

# THE EDUCATIONAL REVIEW.

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WHOLE NUMBER, 215.

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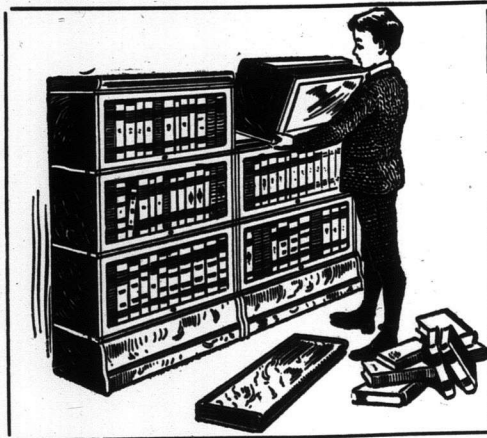
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**ARBOR DAY AND BIRD DAY NUMBER.**

# The Educational Review.

Devoted to Advanced Methods of Education and General Culture.

PUBLISHED MONTHLY.

ST. JOHN, N. B., APRIL, 1905.

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G. U. HAY,  
Editor for New Brunswick.

A. MCKAY,  
Editor for Nova Scotia.

## THE EDUCATIONAL REVIEW.

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### Always Read this Notice.

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### Easter.

"Easter Day breaks!  
Christ rises! Mercy every way  
Is infinite!"  
—Robert Browning.

"Christmas is the children's festival; for it is the festival of untroubled hearts, and eyes that have no tears behind them. For the weary hearts and the full eyes, the true feast is Easter. The one is a hope; the other is a victory.

There are no clouds o'er the blue sky in the first; the storm is over and the sun is out again in the second. 'We believe in the resurrection of the dead and the life of the world to come.'"  
—E. S. Holt.

WE hope to send out the Empire Day number of the REVIEW about the fifth of May, in time for teachers to use. Contributions intended for that number should reach the office by the 25th inst.

LONGFELLOW'S poem, "Evangeline," will soon cease to be one of the subjects of the literature course in British Columbia schools. In Nova Scotia, where as might naturally be expected it has been popular as the scene where the story is laid, another subject will take its place. One reason alleged for the change is that it is stale with teachers from long usage; another, and a more weighty reason, is that many children will have the impression that it is history as well as poetry, even though the mature judgment and accurate knowledge of historical details possessed by the teacher may go far to counteract that impression.

THE Ontario Educational Association and the Provincial Teachers' Institute of British Columbia meet during the Easter vacation, the former at Toronto and the latter at Revelstoke, B. C.

The forty-fourth annual meeting of the National Educational Association of the United States takes place at Ashbury Park, New Jersey, July 3-7, and the American Institute of Instruction meets at Portland, Maine, July 10-13.

RARELY has one seen a more beautiful art calendar than that issued by the Osborne Company of New York. It represents Boileau's picture of "The Debutantes," two graceful girls simply attired with a garland of chrysanthemums in their hands, with faces turned to receive their guests, and standing close together as if for mutual support on their first entrance into the social world.

THE *High School Echo*, of the Fredericton high school, is publishing an interesting series of articles on the history of that school.

### How to Enjoy Arbor Day.

A young teacher who is much interested in the observance of Arbor Day asks if she ought to plant trees on that day. She says that the teacher where she went to school did so, but that many of the trees died and none lived to become beautiful shapely trees. She says further that Arbor Day has not resulted, as far as she can see, in making more beautiful school grounds, and doubts the wisdom of trying to do successfully what more experienced teachers have failed to do.

The REVIEW can only answer as it has done before, that if schools have no grounds suitable for tree-planting, it were better not to make the attempt and thus add another failure to the long list. Even if the ground is suitable for the purpose, the teacher should have some knowledge of trees, the fitness of soils for certain kinds, and how to dig up and transplant with some reasonable assurance that the tree will live and become "a thing of beauty." Some capable gardener or farmer in the neighborhood will be able to give practical advice and assistance on these points, and will no doubt be glad to do it. With such assistance and with a little intelligent enthusiasm among teachers and scholars tree-planting, on a small scale at first, should be successful.

"How then shall I observe Arbor Day?" asks the teacher.

The schoolhouse should be cleaned beforehand for the occasion, all unsightly piles and debris that have accumulated during the winter should be removed. Decorate the schoolroom neatly with pictures; the blackboard with mottoes. Potted plants and bouquets of flowers should be procured if possible and arranged on the desks and window sills.

If trees are to be planted and flower beds or a school garden laid out, this should be done in the morning, followed by lessons on plant and bird life especially. In the lower grades stories about animals may be told or read, and the simplest elements of plant and bird life be taught or reviewed. In all the grades, the duty of kindness to animals should be inculcated. The uses of birds to the farmer and the pleasure they give us may be dwelt upon.

The wholesale picking and tearing up by the roots of some of our rare wild flowers, especially in the neighborhood of cities and towns should be discouraged. The mayflower is becoming rare in many parts of Nova Scotia and New Brunswick by

the practice of tearing up bodily the runners and then stripping the flowers off for sale. The plant is a slow grower and very difficult to cultivate. Unless people restrain themselves from destroying the runners, this beautiful flower may become a thing of the past with us, as it has already in many portions of New England. Children may be taught that it is right for them to let certain wild flowers grow in the neighborhood of towns in order to give other people pleasure by their beauty and fragrance, which is only possible while the plants are alive and growing. Here is an opportunity to teach self-restraint and self-sacrifice, which find little place in the curriculum of our primary schools.

No harm can come of picking violets or bluets; while to gather posies of buttercups, the ox-eye daisy, the "black-eyed Susan," and others which are not native flowers may be a positive advantage as well as pleasure, as tending to destroy or check the spread of weeds.

If the day is fine and the weather dry the visitors, parents and children would enjoy a picnic in the afternoon, after an hour or two spent in school exercises. If the weather is not favorable, the whole of the afternoon may be spent very pleasantly in the schoolroom carrying out a literary and musical programme. This number of the REVIEW and Arbor Day numbers of previous years will help to furnish material.

Scripture Readings: Genesis I. 11, 12, 29; II. 8, 9. Deut. viii. 7, 8, 9; xx. 19. Psalms I. 1, