satisfied with one vigorous little tree than half a dozen uncared for starvelings!

In the exercises leading up to and including Arbor day, and at all times, the pupils should be impressed with the necessity of preserving our forests, one of greatest sources of wealth to this country. Kindness to animals, especially to the birds which are so useful to the farmer, should also be constantly taught, to get the best results from Arbor and Bird day.

Culture and Agriculture.

PRESBYTERIAN MANSE, WAWEIG, N. B.,
MARCH 28, 1904.

The Editor Educational Review:

Dear Sir—During the past few weeks I have been honored with requests for help in the selection of material for schoolroom decoration, or pictures suitable for composition-writing. A firm of art publishers in Chicago* has kindly agreed to sell a set of twenty-five for the very moderate cost of one dollar. It is not to be expected that the choice will suit all tastes, and it is not claimed that the pictures are the very best on the market, but I know of none to be had on equal terms. The manager suggests that it will suffice for your readers to enquire for the "H. B." set and enclose \$1. One half of the pictures are in color, and unmounted, but a cardboard mat will suffice for some, and many are worth a good frame.

The Art for Schools' movement is hardly in its infancy in these provinces, and that is perhaps scarcely to be wondered at, as the greater portion of the Dominion is still in the pioneer stage. However, a good beginning has been made in the North West Territories, owing to the efforts of the late principal of the normal college at Regina. Then, too, the inspector of schools for Toronto, Mr. J. L. Hughes, is a recognized authority on the matter, and his pamphlet on the subject has been helpful in moulding opinion and deserves to be more widely known. Quite recently Supt. Dr. Inch, of Fredricton, has expressed his appreciation of the more extended use of pictures for the promotion of a love of the beautiful in all its phases, and has inserted a clause in the school registers referring to the desirability of teachers using pictures.

But do we not need concerted action and co-operation in this matter? Would it not be well to enable educators, members of art associations, and workers for social progress to have some point of contact, in order to exchange views, suggest suitable material, and prepare a scheme which would heighten efficiency and minimize cost? At present there are hundreds of teachers who procure calendars, or pictorial supplements, and a medley of material according to opportunity or individual fancy, and thus one sees gruesome battle scenes, or trivial story-telling pictures, plain or colored, on our schoolhouse walls. In France thousands of dollars are expended in order to train the appreciation of scholars for textile fabrics and so on, the government being aware that

unless this is universally done there will be a dearth of designers, and a lamentable lack of artistic workmen, and still worse an unappreciative public to purchase the varied and exquisite productions.

It would not be advisable for me to seek to indicate at length, the policy of England in this respect, and still more recently the remarkable movement in Germany. In the United States Greek and Italian influence prevails in the selection of material for decoration of schoolhouse walls, and cabinets of pictures for closer inspection and study. In my judgment we should do well to be eclectic in Canada and devise a scheme that will be truly Canadian. Over sixty per cent. of our people are engaged more or less in agriculture, and the proportion is likely to be larger. We need material, good, moderate in cost, and largely uniform in character, that will serve not only the pedagogic service of cultivating the esthetic side of child life, but also to kindle more love for natural scenery and agricultural pursuits. The school-garden project is excellent, but the period of practicability for Canadian schools is reduced to a few weeks, because it is late before frost leaves the soil, and the vacation soon follows; besides, not all can or will have them, but all can have art. Let us have a bureau of information on this subject, and when organization follows it will be worth while for Canadian publishers to produce suitable and approved material, and in course of time there may be means of communication between the teachers of Canada as to methods of teachings, and improvement of choice of subject, and so on. Thus we may develop a distinctively Canadian type, a type that will appeal to the settlers from many countries, and hasten the day when even if the same songs are not sung by all, nor the same prose selections admired by all, the same pictures may appeal to all, and help to evoke feelings that will serve to unify the varied races. R. W. Emerson in his essay on "Beauty," says: "Every necessary or organic action pleases the beholder. A man leading a horse to water, a farmer sowing seed, the labors of haymakers in the field, the carpenter building a ship, the smith at his forge, or whatever useful labor, is becoming to the wise eye."

It surely would be congruous to the Macdonald consolidated schools at Kingston and Middleton, or the Macdonald institute at Guelph, to embody a department that looks towards school and farm; but meantime may we seek for a response through your columns.

Yours sincerely,

HUNTER BOYD.

*Royal Picture-Gallery Company, 152 and 158 Lake St., Chicago, Ill.

English Literature in the Lower Grades.

ELEANOR ROBINSON.

STORIES ABOUT TREES.

When little children begin to notice the strange things they see around them in this wonderful world, they are very apt to ask questions about these wonders that sound very funny to you older children; and sometimes they will answer their own questions and explain things that puzzle them in a funny way. They will say that the snow-flakes are feathers, that the stars are the moon's children, or think because the trees wave about when the wind blows that it is the trees that make the wind. Sometimes they think that animals and things without life are like people in their thoughts and feelings, and a child will ask, "What is pussy thinking about?" I know a little girl who, when she went out for her walk, would kiss her hand, and say, "Good morning, Sun," or, if it were windy, "Good morning, Wind."

Now, when the world was young, and before wise men had discovered so many explanations of the wonderful things in nature, men and women used to make explanations for themselves, very much as children do now. Sometimes, when these explanations and fancies were told by one person to another, several different ones would be put together, or new thoughts would be added, until a whole story grew up. These stories are called myths. Many of them, especially those that grew up among those wise people, the Greeks, are very beautiful, and so they have not been forgotten, but have been handed down for ages.

Last month I spoke of some of the myths about the wind, and now I shall tell you one or two about trees.

The old Greeks believed that every tree had its guardian spirit, who dwelt within it, and who perished if the tree were destroyed. The spirits usually took the form of beautiful girls, called Dryads. If you have even been fond of one particular tree, and have watched it through all the seasons, so that you feel its beauty and grace and life, you will not find it hard to understand how this fancy dwelt in men's minds, and why they thought it a terribly wicked thing to hurt or destroy a tree, if it could be helped. And because trees were considered so sacred, the old stories tell us of people who, for safety, were turned into trees.

Once there was a beautiful girl named Daphne. She was the daughter of a river-god, and all her

delight was in the woods, where she played games and hunted. She had many lovers, but she cared for none of them, and she prayed to her father, that, like the great goddess of the woods, Diana, she might live and die unmarried.

But the mighty Apollo, god of the sun, and of music and poetry, saw Daphne and loved her for her beauty. She ran away from him, but he followed, and begged and prayed her to listen to him. Still she fled on, but at last he was gaining on her, and she was growing faint and ready to fall. So she cried, "Help, O my father! either let the earth open and take me in, or change me into some other form." As she spoke she felt her body stiffening; and when Apollo came up he found, instead of the beautiful nymph, a laurel tree. The god kissed the wood, which shrank away from him. Then he said, "If you cannot be my wife, you shall be my tree. Your leaves shall be used to make wreaths for great conquerors and famous poets. And, as I am always young, so you shall be always green and know not decay."

And so the laurel wreath has always been the symbol of fame. Our English poet, Spenser, writes:

"The laurel, meed of mighty conquerors and poets sage."

THE STORY OF RHOECUS.*

A young man named Rhœcus was one day wandering in the woods when he saw a fine old oak just ready to fall. Rhœcus, admiring the beautiful tree, propped it up carefully, and turned to walk on, thinking no more about it. But he heard a soft voice behind him murmur his name; at first he thought it must have been only the gentle rustling of the leaves, but again the sound came, very softly, "Rhœcus." Then he turned, and saw standing before him, the most lovely woman he had ever seen. She said to him very sweetly, "Rhœcus, I am the Dryad of this tree; I am to live and die in it, and when you saved my tree, you saved my life. So now, ask whatever I can give, and it shall be yours."

And Rhœcus answered, "Now that I have seen you, my best hope is that you will love me. Nothing but your love can satisfy my heart." The Dryad hesitated a moment, then she said, rather sadly, "My love is a perilous gift, but I will give it to you; meet me here an hour before sunset." Then she vanished, and there was nothing to be seen but the green shade of the trees, and not a sound but the faint rustling of the leaves.

*This is a paraphrase of Lowell's poem—Rhœcus.

In those days people did not think that because a happy thing was strange and unlikely, therefore it could not be true. They thought that nothing could be too wonderful or too beautiful to happen to a brave heart. So Rhœcus was quite sure that the beautiful Dryad would love him, and as he walked along on his way back to the city, he was so happy that the earth seemed to spring under his tread, and the sky looked bluer, and the sunshine brighter than ever before.

Now Rhœcus meant to be faithful and to keep his promise, but he was not thoughtful, and was too apt to be taken up entirely with what was going on in the present. So when he met some friends who were playing at dice, he began to play with them, and forgot all about the wood, and the hour before sunset.

The game was going on merrily; Rhœcus had had bad luck at first, but now he was winning, and was laughing in triumph, when a yellow bee flew into the room and buzzed about his ears. Rhœcus only laughed, and brushed the bee away, but it came back again three times, and Rhœcus, growing angry, drove it roughly off. At last the wounded bee flew out of the window, and as Rhœcus looked after him, he saw the sun setting red behind a mountain. Then he remembered; his heart sank, and without a word, he rushed out of the house and through the city and across the plain, which was growing darker every minute.

When, all out of breath, he reached the tree, he was almost afraid to listen; but he heard the low voice say, "Rhœcus." He looked eagerly round him and could see no one. Then the voice sighed, "Oh, Rhœcus, you can never see me again. I would have given you a greater love than has ever been given to man; but you scorned my humble messenger and sent him back to me hurt and bruised. We spirits can only show ourselves to gentle eyes; we must have an undivided love; and he who is scornful and unkind to the least of nature's works, shuts himself out from them all."

Then Rhœcus was very miserable and he cried, "Dear spirit, forgive me just this once, and let me see you again." But the voice replied "It is not I who am unmerciful, but you who are blind. You have blinded yourself by your own forgetfulness and unkindness. I forgive you, but I cannot make you see; only your own heart can do that." The soft rustle of the trees seemed to murmur "Nevermore," and Rhœcus was left alone.

Better Salaries.

There is little new to be said about the necessity of better wages so as to result in better schools. The thing needed now is organized work by teachers to effect the reforms outlined. In 1896 the *Atlantic Monthly* said editorially:

"The thing to do is to make the profession of teaching one of greater dignity and greater reward. Teaching is clearly not held in as high honor as it ought to be. It is doubtful, indeed, if the public school system can reach adequate efficiency until in every community the teacher's status is as high as that of the highest profession. To lift the teacher to this esteem two things are necessary: (1) To give efficient teachers security in their positions and freedom to do their best work. (2) To pay them salaries large enough to make the profession attractive to the very ablest men and women, not as a make-shift, but as a life career."

"If you are not satisfied with your pay for teaching, then take some other employment." This is a common remark on the platform and in print. It is not easy to voice one's sentiment on such an expression. It is not easy for anyone to change employment, and least of all for a teacher. If one has fitted herself for teaching, if she is successful in it, if she enjoys it, she has no right to leave it simply for better pay, and she should not be required to stay in her chosen employment for less pay than her talent, skill, and devotion would be worth elsewhere. It is a legitimate argument for better pay for teachers that they are not so well paid as they would be under the same conditions in other equally honorable employments.—*N. E. Journal of Education*.

Notes on Names.

What name a city has—what name a state, river, sea, mountain, wood, prairie, has—is no indifferent matter. All aboriginal names sound good. I was asking for something savage and luxuriant, and behold here are the aboriginal names. I see how they are being preserved. They are honest words,—they give the true length, breadth, depth. They all fit. Mississippi!—the word winds with chutes—it rolls a stream three thousand miles long. Ohio, Connecticut, Ottawa, Monongahela, all fit. . . . What is the fitness—what the strange charm—of aboriginal names? Monongahela: it rolls with venison richness upon palate. . . . No country can have its own poems without it has its own names. The name of Niagara should be substituted for the St. Lawrence. . . . The right name of a city, state, town, man or woman, is a perpetual feast to the æsthetic and musical nature.—*Walt. Whitman, in The April Atlantic*.

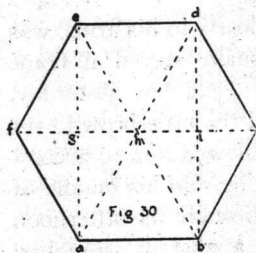
Drawing—No. VI.

F. G. MATTHEWS, TRURO MANUAL TRAINING SCHOOL.

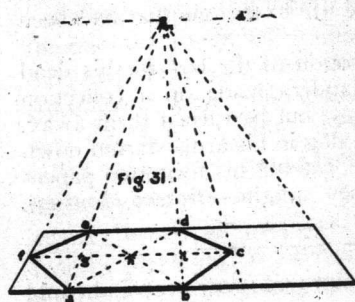
NOTE.—To avoid repetition, references will frequently be made to figures appearing in preceding numbers. It will be well, therefore, for readers who wish to follow these articles to keep back numbers by them

HEXAGONAL PLANES AND PRISMS.

Although the hexagon is a figure that does not frequently occur in buildings or large objects, and on that account rather difficult to illustrate by suitable concrete examples, it will be well to devote a small space to hexagonal planes and prisms, as the time spent in the study of them will be amply repaid by the truths obtained. First draw a hexagon carefully by geometry, and note that, if diagonals be drawn, it consists of six equilateral triangles, also if perpendicular lines be drawn from the ends of one side, as $a e$ and $b d$ in Fig. 30, the diagonal $f c$ is divided into four equal parts. This is an important fact to bear in mind



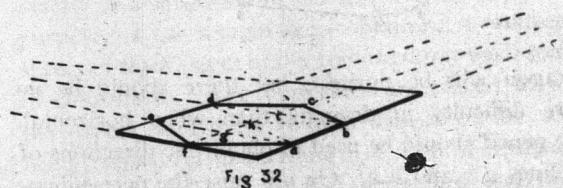
in drawing this figure in any position. We have already seen how rectangular planes appear much narrower when placed flat and may therefore expect great changes in the apparent shape of hexagons when placed upon them. Take a drawing board and draw a hexagon with chalk upon it the full width of the board, or if it be preferred a hexagon may be cut from paper or card and placed on the board. First place the board as in Fig. 31, with one edge towards the observer. From what we have seen above and our previous knowledge of rectangular planes, we know that $a b$, $f c$, and $e d$ will appear as



horizontal lines, but on account of the foreshortening, $f c$ will appear nearer to $e d$ than to $a b$, and because $a c$ and $b d$ are parallel to the sides of the board, they will appear to run to the same point on the eye-level. The method of drawing is now apparent. First obtain the points $a b$ and draw the lines mark the points f, g, h, i and c , making all the divisions equal to $g h$ or $h i$. Join f to e and a , and

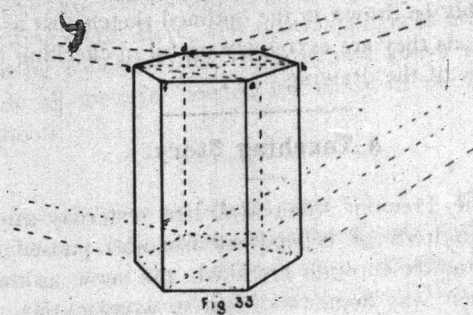
mark the points f, g, h, i and c , making all the divisions equal to $g h$ or $h i$. Join f to e and a and c to b and d and the hexagon is complete. The figure should now be drawn in the same position without the aid of the board. The only difficulty will be to obtain the direction of $a e$ and $b d$ and the apparent width of the hexagon. This, however, should be no trouble if the figure $a b d e$ be treated as a horizontal rectangular plane, and the rules for drawing such be correctly observed.

When the board is placed as in Fig. 32 we may



fix the points a and b as before; draw $a e$ and $b d$ to meet in the same point on the eye-level as the sides of the board, and then draw the diagonals. The point f should now be placed at a rather greater distance from g than g from h , and c from i at rather less than i from h . The reason for this will be apparent when we remember that the four spaces are really equal, but on account of the line $f c$ receding from us, the spaces will gradually get smaller from f to c . Compare Fig. 13. By joining the necessary points the hexagon will be complete.

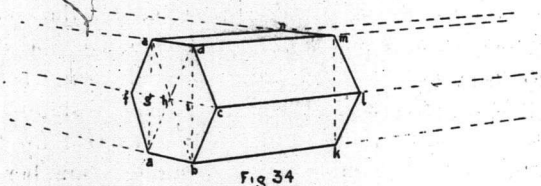
The figure should now be drawn in this position without the aid of the board. First draw $a b d e$ as a horizontal plane, using the pencil as in Fig. 7, to obtain the direction of $a e$ and $a b$. Cut off their apparent lengths and draw $e d$ towards the same vanishing point as $a b$, and $b d$ to that of $a e$. Join the diagonals to meet in h , through which a line is drawn in the same direction as $a b$ and $e d$. Mark the points f and c and join to complete the hexagon.



When this figure forms the end of a hexagonal prism (Fig. 33) the above method must be adopted, as we cannot use the board to assist. To complete the

prism draw vertical lines from each of the six points, comparing their lengths with the width of the prism. The lines in the lower hexagon will evidently run in the same direction as those in the upper surface and will meet in the same points on the eye level.

When the prism is lying on one side, Fig. 34, the



hexagon will be upright, but there should be no more difficulty in drawing than when horizontal. The pencil should be used to obtain the directions of the lines ab and bk . On ab raise the perpendiculars bd and ac , cutting them off to proportionate lengths. Draw de in the same direction as ab . The diagonals will give the position of h through which a line is drawn to the same point as ab and de . The points c and f are found as before, remembering that the nearest space will be the largest. After completing the near hexagonal face find the length of bk by comparison with ab or fc . At the point k raise a perpendicular to meet a line from d , running to the same point on the eye-level as bk . Similar lines are drawn from c and e , and one from m in the same direction as de , and ba will give the point n . The point l is found by a similar line running midway between k and m . As in the square prism and cylinder, there is always a tendency to draw the hexagonal prism in this position too long for the width. The student should practise drawing the prism lying on one side at all sorts of angles, as the varying positions make this a much more difficult exercise than the square prism or cylinder. Although the invisible lines are not shown in Fig. 34, they should invariably be drawn in the outlined sketch just as in Fig. 33, as they are extremely useful in checking the accuracy of the drawing.

A Touching Story.

On the Tremont street Mall late yesterday afternoon hundreds of belated suburbanites paused in their scramble through the slush and snow as they made their way homeward, first to wonder, then to pity and sympathize.

Seated on the edge of the curbstone in front of the Park street church, unmindful of the blinding storm

that whirled about him, sat a little newsboy, holding in his arms the mangled body of a dog. His pile of papers lay scattered in the snow, and now and again, as a gust of wind swept round the corner, the stray sheets were whirled out into the slushy street. Caring nothing for his little stock in trade or the gathering crowd, the little fellow cuddled his dog the closer, and as the full misfortune of his loss came over him, he cried as though his heart would break.

The unusual sight attracted the attention of the passers-by and soon a crowd that blocked the sidewalk was gathered about the little fellow and his dog. Many of those who paused to see recognized in the boy one of the newsboys that stand at the entrance of the Subway every evening, selling papers to those homeward bound. Little by little the boy told the story of his misfortune.

The dog, which he held so closely in his arms, was his pet and playmate who usually stayed at home with his mother in the West End, but yesterday, unable to resist the pleading of the little brown eyes of his playmate, the boy had allowed him to accompany him to Park street while he sold his bundle of papers. All had gone well through the afternoon until shortly after five, when a gust of wind had blown a paper from his hand just as he was passing it to a customer, sending it scurrying far out in the street. Quick as a flash the dog started after it, and just as he was returning with the coveted sheet in his mouth, a heavy herdic dashed round the corner, striking the little fellow full in the side and bowling him into the street. The heavy wheels passed over the frail body, crushing the little ribs to the ground. Too late the newsboy saw the peril of his pet, and when he reached him the little dog's life had ebbed away and the bright eyes that had so often danced with pleasure at the call of his master were closed in death.

Tenderly gathering the little fellow in his arms the boy carried him to the sidewalk, where he tried with all his might to restore life to the one that had been his chum and companion.

Touched by the devotion of the boy for his dead pet, kind-hearted bystanders made up a collection and offered it to the boy, but he turned them away, and gathering the little dog in his arms started down the street toward home, leaving his forgotten papers to blow about as they might.—*Boston Journal*, Jan. 14.

I think the REVIEW improves every year and could not think of doing without it. I find every subject interesting and helpful, especially the notes on literature by Miss Robinson. I wish more time and space could be given to this subject. TEACHER,

Collecting Apparatus for Insects.

J. M. SWAYNE, Principal Antigonish (N. S.) School.

A good collection may be made with very little equipment, and a little knowledge of insect habits will prove of more value than many traps. A few pieces of apparatus, however, will be a very great help, and the following are the most useful:

A Butterfly Net.—This is used for collecting all kinds of flying insects, and if strong may be used for sweeping back and forth over grass and bushes, where, if the sun is shining, many interesting forms are sure to be found. It may be made as follows: Take a light stick—a piece of bamboo pole is good—about four feet long, for a handle, and fasten a ferrule on one end, or bind the end with wire. Have a hoop made of stout iron wire. The diameter of the hoop should be about fourteen inches. The ends of the wire should be bent at right angles, soldered together, and cut off about four inches from the hoop. Fasten the hoop in the handle and cover the wire with strong sheeting, to which the net will be attached. The latter may be made of white mosquito netting. It should taper slightly at the end, and the length must be a little more than twice the diameter of the hoop, so that when an insect is enclosed the mouth of the net may be shut by a turn of the handle.

A Water Net.—For obtaining water-insects and their larvae, fish, and the various water forms, a net of this kind is useful and in some cases necessary. The handle should be eight or ten feet long; the hoop strong and about eight inches in diameter; the net itself about twelve inches deep, and of stout, open-meshed cloth. When swept through water-plants and over the bottom, the water-net seldom fails to bring "something."

Killing Jars.—If a pinned collection is to be made, the insects must be killed at once. In a small, wide-mouthed bottle, put a roll of cotton-wool, soaked in chloroform; cover the wool with thick paper and cork the bottle tightly. Drop small insects to be killed into this bottle, which must be kept tightly corked when not in use. A few of these jars will answer nearly all purposes. One large one, made from a pickle-jar, is needed for the larger insects. Unless left for a considerable time in the chloroform-bottle, some insects revive after being pinned, and for this reason collectors usually prefer the cyanide-jar. This, however, is rather dangerous for children to handle; at least there is the possibility of accident, and the chloroform-bottle described above will prove

effective if properly used. To kill butterflies and large moths in the net, hold the latter mouth down, and raise the bottom as high as it will go. The insect will usually flutter upwards, and may easily be caught. With the thumb and finger carefully hold the wings over its back and drop a very little chloroform on the middle portion of the body (thorax). A small bottle of chloroform for this purpose should be carried in the pocket. After being stupefied in the net, butterflies and moths should be placed in a large killing-jar or box carried for the purpose. I use a cigar-box containing a number of sheets of thick paper and a roll of cotton-wool soaked in chloroform. The butterflies are placed between the papers, and there is little danger of the scales being rubbed off in carrying. A drop of benzine on the thorax will usually kill butterflies and moths instantly.

Beetles, hard-bodied hemiptera (bugs), and all larvae are best killed by dropping into a small bottle of alcohol.

Boxes.—A number of these must of course be taken. Any kind of small box will do. The metal and glass cases in which watch-makers receive the better quality of Elgin and Waltham works make the best collection boxes I have ever seen. While pinned collections are valuable for reference, nature-study has largely to do with the living animals. These may be carried home in boxes and bottles of any sort. Water-insects and fish must of course be taken in pails or jars (uncovered) of water. The mistake is frequently made of trying to carry too many in one dish. Water-insects may be taken in a box of wet moss. Predaceous varieties must be kept by themselves.

A trowel for ants and other underground forms, a knife for borers, and tweezers for handling some species are convenient. The sweeping-net, umbrella, beating-cloth, sieve, and other appliances are in use among collectors, but those named above will provide all material needed for study in the common schools.

Have a question box in your school in which any child can place any question he pleases, signing his name. Read the questions each day and have the pupils answer impromptu all for which they are prepared, and take the others home to search for the answers. Teachers who have used the question box say that it gives excellent results.—*Am. Primary Teacher.*

Some Spring Arrivals of Birds.

E. C. ALLEN, Yarmouth, N. S.

The coming of the robin is to us, as the coming of the blue-bird is to the people of New England, a harbinger of spring. The bluebird, (*Siala sialis*), is decidedly uncommon here. It is not our blue jay, (*Cyanocitta cristata*), a common resident familiar to all, but is considerably smaller, being in size between a robin and English sparrow. The upper parts are of a beautiful unmixed blue, and the breast cinnamon brown. On observing a small flock which has passed through this locality the last two years, on its way south, it has been with a feeling of regret that it was not more common here. But without the bluebird we are well favored. The robin is too well known to need any description. Another bird arriving at about the same time is the rusty blackbird, (*Scolecophagus carolinus*). It is slightly smaller than the robin. The color of the male is a glossy blue-black throughout; the female black but duller. In the fall the feathers of both are tipped with rusty brown. Hence the name rusty blackbird. The only common bird which would be mistaken for the rusty blackbird is the bronzed grackle or crow blackbird; but this bird is larger than the robin, and as the rusty blackbird is smaller this should distinguish them. Besides the bronzed grackle is much less common here.

Doubtless all are familiar with the choruses heard from the tops of the trees every fine spring morning. This "tweet, tweet, tweet," running off into the warbles and whistles which constitute the short song, is uttered by the song sparrow (*Melospiza fasciata*), a bird about the size of the English sparrow, but perhaps a little slighter. There are mornings during the last of March, and through April and May, when every tree in some neighborhoods holds its songster, and the air seems full to overflowing with the music. There is another chorus at evening, and occasionally some individual more joyous if possible than his fellows, will break forth in the dead of the night. As for colour, the song sparrow is brown, streaked with black above, and light gray or white, heavily streaked with dark brown on the under parts. These dark streaks are thicker near the middle of the breast.

The chipping sparrow, (*Spizella socialis*), somewhat smaller, also has a streaky brown back, but the top of the head (in spring) is of an unmixed chestnut brown color, and the breast a pure unspotted gray. The "chippy" also has a light streak passing

just over or above the eye, which helps in its identification.

Another common sparrow, and one most easily identified is the slate-colored junco, (*Junco hyemalis*), or "graybird" as it is more often called. It is about the size of the English sparrow. The upper parts are of a solid slaty gray, the gray extending down to the middle of the breast, where it so abruptly changes into the white of the under parts as to make a distinct line across the breast. In sharp contrast to the general dark gray appearance is the light flesh-colored bill, and also the pure white outer tail feathers which are easily seen when the bird spreads its tail in flight. The song, if such it can be called, is a simple, prolonged, but sweet trill. Generally it is our more sober-feathered birds that are the most gifted songsters. The purple finch (*Carpodacus purpureus*) is one of the exceptions. The name purple finch is misapplied, as will be seen from the description. Wings and tail brownish; belly, white. All the other parts, head, breast, back, and rump, washed with rosy-red. The red is particularly bright on the head, rump and breast. The female has no red in her plumage and closely resembles the female English sparrow; but her breast is much more streaked and her tail decidedly notched; that is, the middle feathers are shorter, giving the appearance of a V-shaped cut in the end of the tail. The song of the purple finch is worth going far to hear, but it is not necessary to go outside the limits of the towns, as this bird favors ornamental trees.

In speaking of song, one is reminded of the ruby-crowned kinglet (*Regulus calendula*). In no other bird of my acquaintance are the size of the bird and the volume of the song so out of proportion. In size it is little larger than the humming bird, and in its olive green coat would rarely be noticed if it did not possess a song loud and long enough for a bird the size of a robin. It gets its name from a bright red spot in the crown of the male. It is a dweller of the woods, favoring swampy places.

[The following additional notes of birds seen about St. John may be of interest: The bluebird was common at Rothesay in late March. The fox-sparrow, a little larger than the song-sparrow, with tail spots on the breast and margin of wings rufous-colored, is abundant. The red polled linnet is given on the authority of Mr. J. W. Banks as arriving here in great flocks on Easter Sunday.—EDITOR.]

Notes on Mathematics—No. V.

R. G. D. RICHARDSON, B.A.

The article that appeared in the November number of the REVIEW, had some suggestions on the subject of algebra. We wish to supplement this with some further remarks.

The chief criticism to be made of the ordinary teaching of this subject is that thoroughness is sacrificed for speed. The fundamental operations of addition, subtraction, multiplication and division should be so mastered that they can never be forgotten. We have seen pupils who could do problems in fine style with the book and answers before them, but who were utterly helpless when cut adrift from all aids of this nature. Teaching which does this for the scholar is worse than useless. This is the whole theme of this series of articles. There is no other subject in the curriculum that will develop the power of individual thought to such an extent as mathematics, if properly taught.

Books are useful in their place, especially in the majority of schools where the teacher has so many classes, but they are overworked. Gather up the algebras, pick out medium examples and write them on the board, and see if they are worked correctly and intelligently. If so, it shows excellent teaching; if not, there is something wrong; and when it comes to the final examination, and the pupils fail to pass the government test, the cause is not far to seek. If texts in mathematics could be banished one day in three, it would be far better for the pupil, though harder for the teacher.

Another matter that deserves serious attention is the ordinary neglect of the text matter of the book and the focusing of the attention on the problems. This may be justifiable in teaching beginners, but a review should be chiefly based on the text. How much time is wasted in going over mechanical processes, time after time! A certain amount of such labor is necessary, but the reason for such methods, and the methods themselves as embodied in the text, are of as much importance, although generally neglected. It is far better to know the text and be able to do the examples given as illustrations, than to have a machine by which we expect always to be able to put in a problem, turn the crank, and get an answer, right or wrong. Because there is no such machine to factor a given expression, factoring is very poorly taught, while the reverse should be the case. It would be refreshing to see a text where there were some examples which could not be done. How easy it is to factor the nicely prepared

examples, especially if one has the answer before him!

Prob. I. Factor $x^3 + y^3 + x - y$.

II. Take the square root of $3x^6 + 5x^5 + 4x^4 + 3x^3 + 9x^2 + x - 107$.

III. Solve the following equations for x, y, z :
 $x + 2y + 3z = 9$
 $3x + 19y + z = 17$
 $6x + 25y + 10z = 44$.

IV. $\frac{1}{1-x} = 1 + x + x^2 + x^3 + x^4 + x^5 + x^6 + x^7 + \dots$

Put in the value of $x = +3$ and thus find what $-\frac{1}{2}$ equals.

V. If six horses and five cows and seven sheep sell for \$629, and one horse and one sheep for \$97, find the price of one cow.

VI. Compute $(a+x)^{\sqrt{3}}$ by the binomial theorem.

Two or three hours spent in solving, or trying to solve some of these problems would be a capital experience. If the reasons were fully explained after considerable hard work on the part of the pupils, there would be a new conception of the subject.

One of the most remarkable defects of the ordinary books on algebra is the treatment of the sign of the radical. In every problem there is only *one* sign for the radical. This is often indeterminate, but in a particular problem can generally be found. The speed of a railway train comes out 20 miles or -30 miles per hour. This is ludicrous. There is only *one* sign for the radical. And it often takes an expert mathematician to know which sign to take. As an example we cite the following:

$$\sqrt{-1} = \sqrt{-1}$$

$$\text{or } \sqrt{\frac{-1}{1}} = \sqrt{\frac{1}{-1}}$$

$$\text{Hence } \frac{\sqrt{-1}}{\sqrt{1}} = \frac{\sqrt{1}}{\sqrt{-1}}$$

Therefore $(\sqrt{-1})^2 = (\sqrt{1})^2$ or $1 = -1$

Another example which may be of interest to some is as follows:

$$10^x = -1$$

Squaring both sides, $10^{2x} = 1$

Take the logarithm of both sides $2x = 0$ or $x = 0$.

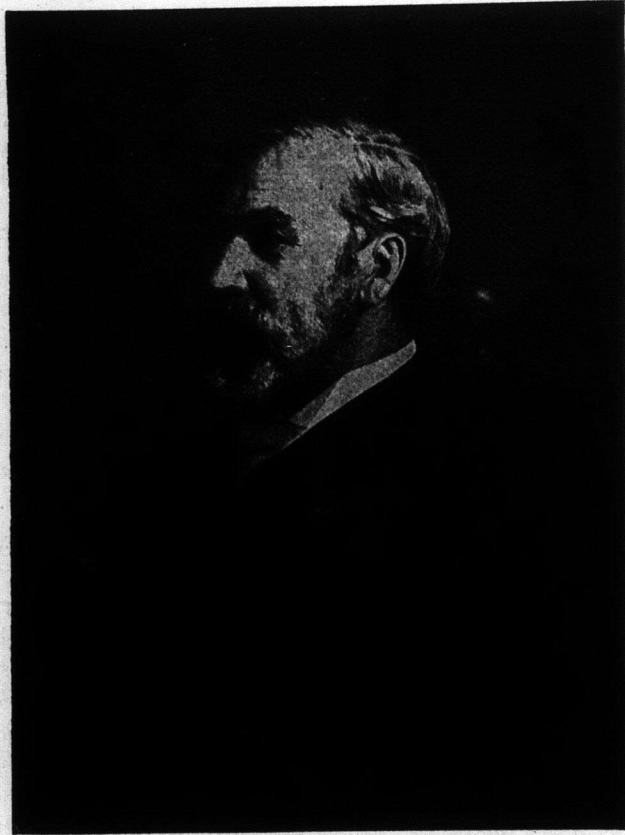
$$\therefore 10^x = 10^0 = 1$$

But $10^x = -1$ by hypothesis:

$$\therefore -1 = +1.$$

The next, and last article for the year, will be in the nature of a few suggestions in preparing pupils for an examination in mathematics. It may, or may not be worth reading.

Yale University, March 31st, 1904.



(By permission — from "Song Waves and Other Poems.")

THEODORE HARDING RAND.
BORN 1838; DIED 1900.

The REVIEW has already published (Vol. II, June, 1888) an estimate of the life and educational work of the late Dr. T. H. Rand, and the record of his sudden death while attending the centennial exercises of the University of New Brunswick, in May, 1900, is found in the June number of that year and is fresh in the minds of our readers.

It is with the intention of adding the name of Dr. Rand to the list of distinguished Canadian authors that we shall here give some account of his literary work. Many of his poems have already appeared in the REVIEW, and those which are now added breathe that spirit of poetry which is characteristic of the true lover of God and nature. They are also appropriate to this season of the year, a season whose breath inspired some of his sweetest songs, and when his own spirit was gladdened to

"See the emerald floor as it springs
To the touch of invisible feet!"

The ceaseless activity of Dr. Rand's early and middle life left him little time to cultivate those poetic instincts which were a part of his nature. The greater leisure of his later life enabled him to devote his time to literary creation. Always a student of nature and art, he added to the many varied experiences of a strenuous life that thoughtfulness and depth of feeling which are so strikingly evident in his poetical writings. He was keenly sen-

sitive to the beauties of the natural world and his artistic tastes and great mental vigor enabled him when he had once entered upon a literary career to produce verses of singular strength and sweetness.

Two volumes have come from his pen. At Minas Basin and Other Poems and Song Waves and Other Poems. Both these give the experience of a rich and fruitful life, and show a deep insight into the beauties of the natural world which he found in such profusion about his summer retreat at Partridge Island, where so many "perfect summer days" were spent in happy contemplation and in the companionship of a devoted wife and a few chosen friends.

In his Treasury of Canadian Verse, Dr. Rand has given us specimens of English-Canadian poems selected from the whole field of our literature, with brief biographical notes of each author. In this collection there are many poems which are well fitted to inspire love of our native land; and perhaps its greatest merit is the strong impress it leaves on the mind of the reader of the natural beauty of our country at all seasons, the associations surrounding our home life, the promise that the future has in store for us, the aspirations for a fuller national life. These are the characteristics of Dr. Rand's own writings and it was to be expected that they should influence his choice in compiling his anthology.

Some Poems of Dr. T. H. Rand.

The "trees of God," the prophet said,
Great trees, with sap, and laurelled head;
Ay, trees of God! all strength, and beauty,
Wove by invisible Hand and thread,—
With anchors flexed as lissome withe;
With boles like mighty monolith;
These arms of brawn, outstretched in power
To brave the storms that wou'd test their pith!
Lords of the scene in blasts and calms,
The breath of life within their palms,
Their rhythmic sway in choral murmur,
While seas and suns chant their rolling psalms.

A bird on sudden, as I wr'ite,
Through open door in eager flight
Seeks refuge from a falcon's talons,
Upon my breast, in its fearful plight.
Slight bird and dark in olive green,
With yellow throat, thy living sheen
Doth come and go with thy heart's throbbing,—
Safe, safe art thou from his talons keen!
I am as God to thee, poor thing;
Now take thee to thy heaven and sing
A virelay for thy deliverance,
Sweet virco of the olive wing!

Break into flower, O garden fair!
Long hast thou known the Gardener's care;
The rain and dew from heaven have fallen,
And sunbeams warm on thy bosom bare.
The grains of seed all viewless fell
Within the mellow soil to dwell,—
Silent the fall as that of pebbles
Cast in oblivion's sunless well.
List, music ether-fine up-goes
From swelling seed and life's keen throes!
O Earth, thy riven breast shall blossom
In Heaven's own beauty, e'en as the rose!

THE WHITETHROAT.

Shy bird of the silver arrows of song,
That cleave our Northern air so clear,
Thy notes prolong, prolong,
I listen, I hear:
"I—love—dear—Canada,
Canada, Canada."
O plumes of the pointed dusky fir,
Screen of a swelling patriot heart,
The copse is all astir,
And echoes thy part! . . .
Now willowy reeds tune their silver flutes
As the noise of the day dies down;
And silence strings her lutes,
The Whitethroat to crown. . . .
O bird of the silver arrows of song,
Shy poet of Canada dear,
Thy notes prolong, prolong,
We listen, we hear:
"I—love—dear—Canada,
Canada, Canada."

—From *Song-Waves, and Other Poems*.

HEPATICAS.

A shining troop of cherubs just alit
From the low-bending skies,—child faces sweet,
Upturned and open to our human greet,—
Fresh from the gladsome fount of life emit!
Heralds of spring, forewinging, as ye fit,
The garland seasons with their sheaves of wheat,
And to all listening ears Christ's words repeat:
"Man shall not live by bread alone, 'tis writ!"

Evangelists fair of the new-made year
This news from God, forgot, blow everywhere,
And fill the hollow sky, the haunting air;
Till from His loving mouth, as sphere to sphere,
Man knows the beautiful, the good, the true,
Divinest manna dipt in heavenly dew!

IN THE MAYFLOWER COPSE.

With gladsome note the robin debonair
Heralds bright May. Pale sky and earth-stained snow
Warm at the touch of south winds as they blow
Their wafts of life through winter's lingering air.
Hid, like some laughing child, shy Mayflower fair,
Beneath the leafy shield, with face aglow,
Thy pearly self to coy spring's first tableau,
Come to the day and yield thy fragrance rare!

Ah me! While thrushes pipe and plummy winds
Fan northward all their balmy fervors sweet,
And groves are misty with the reddening bud,
A gentle spirit from the past unbinds
The peace of Lethe, and with quickening beat
Stirs to divine unrest my fevered blood.

THE GHOST FLOWER.

[The *montropa uniflora* is a true flower, not a fungus. It grows in the deep shadows, the entire flower and stalk being colorless and wax-like. It has white, wax-like bracts in place of green leaves. The cup, nodes, and stalk and flower together often form an interrogation point (which fact, it will be observed, determines the cast of the sonnet). The flower is widely known as the Ghost-flower, but is often called the Indian Pipe].

Like Israel's seer I come from out the earth
Confronting with the question air and sky,
Why dost thou bring me up? White ghost am I
Of that which was God's beauty at its birth.
In eld* the sun kissed me to ruby red,
I held my chalice up to heaven's full view,
The wistful stars dropt down their golden dew,
And skyey balms exhaled about my bed.
Alas, I loved the darkness, not the light!
The deadly shadows, not the bending blue,
Spoke to my tranced heart, made false seem true,
And drowned my spirit in the deeps of night.
O Painter of the flowers, O God most sweet,
Dost say my spirit for the light is meet?

—From *Minas Basin, and Other Poems*.

* ["In age" the nodding flower becomes upright on the stem.—EDITOR].

A Few Common Plants.

PRINCIPAL ERNEST ROBINSON, KENTVILLE, N. S.

The following notes are intended for young students and for some of the observers who fill out the phenological report-sheet furnished by the superintendent of education for Nova Scotia. A great many of the observers do not need any help, but there are others, who make no report at all on some common plants, or make such a report that it is evident they do not know plants as well as they might. These notes may not help them to tell what the plant is, but may help them to tell what it is not, and so prevent the making a wrong report. I have tried to avoid technical terms, using only the simplest language of botany. The dates I have given for the appearance of the plants are purposely put early so that one may begin to look for them in time:

Blood-root.—One has to be a prompt observer to see this plant in blossom, as it lasts but a few days. In the middle of April, or near the first of May, it may be seen as a white blossom growing near the edge of the woods. As a number of plants blossom at this time, the following will help distinguish the blood-root from the others: Flower—The blossom is white with a yellow centre. It consists of from eight to twelve petals with numerous stamens. There is but one pistil. In general shape the flower resembles a small poppy. If any calyx is found it will consist of two sepals. Leaves—The leaves are round, but divided into deep lobes. They are brown on top, and greenish-white underneath. The blossom rises above the leaves on a scape or stalk. Root—The roots are fibrous, springing from a thick fleshy underground stem or rootstock. (Many of our earliest spring plants, like this and the next two, grow from underground stems, not roots, as they are popularly supposed to be. These stems are storehouses of food which enable the plant to send up in a few days stalks bearing flowers and leaves). If the rootstock or even the leafy stem be squeezed it gives forth a juice that produces a red stain, which lasts for some time; hence the name of the plant.

Adder's-tongue Lily.—It hardly seems necessary to describe this plant, yet a number of reports make no mention of it. It is sometimes called the dog-tooth violet. It blossoms early in May, and should be found in damp places in the woods or in shaded meadows. Flower—The blossom is yellow, and grows on a scape or stalk six or eight inches long. It consists of six yellow sepals, which are often

marked with purple, and which spread out, and sometimes bend backward, like a tiger lily. There are six stamens and one pistil. Leaves—At the bottom of the scape, which bears the blossom, are two lance-shaped leaves of a pale green color, usually mottled with purple, or even white. Root—The roots are fibrous from a bulbous rootstock, and about as large as a small onion, which it resembles.

Spring-beauty.—This plant blossoms about the same time as the adder's-tongue lily. It is often found near brooks, and in moist places on the borders of woods. As the stem of this plant often reclines on the ground, it is not easily seen. Flower—The flowers grow in loose clusters, and are white with pink veins, or pink with almost red veining. The corolla consists of five petals, and the calyx of two sepals. There are five stamens and one pistil. Leaves—The leaves grow in pairs, oval and narrow, of a dark green color. Root—A tuber, buried as far in the earth as the height of the plant, resembling a tiny potato, with a few small fibres attached.

Ground-ivy.—It is difficult to describe this plant, but the following hints may help distinguish it from other plants. It is found in damp shady places, trailing on the ground or over rocks, and has a rapid growth. It is common about the middle of May. Flower—The flower is blue or purple, somewhat resembling the violet. It rises on a stem that starts from the axil of the leaf, or the point where the leaf joins the stalk. The blossom is divided into two parts or lips, one erect, the other spreading. The erect part is cleft in two, the spreading part in three pieces. The calyx is united, but five pointed. There are four stamens in two pairs, one pair shorter than the other, and one pistil, which is divided into two parts at its apex. Leaves—The leaves are small and kidney shaped, with a very pleasant odor.

Clintonia.—This plant is found in June in thickets where the ground is moist. There are usually three large leaves resembling those of a lily, above which, on a scape, are the greenish-yellow flowers. There are three or four blossoms on each scape. Each blossom has six sepals, six stamens that are quite long, and one pistil, that is also as long as the stamens. The fruit is a bluish berry.

Marsh Calla.—This plant is easily recognized. It resembles the calla lily, and is found growing in swamps during the latter part of June. The leaves are long-stemmed and heart-shaped. Rising on a scape, is the large white spathe, which is often called the flower. At the top of the scape, and resting

against the spathe, are the real flowers, which consist of a small greenish mass, arranged on a spadix. This plant is often called the wild calla, and is only found on very wet ground.

Painted Trillium.—This plant is often called wake-robin. It is found growing in shady places and along the banks of brooks during the month of May. The stem grows erect. The blossom is white. Flower—Only one growing at the top of a stalk, and consisting of three pointed petals. These petals are striped, or painted with red lines at their base. The calyx consists of three green sepals. There are six stamens, and one pistil, which is divided into three parts at the top. A short distance below the flower, on the scape, are three dark green leaves. The root is made of fibres springing from a short thick underground stem, often round like a small potato. The fruit is a bright red berry.

Star-flower.—This flower is found during the month of May. The stem is erect and smooth. The blossom is white, rising from a whorl of light green leaves. It consists of seven spreading petals with a calyx, usually seven parted, five stamens and one pistil. The leaves are thin and pointed.

One Way to Watch Germination.

When you have planted your seeds, unless you take them up every day, you cannot see how the little plants are behaving down under the soil. I want to tell you how you can know some things that the plants are doing without disturbing them.

Choose an ordinary glass, roll up a piece of blotting paper so that it is a trifle smaller than the glass, and place it inside. Between the blotting paper and the glass, put a few radish seeds, or any kind of seed such as you planted in the soil. Keep the blotting paper moist and watch what happens. In four or five days the plants should be "up." Here are some things to think about as you watch them:

1. Note any change in the seeds when they have been moist for a few hours.
2. What happens to the outer coat of the seed?
3. In what direction does the little root grow? The stem?
4. Notice the woolly growth on the root. Does this growth extend to the tip of the root?
5. When the little plant has begun to grow, turn it around so that the root is horizontal. Does it remain in that position?
6. How soon do the leaves appear?

—*Junior Naturalist Monthly*.

Why the Country Boy Wins.

Why does the boy from the district school outstrip his village cousin in the high school and college? There can be little doubt that he does. Many of our village high schools depend upon the district school graduates for scholarship, for school spirit, and largely for attendance. In a large majority of cases the highest honors at graduation fall to the boy who learned his arithmetic and reading in the district school. Green in appearance, using poor grammar, rarely knowing how to march in step, ridiculed by the stylish youth from village homes, the country pupils soon demonstrate their ability to leave behind those who would scorn them.

Many reasons are given to explain this. Pupils from the country appreciate their advantages more; they have not so much outside of school to engage their attention; they learn on the farm the knack of doing things. These explain in part, but the district school should not be left entirely out of consideration. Are the district schools better than the village graded schools? Are the teachers better prepared or better paid? Is the instruction superior? Have the district schools better facilities for doing efficient work? There can be but one answer to all of these questions. It is a wonder that the district school teacher with twenty or thirty classes per day can accomplish anything at all. The boy in the district school must do most of the work himself. With a hint here and there, he ploughs his own way through arithmetic and geography, through reading and spelling. His recitations are mostly examinations with very little developing or explaining. He brings to the high school an inferior knowledge of elementary subjects, but he also brings what counts for much more, the ability to do things for himself. He knows something of research, for he has gotten most of what he knows unaided.

The boy in the village school too often receives his portion in homeopathic doses, very systematically administered, thoroughly assimilated, and frequently repeated. The bright pupil fails to get a taste of personal conquest. He looks to his teacher to furnish the material carefully developed and predigested. He seldom catches the spirit of research and often loses his native curiosity. Passivity and receptivity become his fixed attitude.

To overcome these faults supervisors and grade teachers must learn to look less to subject matter covered and more to mental training. There must be more suggestion, less demonstration; more investigation, less drill upon non-essentials; more concreteness, less idealizing; more leading, less coaxing and compelling; more study into nature, less study about nature; more training of the motor faculties, less appeal to memory. Such active methods will produce more active minds, and, coupled with a fair knowledge of subject matter, pupils will have the habit of helping themselves.—*Principal Chas. S. Williams, Chatham, N. Y., in The Educational Gazette.*

Spruce Partridge or Canadian Grouse.
(*Dendragapus Canadensis*).

R. R. McLEOD.

The male is a trim, elegant bird that shows off to good advantage beside his demure brown mate. This species is so gentle and approachable in the wild state that not a great deal is to be learned by keeping them in confinement. They are to be found all over Nova Scotia, but nowhere are they to be considered common. In certain localities within areas of a few square miles I have known them to be fairly common. It is an easy matter to take them alive by fastening a string snare on the end of a slender rod and slipping it over their heads while they are apparently wondering what you are about. They are easily kept on a steady diet of spruce leaves. They breed readily in confinement, and soon become tamer than domestic fowls.



SPRUCE PARTRIDGE (Female).

It is not for their elegance of form, or beauty of plumage, or intelligence, that I have chosen this species for treatment here. Quite otherwise, for it is their stupidity that challenges interest, and to get at the cause of it, and note the results of it, may be worthy of attention. The peculiar feature to be first noted is the fact that these grouse are wholly dependent upon the needles of spruce trees for their living. I have never found other food in them; and beyond, possibly, the slight taste of something else, they are wholly nourished by this plain fare of the

spruce that must be eaten in large quantities to sustain life and strength. An ounce of insects, or as much of seeds, would either of them outvalue as food, a pound of this spruce product. Evidently then, it was during hard times, when there was but little else to be had, that this branch of the grouse family tree got set apart from the other members. Nothing short of acute hunger would have created an appetite that would take to such commonplace stuff, and stand by it long enough to form a taste for it and a habit to subsist upon it, even when far better food was to be had for the taking. Somewhere from fifteen to twenty thousand years ago the northern hemisphere of land to the latitude of Texas, was during many centuries largely covered with a vast polar ice-cap called a glacier. It was the result of long continued cold weather, by which the snow of one winter lasted to the next, and thus accumulated to a great depth of more than a mile, and by pressure became solid ice that slowly crept to the oceans and broke away in icebergs. Before such a phenomenon all animal life either moved gradually southward or perished in the snow. Here in temperate North America previous to the glaciers there was vegetation, and birds and beasts. The spruces, and other cone-bearing trees would be among the last to disappear before the long winter of very likely thousands of years, and these trees would probably flourish along the southern borders of the slow encroaching glacier. Such an occurrence furnishes the conditions that might well result in this spruce-eating variation that has spread over all the region from Nova Scotia to the Pacific coast, and southward to northern New England, and northward to the Arctic circle. Within this wide range there are three well marked species and two varieties. The fact is that they are all mere geographical divisions of the same peculiar variation that long ago through the pressure of hard times became separated from the family stock. Once that our ancestral spruce partridge secured the advantage of maintaining life on such common food that the supply was inexhaustible, and to be had with the slightest effort, there seemed a brilliant outlook for this branch of the grouse family to become a numerous race, outstripping all other members that were obliged to pick up a berry here, and a bug there, a bit of mushroom in this place, and a seed in that. The very opposite has been the result of what seemed to be a streak of wonderful luck. It is not alone with mankind that he who concludes to take his ease, and lay back on his good fortune, finds in the long run that indolence is a fatal factor in life.

Our spruce partridge began to lose intelligence in proportion to the lack of effort in obtaining food. It is a great regulation, or law, or provision, as we prefer to call it, one or the other, that organs and faculties left unused shrivel into vestiges and finally may disappear altogether. With no exercise of their brains, beyond shifting from branch to branch of limitless areas of spruce, and keeping an eye now and then aloft for hawks and glancing below for prowling beasts, they were seized upon by degrading agencies that have swept from this world great varieties of creatures that have left but the fossil evidence of their existence, and have pushed other forms of life into the domain of parasites. "Let him who stands take heed lest he fall," is not only morally and spiritually true, but applies to all mental faculties, and bodily structures of men and lower creatures. "It is easy to go to hell," is an ancient maxim of the pagan world that found its counterpart in the authoritative dictum of the "broad road of destruction and the straight and narrow way of life," and both of them expressed the facility of going down hill to degradation when the proper balance was lost through some yielding to blandishments that ever promised more than they gave of satisfaction, and veiled the inevitable results in the pleasures of the present moment. Thus nature relentlessly searches for unsound fibres, and weeds out of her plentiful products the defective individuals, and "God scourgeth every son whom he receiveth."

It is very easy to see the evidences of "the spiritual law in the natural world"—it simply appears in different phases in altered circumstances. A saint falls from grace, and a bird by a degrading habit falls from a higher to a lower grade of intelligence. It is gravitation against which the ant sets his muscles as he tugs his grain of sand up his burrow, and it is the same force that thrusts the greyhounds of the sea from their launching ways, and determines the orbits of all the myriad millions of suns. But for this wide sweep of universal unity natural history would not be worth consideration, and we might well help ourselves to as much as we could eat, and as many feathers we cared to stick in our hats, and rest content with our ignorance. Unless we can transmute in the alembic of the mind the knowledge we gain in these fields of research into such high values that admit of use in the loftier realms of human advancement, then all our collecting, and measuring, and comparing, and classifying is but little better than childish diversion.

To identify on sight a spruce partridge and know

its scientific name and a few other items about it, is but the merest introduction to its least interesting aspects that lie upon the outside; says Emerson,

If I knew

The rare and virtuous roots, which in these woods
Draw untold juices from the common earth,
Untold, unknown, and I could surely spell
Their fragrance, and their chemistry apply
By sweet affinities to human flesh,
O, that were much, and I could be a part
Of the round day, related to the sun
And planted world, and full executor
Of their imperfect functions.—

The old men studied magic in the flowers,
And human fortunes in astronomy,
And an omnipotence in chemistry,
Preferring things to names, for these were men,
Were unitarians of the united world.

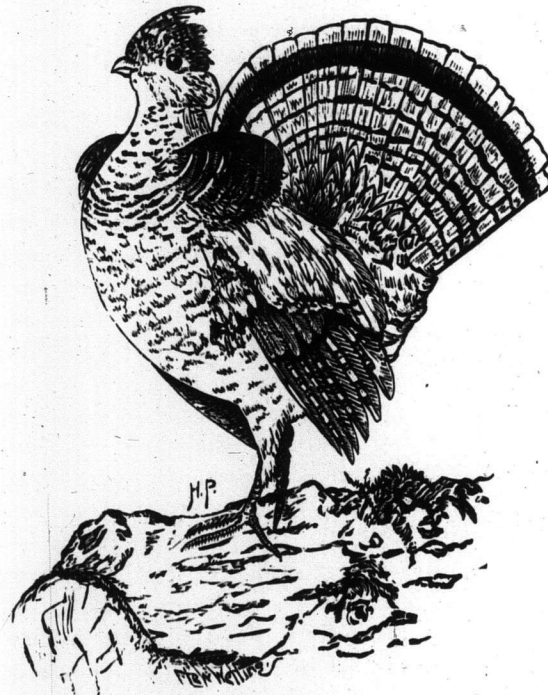
If the species of Canadian grouse now under consideration had suddenly come into existence as a pair of adult birds appearing as a response to a divine fiat, then we may fairly conclude that they were considerably perched on a spruce tree with a reasonable appetite for the food that was to be theirs, and also that of all their descendants. In that current view of the matter, among the uninstructed, we have in our present generation of them exactly the same bird in form, and habits, and disposition, as the original pair. If that were the truth, then neither science, nor philosophy, would be occupied with them; but if these creatures have a pedigree stretching across the geologic ages into the reptilian forms of life, and beyond through other lines of ancestry to the first living cell, then they are invested with a significance that stimulates curiosity, invites interest and research, where science will find problems worthy her aims, and philosophy discover the trend of great truths to amply reward her considerations.

With this view of creation as an ever-changing panorama, we are led to ask what is the origin of instincts, what the cause of peculiar structures, and what are the reasons for singular habits? We approach these features as soluble problems and not sealed mysteries, problems that may occupy our minds in worthy ways, and furnish the slender trails that, ever widening with investigation, open at last in broad highways where "the highest mounted mind" may try his mental sinews on questions of transcendent interest.

If it had been my intention to write about the exact dimensions, colors, and pretty ways of the Canadian grouse, then these considerations are a wide-departure from my theme; but I have rather

desired to translate the bird from the lowly limb of its evergreen home, to the loftier atmosphere where it can be studied from a philosophical point of view.

Here is a bird in the midst of the most abundant supplies of the only food that it desires, with no special enemy, no peculiar disease, not sought by gunners, and yet evidently far on the downward road to extinction. It has many advantages over the "birch," or ruffed grouse, in point of food, and the protection offered by the thickets in which it resides,



CANADA RUFFED GROUSE

in "drumming position" From specimen in Prov. Museum, Halifax and yet there are, I believe, in this province one hundred of the latter to one of the former. The number of eggs are equal to those of the other species, and there is no visible material explanation of this fatal drift to the gulf of extinction. Is it an idle curiosity to probe this problem and seek the explanation, although the solution bring neither fame nor money? Serious reflection must soon convince us that the noblest employment of our intellectual faculties is in that service which ever widens our knowledge of this universe wherein the slenderest clues often lead to grand and useful discoveries. Wherever nature in any aspect challenges our curiosity, it is a respectful response to heed this invitation to her banquet of unending bounties.

The problem presented by this disappearing grouse involves subtle and wide-reaching laws. Its life has been too easy, too monotonous and devoid

of experience to keep up the mental vigor that had been gained by ancestors whose needs demanded greater activities. As they perched on the sheltering boughs of the dim forests, and dozed from generation to generation, they swung within the scope of the great law that like the outermost whirls of the Maelstrom, swings all its victims to destruction. The unused brain cells lose their finest functions, a cloud of stupidity stole over the marvellous structure that was upbuilt through millions of years, the old protective instincts wherein hereditary laws had stored the habits of many generations refused to act with promptness, and all delays were fatal. I have seen a goshawk, the fiercest maurader of the skies, hover over one of these grouse and dash down upon him before the creature seemed half aware of any danger. Even an old hen in his place would have fled screaming at the shadow, without sight of the object; and that she learned not from experience, for a chicken not clear of his shell will do as much, but her wild ancestors in oriental forests got that item of advantage placed to the credit of their kind, and the instinct has not got out of working order by degeneration.

If we start a birch grouse with young chickens, she dashes fearlessly under our feet, with outstretched wings and spreading tail and every feather erect, striving to attract our attention and draw us away, or in some fashion prevent any harm to her brood, that meantime is hiding here and there as best they can. In the economy of nature the individual does not count so much as the race, and in this view, even if the mother is killed by her reckless encounter, still her young in most cases would survive, as they are from the first quite dependent on their ability to select their own food. When this mother has reasons for believing that the enemy has gone and the coast is clear, then she flies back, calls her brood together by a whining sound, to be heard on no other occasions.

Now if we meet a spruce partridge with a brood she employs no such tactics, but showing signs of disturbance by walking hither and thither, and seeking a low limb, seems to be minded to stay close to her young; and these have no habit of hiding; I have picked them up when they were a few days old without much resistance. When three or four half grown young have avoided me by perching side by side on a limb not six feet from the ground, I have seen the mother walk from branch to branch till she had placed herself close beside them; and all this was a very touching concern for her babies, but with no proper notion of the danger she courted for them all,

The principal enemies, aside from men, are wild-cats, foxes, weasels, fishers, the latter not now in Nova Scotia, hawks, owls, ravens, eagles. The same creatures beset the other species of grouse among us.

The existence of Holland depends upon the resisting power of the great earth walls that fence out the sea, and require a ceaseless vigilance to keep them in repair; and just as surely is this bird or any other continually menaced by enemies which take advantage of every relaxation of vigilance, or strength, or intelligence, or any other feature or form whereby they are defeated, or outwitted, or deceived. The lowering of mental activities is analogous to a breach in the Dutch dikes, and over it leap the hungry hordes that scuffle for their stupid carcasses. For a long time in the evolution of the human race, after it began to live by means of superior wits there must have been perilous crises, when teeth, and claws that lay behind the slender embankment of better brains, threatened utter extermination to our kind.

Our pretty little grouse has lost ground that can never be regained; he is in the current that has never reversed its course. The law of the land has been called in to shield them, but a greater law has already passed sentence upon them and it will be executed to the very letter beyond all hope of intervention.

How Canadians Should Live.

Professor Goldwin Smith (age 81) and Senator Wark (age 100), two of the oldest and best preserved of our citizens, have been telling us how to live. It seems summed up in the ancient advice, retire early and eat plain food. Senator Wark believes in porridge, meat, bread and tea, but refuses to countenance pie or pudding. Professor Smith's verdict is about the same, but he does not pronounce so strongly against delicacies, although he agrees that they must be taken in moderation. . . . If Canadians are to be physically strong there are some reforms to be effected. They must eat less pastry, they must breathe more fresh air, they must encourage still more athletic sports and physical culture, they must realize that the reckless pursuit of "the dollar" is not a reasonable ambition for either an individual or a nation, but that strong bodies and sound minds are the marks of a vigorous race.—*April Canadian Magazine.*

THE SCHOOLMASTER'S PRAYER.—Lord, deliver the laddies before Thee from lying, cheating, cowardice, and laziness, which are as the devil. Be pleased to put common sense in their hearts, and give them grace to be honest men all the days of their life.—*Ian Maclaren, in Young Barbarians.*

A Word for Farmers.

In an article in the April *Delineator* on Growing up with One's Children, which is filled with sensible advice to mothers, Mrs. Theodore W. Birney has some excellent remarks about the treatment of children that are grown. Many parents will do well to take to heart the following paragraph: "There is one thing parents should recognize: that their children are growing up and that their authority as such grows weaker every day, while their influence waxes stronger in proportion as their government has been wise, tender and just. Many a household is discordant because parents insist upon treating their grown sons and daughters as though they were still children. They issue commands, criticize and find fault, forgetting apparently that the season for training is practically ended, and, were it not, such methods would result in more harm than good. I know a family in which are two daughters, both past twenty-five, and a son in his thirties; they seldom, if ever, leave the house without being questioned as to where they are going, when they will return, why they go, why they wear such a garment instead of some other, wouldn't they best take umbrellas, are they warmly or coolly enough dressed, as the case may be, etc., etc. Personal liberty is such a precious possession, and life is so much sweeter and happier in households when there is mutual confidence and where trivial personal questions are regarded almost as a discourtesy."

Spelling Tests.

Scale, rinse, pledge, ache, knock, prism, dense, jail, lodge, niche kneel, gray, knob, scythe, screen, scene, growth, rhyme, sheaf, scratch, through, twice, least, tempt, mourn, knife, sphere, bridge, hoarse, wealth, scheme, fuse, rogue, sweat, gnash, buzz, comb, dreamt, knack, much, zinc, cleanse, spasm, skulk, width, breadth, thrash, shrink, knell, bathe.

Almanac, descendants, necessary, rebuttal, assurance, metallic, livelihood, relapse, instantaneous, aggrieved, bullet, Venezuela, persuasion, consummated, Roosevelt, aspirant, reservoir, terrific, ambulance, commissary, fraudulent, appearance, comedian, eminence, apparent, tangible, installation, diversion, chastise, pillaging, allegiance, czar, assessor, chargeable, sensitive, nuisance, tenement, sarsaparilla, susceptible, assistant, larceny, trolley, transferred, occurrence, correspondence, potatoes, coercion, biennial, attorney, unavoidable,

Arbor and Bird Day.

SUGGESTIONS FOR A PROGRAMME.

Prepare for Arbor Day by cleaning up the school yard. Clean the school room. Have the desks, seats and floor scrubbed.

Decorate the room with pictures of birds, trees and country scenes.

If trees are to be planted select them with care; not too large, from open spaces rather than from the forest. Prepare the ground for them; good soil is necessary.

Get the people interested in the day; encourage pupils to clean up the yards and plant trees about their homes.

Prepare a programme for the day. Have plenty of music and readings. Invite visitors to take part. See this month's REVIEW and others for hints.

In a certain school far away in the country the teacher hit upon an ingenious device for covering up bare and unsightly walls. Above the blackboards she tacked rough sacking, which was the only material available, and to hide the edges the children made borders of trailing evergreens. On the sacking they pinned groups of pictures, which they cut from magazines or which the teacher had obtained from the city. The result was surprisingly attractive, and as the pictures could be easily changed, the decorations were varied to suit the season or special occasions.

Frederick the Great, King of Prussia, had at Potsdam a cherry orchard. One day he saw a troop of sparrows attacking his finest fruit. The king flew into a passion, and offered a reward for sparrows' heads. Five heads for three cents was the rate he paid, and sparrows' heads began to arrive from all parts of the kingdom. The first year the government paid ten thousand dollars to the bird hunters for the death of a million and a half of sparrows. The second year one hundred dollars, and the third year ten dollars settled the account. And there was not a sparrow left in all King Frederick's domain.

But worse results than sparrows' visits followed. Insects covered the trees, ate the young leaves and the blossoms, and destroyed all prospects of a cherry crop. The wheat and grain perished as soon as they appeared above ground. Fruit trees bore no fruit. Even the forests were being so ruined by the insects that the king became alarmed. As he had rid the kingdom of the sparrows, so now he did all he could to get them back. It cost him three cents for every five sparrows driven out of his kingdom; now it cost three cents for every five brought back. So much for human wisdom, which forgets that tomorrow must pay for the blunders of today.—*Sel.*

A SONG TO ARBOR DAY.

Air—"There's Music in the Air"

There's music in the air—
Breezes from the woods astray,
Blow fragrant, fresh, and warm,
In a song to Arbor Day.

Chorus: Music tender, music gay,
Music sweet as the flowers of May,
All the world joins in the lay
In a song to Arbor Day.

There's music in the air—
Brooks upon their sunny way
Break forth with runs and trills
In a song to Arbor Day.—*Chorus.*

There's music in the air—
Robin redbreast, thrush, and jay,
Pour out their little hearts
In a song to Arbor Day.—*Chorus.*

—*Popular Educator.*

I don't want to make you uncomfortable, girls; but is it possible that it was one of *you* who had a bird's wing in your hat on Sunday?

Just in front of my pew sits a maiden —
A little brown wing on her hat,
With its touches of tropical azure,
And sheen of the sun upon that.
Through the bloom-colored pane shines a glory
By which the vast shadows are stirred,
But I pine for the spirit and splendor
That painted the wing of the bird.

The organ rolls down its great anthem;
With the soul of a song it is blent;
But for me, I am sick for the singing
Of one little song that is spent.

The voice of the curate is gentle:
"No sparrow shall fall to the ground;"
But the poor broken wing on the bonnet
Is mocking the merciful sound.

—*Our Sunday Afternoon.*

When April winds
Grew soft, the maple burst into a flush
Of scarlet flowers. The tulip tree, high up,
Opened, in airs of June, her multitude
Of golden chalices to humming birds
And silken wing'd insects of the sky.

—*Bryant.*

SPRING'S AWAKENING.

Doubt flies before the truth that's quired
When earth in living green's attired,
As ghosts before the day-star's rising,—
The grass is ever God finger-spined.

When life is low my awe-stirred soul
No vision has of nature's whole;
It would unsheathe a weapon naked
And cut the bands of divine control.

The Nazarene knows no decrease, —
He shed his beams on Rome and Greece!
O radiant is his word: Consider
The springing grass, and have rest and peace!

—*Dr. T. H. Rand.*

The REVIEW gets better every year. Mr. Richardson's mathematical notes are alone worth more than the subscription price.
A. D. F.

CURRENT EVENTS.

The bubonic plague is still alarmingly prevalent in India, and is claiming thousands of victims every week.

According to official figures, the area of coal in Canada is larger than in any other country in the world.

The value of gold annually mined in British Columbia is now over five million dollars, the value of the silver over three millions, and of the copper and the coal over five millions each.

So great has been the success attained with camels imported into Rhodesia, South Africa, last year, that a government officer has been sent to India to purchase a larger number of these animals for the district.

Extensive irrigation works will be undertaken by the Canadian Pacific Railway Company near Calgary. If the plan proves successful, over three million acres of land now lying waste will be reclaimed and made fit for cultivation. There are to be two canals, a main canal thirty-five miles in length, and a secondary canal which, when completed, will be one hundred and fifteen miles long. The project is the largest of the kind ever attempted on this continent.

A sad fate has befallen the adventurous Hubbard, who set out last summer to explore the interior of Labrador. Unprepared for the difficulties of his journey, and with a very inadequate supply of food, delayed beyond all expectation by storms and accidents, and failing to find the abundance of game upon which he counted for subsistence, he finally died of starvation. His two companions, who were stronger than he, survived the hardships of the expedition and brought back the news of his death.

Recent surveys have shown that the part of Quebec lying between the St. Lawrence and James Bay is rich in spruce forests, in agricultural soil, in water-powers and in minerals, and that the climate is quite as good as that of the valley of Lake St. John, where there are thriving settlements.

The Yalu is a beautiful river, some 300 miles in length, and is navigable for a native craft for a distance of 60 miles, but steamers are unable to proceed beyond Antung. The stream has a rapid current, which will just now be swollen with the spring freshets, for the winter climate is much the same as our own. The tides in the Yellow Sea are higher than anywhere else in the world outside of the Bay of Fundy; making the crossing difficult in the estuary. The river itself, therefore, is a very strong defence of the Russian position.

The immigration of United States settlers, which is bringing into our Northwest Territories experienced farmers from the Western States, has begun early this year, and will probably increase from year to year for some years to come. Immigrants are also expected from New Zealand, where the advantages offered by the Canadian west are claiming attention.

It is rumored that the Japanese government will experiment with war balloons and airships.

The governments of Italy and Austria have concluded an agreement regarding affairs in the Balkans, which is considered as putting an effectual stop to the troubles in the Balkan states and preventing the possibility of their being used to aid a Macedonian uprising in the spring.

It is expected that ten thousand troops will be sent to Canada, as a part of the new plans for strengthening the defences of the empire. It has been decided also to make Halifax one of the greatest coaling stations of the empire, and to this end the coaling piers in the dockyard will be enlarged.

A steamship route between Halifax and Galway, for the conveyance of mails and passengers is advocated by a member of the Transportation Commission that has recently visited the Atlantic provinces. It would be a thousand miles shorter than the route from New York to Liverpool, and would be of inestimable advantage to Canada and to the empire.

The British Antarctic expedition, which sailed from London in the summer of 1901, is returning. No new coast line of any great extent has been discovered, but the results are believed to be of very great importance in other directions, and Captain Scott and his men are expected to bring back much valuable information regarding the Antarctic continent and the waters along its coast.

The Belgians deny the stories of atrocities in the Congo Free State, saying that the stories were founded wholly upon charges against one sentry for cruelty to a native boy, and that these charges have proved to be false. The stories, nevertheless, seem to have a strong foundation in fact, and the governments of Great Britain and the United States have both been asked to interfere for the protection of the 20,000,000 natives.

In reply to a question as to why a change had been made in the flag floating over the parliament buildings at Ottawa, the Minister of Public Works said that the flag heretofore used was a Canada merchant marine flag, (the red ensign with the Canadian coat-of-arms in the fly,) and when the department was purchasing a new flag it got the national flag, the Union Jack, and put it there instead. There is only one national flag.

The natural outlet for the products of the Northwest is through Hudson Bay and Hudson Strait, saving 800 miles in transportation to Liverpool; as compared with Montreal. So says the Canadian explorer, J. W. Tyrrell, in a recent account of his explorations in that region and in Newfoundland and Labrador. The strait is navigable with powerful vessels for six months in the year; and the bay is open all the time, although the harbors freeze over. Port Churchill is, he thinks, the best harbor on the coast of Hudson Bay, and could hold half the British navy. Newfoundland he finds rich in mineral resources, and Labrador may prove to be one of the most valuable mining countries in the world.

An Anglo-French colonial treaty about to be signed in London deals with matters in Morocco, Egypt and Newfoundland. France, it is believed, will surrender her rights on the shores of Newfoundland and receive an indemnity. The French shore question which has so long troubled the people of the ancient colony will thus be finally settled.

A rather serious question is about to be settled between Chili and Peru. At the close of the war between the two countries, in 1883, Chili was left in possession of the Peruvian provinces Tacna and Arica, with the understanding that at the end of ten years a vote of the people of the two provinces should decide whether they would remain Chilian or be returned to Peru. Twenty years have passed, and the vote has not been taken. The possibility of a peaceful adjustment of the matter seems very slight.

There is a renewal of the story of a United States movement for the acquisition of St. Pierre and Miquelon, by which they could control the entrance to the St. Lawrence and threaten the whole Atlantic coast of Canada. It is more probable that if the islands pass from French control they will become British. They have a united area of ninety-three square miles, and a population of less than five thousand; and their only importance at present is as a base for the French fisheries, and as the last remaining vestige of the French dominions in North America.

Chili, Brazil and Argentina have formed an alliance and agreed to refer to arbitration any question that may arise between them in the future. Ecuador and Bolivia are expected to join the alliance. A dread of the growing power of the United States, and the fear that in case of any local uprising that aggressive nation might do as she did in the Panama affair, acknowledge the independence of the insurgents and send troops to maintain it, is believed to be the immediate cause of the movement. The project of a political union of all the Spanish American states is beginning to be discussed in the press of these republics.

Though there has been no important engagement as yet between the Russian and Japanese forces, Japan seems to be in possession of the whole of Korea, which was the first object of her campaign, and to have full control of the Yellow Sea, which enables her to land troops at any point along the coast. Before the advance guard of the Japanese army, the Russian forces seem to have retreated to the west side of the Yalu, the boundary between Manchuria and Korea. The Japanese now occupy Wiju, an important town at the mouth of the river on the Korean side; the Russians are strongly posted at Antung, on the opposite bank, where it is expected a great battle will take place if the Japanese attempt to cross.

The British expedition to Thibet has met with armed resistance. The Thibetans attacked the advancing column and were repulsed with considerable loss. Among the killed was one of the Thibetans

who was in command, and to whose influence and violent hostility it is thought the existing difficulties were very largely due. Possibly his death may lead to peaceful negotiations with the Lhasa government. It is reported, however, that a Chinese general from Lhasa has met the approaching British force and requested the mission to withdraw. This, if true, might mean that China claims authority over Thibet as a tributary state; but British negotiations with the Thibetan government have been going on for fifteen years independent of the Chinese government at Pekin or its representative at Lhasa. The British troops, coming from the warm plains of India, suffered greatly on the march through the mountain passes. The changes in temperature were extreme at the greatest elevations, the men being in danger of sunstroke during the day and numbed with cold at night.

A very alarming state of affairs prevails in German Southwest Africa. Native troops, now in revolt, have torn up railways and killed many settlers. Windhoek, the seat of government, is besieged by the natives; and practically every native tribe between that place and the borders of Cape Colony is in revolt. The Hereros are the most powerful and warlike, and were the first to rebel, oppression and cruelty on the part of German officers and troops being the alleged cause. The German possessions in southwestern Africa cover a tract about half as large again as the German Empire in Europe. It stretches for nearly a thousand miles along the coast, from Cape Colony on the south to the Portuguse colony on the north. The land along the coast is barren for some miles inland. Then comes a wide plain, and beyond that a high tableland of several hundreds of miles in width, valuable by reason of its agricultural and mineral resources. The Germans first took possession of a part of the coast about twenty years ago.

One of the most beneficent features of our modern educational work is that of the school gardens. Through pleasant outdoor occupation it brings the children into delightful contact with nature. It gives them something interesting to do and to think about. It improves them mentally, morally and physically, and is one of the most potent of instruments for expanding their minds and their souls by casting the light of understanding upon some of the mysteries of life and growth. This work has been made a regular feature in some of our Boston public schools, and has been so extraordinarily successful that it should be introduced as a part of the course in all.—*Boston Herald.*

A gentleman riding with an Irishman came within sight of an old gallows, and to display his wit said:

"Pat, do you see that?"

"To be sure Oi do," replied Pat.

"And where would you be today if the gallows had its due?"

"Oi'd be riding alone," replied Pat.

Manual Training.

Two new members were added to the membership of the M. T. T. A. of N. S., at the special meeting held at Halifax, April 1st and 2nd. The membership is now 21, including, with one exception, all the mechanic science teachers of Nova Scotia in active work. Advantage was taken of the clause in the constitution in reference to honorary members to elect as such the following gentlemen: Supt. of Education A. H. MacKay, Supervisor Alex. McKay of the Halifax public schools, and Supervisor G. J. Miller of the Dartmouth schools.

The following resolution was adopted: "That this association approves of the idea of an exhibit from the manual training schools of the province at the Provincial Exhibition at Halifax, and that each teacher be urged to send an exhibit from his school or schools." A committee was appointed to arrange the details for the exhibit.

Principal McKeigan of the Whitney Pier school, Sydney, is conducting a very successful course in cardboard work.

The Boy's Club of Halifax have fitted up a room for manual training. Ten benches are included in the outfit. The undertaking is proving successful and is undoubtedly of great value to the boys of the club, who in most cases cannot avail themselves of the public manual training department. The classes are held in the evenings.

The industrial manual training department has just added five new benches to its equipment.

H. W. HEWITT,

Secretary M. T. T. A., of N. S.

This is a spelling device that I have found helpful in my second and third grades. The pupils have spelling blanks that cost three cents each, and every afternoon they write their spelling lessons. I procured a twelve yard roll of gummed picture binding, (red), for ten cents, from which I cut little stars. Each pupil having a perfect lesson is given a star to put on the page with the perfectly spelled words. The children study their spelling lessons very industriously and each one tries to get the greatest number of stars.—*Sel.*

The Use of Trees.

If there were no trees, our earth would be like a desert.

Our trees give us warm fires, for they furnish us with wood and coal.

If there were no trees, there would be no birds to sing to us.

The trees make the air pure, and without them the air would become unfit to breathe. We cannot live without pure air.

After a rain the leaves and roots of the trees hold the water for a long time; this keeps the earth moist, so that the springs are full, the streams are not dry, and the plants grow.

The roots of the trees travel about far beneath the surface, and absorb the richness that lies far underground. The roots send this richness up to the branches and leaves. Then when the leaves fall, this richness is now on the surface of the ground, making it richer.

Trees not only make the soil richer, but they help the farmer, and his crops are better for them, for birds make their homes among the trees that border on his fields. These birds will feed upon the insects that would injure his crops.

SCHOOL AND COLLEGE.

The Nova Scotia Normal School has a large enrolment of students this year, only exceeded by three other years in its history. There are 190 students in attendance, 30 of whom are young men. The following is the classified list: 15 A's; 79 B's; 57 C's; 32 D's; and 7 in mechanic science.

A St. Andrews, N. B., correspondent encloses a very interesting programme which has been carried out there during the winter months under the auspices of the Canadian Literature Club. Besides dealing with Canadian authors and their works, an evening was devoted to songs and folklore, another to the Canadian judiciary, and two others to local history. Our correspondent adds: "This course of reading is to many of us a revelation in Canadian literature."

Mr. Chester B. Martin, a distinguished graduate of the University of New Brunswick, is the winner of a Rhodes' Scholarship, valued at \$1,500 a year for a three years' course of study at Oxford. Mr. Martin is the first Rhodes scholar to be chosen in America. He has an excellent reputation as an all-round student, and will do honor to his alma mater from which he graduated in 1902. A worthy competitor for the much coveted honor of the scholarship was Mr. R. St. John Freeze, of the Rothesay Collegiate School, who graduated from the University of New Brunswick last year, taking high honors. The St. John High School, which prepared Mr. Martin for the University, and the Sussex Grammar School, where Mr. Freeze was trained, have reason to be proud, as well as the University, of sending out two such students.

Mr. Martin was chosen without the preliminary of an examination, none being required of students graduating from the University of New Brunswick, Dalhousie, McGill, and Toronto, as these are in affiliation with Oxford.

When it is reflected that at least twenty-four students from Canada will be in attendance at Oxford all the time,

it will be seen what a great stimulus this will be to the higher education in this country.

Dr. G. R. Parkin, who has recently completed a tour of the British Empire and the United States in connection with the Rhodes Scholarships, is now on his way to Newfoundland.

The school board of St. John, N. B., has granted an increase of salary to the female teachers of that city as a result of the memorial recently presented. The increase will be about \$25 per annum, half what was asked for, but the feeling of the members of the board is favorable to a further increase as soon as circumstances will permit.

The Teachers' Institute of Pictou and South Colchester, N. S., met at New Glasgow the last three days of March. The attendance was large, nearly 150 teachers being present. Inspector E. L. Armstrong presided. A feature of the meeting was the presence of the instructors of the Macdonald rural schools for the three provinces—J. Brittain of New Brunswick, Percy J. Shaw of Nova Scotia, and Theodore Ross of P. E. Island—all of whom took part in the proceedings. Mr. Brittain gave two illustrative lessons before the institute on the teaching of mineralogy and chemistry. Superintendent A. H. MacKay, Principal Soloan of the normal school, ex-principal Calkin, Mrs. S. B. Patterson, Principal W. R. Campbell, and other leading educationists were present, gave addresses, and took part in the institute. The following were appointed on the executive committee: Principal MacLellan, Pictou; Principal Campbell, Truro; Principal S. E. MacLeod, New Glasgow; Principal J. W. MacLeod, Stellarton; Mr. J. E. Barteaux, Truro; and Principal J. N. Finlayson, Westville.

RECENT BOOKS.

HIGH SCHOOL GEOGRAPHY. By G. A. Chase, B. A., Jarvis Street Collegiate Institute, Toronto. Cloth. Pages 470. With many illustrations and maps. Price \$1. Canada Publishing Company, Toronto.

This is a text-book on Geography, on whose merits one may speak with confidence. It is more than a text-book. For the thoughtful student it is a fascinating story of our earth and the many and varied changes it has passed through. It illustrates the development and adaptation of the life upon its surface and in the ocean, and it incites to the study of nature and the sciences. It raises the study of geography to the importance that the subject demands. While the book treats largely on physical geography the economic aspect is not lost sight of, and there is also a chapter giving a well rounded sketch of astronomy. An excellent feature is the attention given to the physical geography of Canada. The mountains of British Columbia, the prairies of the Northwest, the Great Lakes, the basins of the St. Lawrence, St. John, and other rivers, the shores of the Bay of Fundy, and many of the notable physical features for which Canada is justly famed, are made to yield many examples which are presented to our students for the first time through the medium of a geographical text-book. The illustrations of so many Canadian scenes, which are liberally scattered through the book, cannot fail to awaken a greater interest in their country

in Canadian students. The book marks a revolution in our study of geography.

PLANE TRIGONOMETRY. By James M. Taylor, Professor of Mathematics in Colgate University. 12mo. Cloth. 171 pages. Ginn & Co., Boston.

A clear, practical, and thoroughly scientific text-book, designed to meet the needs of beginners who wish to master the fundamental principles of trigonometry.

LE ROMAN D'UN JEUNE HOMME PAUVRE, par Octave Feuillet. Edited with introduction, notes and vocabulary, by James D. Bruner, Ph. D., Professor in the University of North Carolina. Cloth. Pages 283. D. C. Heath & Co., Boston.

This well known story is an excellent example of the romanescque novel, or fairy story, with its scene laid in those old Breton forests, the home of so many romances of chivalry.

A SCHOOL GEOMETRY. By H. S. Hall, M. A., and F. H. Stevens, M. A. Cloth. Parts I-IV, price 3s; Parts III-IV, 1s. 6d; Parts IV-V 2s. MacMillan & Co., London.

This series contains the substance of the first six books of Euclid and is based on the recommendations of the Mathematical Association and the requirements adopted for entrance to Cambridge University. The examples, many of which involve graphical or numerical work, are for the most part easy and are distributed throughout the text in immediate connection with the propositions on which they depend.

We have received from Rev. S. Claude Tickell, 87 Avondale Square, Old Kent Road, London, S. E., copies of two suggestive little pamphlets on (1) Corporal, Facial and Vocal Expression, and (2) Emphasized Speeches from Shakespeare. The contents are suggestive to readers and speakers.

PUBLIC SCHOOL PHONIC PRIMERS, Nos. I and II. Price 10 cents and 15 cents. The Canada Publishing Company, Toronto.

These two primers provide a carefully graded series of reading exercises, with many illustrations in color and half-tone. Abundant practice in word-building is afforded with exercises in reading, spelling, writing, and composition, carefully graded. These primers cannot fail to be attractive to children, arouse their interest and create a love for reading.

Goldsmith's THE GOOD-NATURED MAN, and SHE STOOPS TO CONQUER; *Ben Jonson's* EASTWARD HOE, and THE AL-CHEMIST. D. C. Heath & Company. Boston.

Under the general title of *The Belles Lettres Series* the publishers announce their intention to issue between two hundred and three hundred volumes, covering nearly the whole of English literature from the early Saxon to the beginning of the twentieth century. They have secured for editors eminent scholars in this country and abroad. The four plays named above are issued in two volumes in Section Three of the Series, which is devoted to dramatic literature. The books are very convenient in size, unique in binding, attractively printed, and with a copy of the original title-page of each play.

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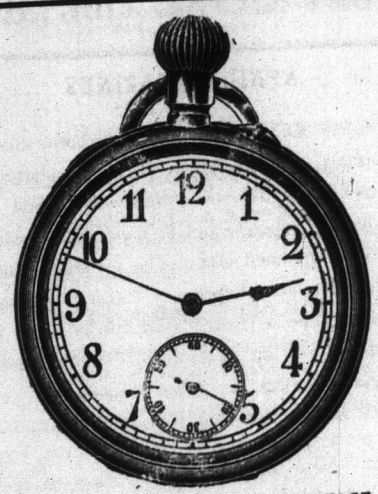
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THE BOOK OF MERLIN, and THE BOOK OF SIR BALIN. From Malory's King Arthur. Edited by Clarence Griffin Child. Paper. Price 15 cents. *The Riverside Literature Series.* Houghton, Mifflin & Co., Boston.

We have with these stories an introductory sketch by the editor, Caxton's preface to the first edition of the Morte D'Arthur printed in 1485, and a glossary.

STANDARD SECOND READER. Edited by Isaac K. Funk, LL.D., and Montrose J. Moses, B. S. Illustrated. Cloth. Pages 208. Funk & Wagnalls Company, New York. Wm. Briggs, Toronto.

The authors claim that the natural method for a child to learn words is by trying to understand what is said in his hearing and by trying to tell something. In this reader the child is taught to know by sight objects in nature, and is introduced to many of the master writers through simple lessons. The fable and the story are much used. Drill in the sounds of letters and the correct pronunciation of words are regarded as essentials from the first. All lessons are carefully graded. The pictures, many of them in colors, are delightful. Every page is pleasing to the eye. Accompanying the reader is a pocket manual for the teacher, full of suggestive material for teaching the lessons.



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APRIL MAGAZINES.

In the April *Atlantic* we have an unfinished paper by Walt Whitman, An American Primer, characteristic in treating the origins of names and words, and demanding that they shall be apposite and historic, and vernacular above all. Herrick's continued story, The Common Lot, increases in power and in complication. Essays, literary papers, reviews, poems, and a lively Contributors' Club make up a varied and interesting number. . . . The *Canadian Magazine* is especially rich in color illustrations suitable to Easter. The stories are well written and interesting. Dr. William Saunders, Director of the Dominion Experimental Farm, in an article on Wheat Growing in Canada, shows that the Northwest may easily produce 800,000,000 bushels of wheat per annum, or four times the annual requirements of Great Britain. A paper on Soil Utilization, by E. Stewart, shows that Canada can best employ her waste lands by turning them into forests. . . . The April *Delineator* is an

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uncommonly interesting magazine, from the standpoint of both fashion and literary features. Almost as good as a trip around the world, educationally, promises to be the pictorial series, Around the World in Eighty Pictures, the first instalment of which appears in this number. Nordica in Holiday Time is the subject of an enjoyable paper by William Armstrong. Land-n Knight's Romance of a Pair of Bluebirds is a story that will appeal strongly to lovers of Nature, and to all women. Dr. Grace Peckham Murray's article on the care of the ears and nose will be of deepest interest. In Beauty for Ashes Allan Sutherland tells of an interesting experiment that has been tried in several large cities of changing unbeautiful vacant lots into garden spots. . . . Conspicuous among the timely articles which *The Living Age* is furnishing its readers is The War and the Powers, by that shrewd observer who writes for *The Fortnightly Review* over the signature of "Calchas," which appears in the number for April 2. Equally notable, in the number for April 9, are The Slav and his Future, by the distinguished scholar, Emil Reich, and The War in the Far East, by Prince Kropotkin.

IMPORTANT ANNOUNCEMENT

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George N. Morang & Company, Limited, beg to announce to the Teachers of the Maritime Provinces that they have on the press a HISTORY OF THE MARITIME PROVINCES, FOR PUBLIC SCHOOLS, by Mr. James Hannay, of Fredericton.

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PROGRAMME

Tuesday, June 28.

- 10.30 a.m.—Meeting of Executive Committee.
2.30 p.m.—Enrolment.
Report of Executive Committee.
Election of Secretaries and Nominating Committee.
Addresses from the Chief Superintendent, the Chancellor of the University, and others.
8.00 p.m.—Public Meeting.
Address from the Mayor of St. John, responded to by a member of the Board of Education.
Address by DR. WINSHIP, of Boston, on "Twentieth Century Standards."

Wednesday, June 29.

- 9.30 a.m.—Short Addresses on New Departures in Education:
Manual Training, by Mr. E. E. MACCREADY.
School Gardens and Nature Study, Mr. JOHN BRITAIN.

- 9.30 a.m.—Consolidated Schools, by D. W. HAMILTON M.A.
Domestic Science, by a specialist in that subject.
2.30 p.m.—Election of Executive Committee.
Address by Dr. WINSHIP on "The New Geography and the New English."
An open discussion on preceding topics.
8.00 p.m.—Social Meeting.

Thursday, June 30.

- 9.30 a.m.—"The Function of the Normal School in a System of State Education," by Dr. Cox.
"Drawing," by H. H. HAGERMAN, M.A.
Papers, by specialists, on Literature and Music or Art.
2.30 p.m.—"Acadian Schools," by JUDGE LANDRY.
Election of Representative to Senate of U. N. B.
General and Unfinished Business.

The usual arrangements for reduced fares will be made with Railway and Steamboat lines. Teachers should ask for a Standard Certificate from the Ticket Agent at Railway Stations. Those who wish for information as to boarding places may write to Miss KATHARINE R. BARTLETT, 115 Carthagen Street, St. John, N. B. I am instructed by the Chief Superintendent to state that Teachers residing at such a distance from St. John as to render it necessary to leave on Monday, the 27th, in order to be present at the opening of the Institute, may close their schools for the Term on Friday, the 24th of June. Any other teachers attending the Institute may hold the closing exercises of the Term on Saturday, the 25th of June, instead of Monday, the 27th. The closing teaching day of the Term for all teachers who do not attend the Institute will be Thursday, June 30th.
JOHN BRITAIN, Secretary.

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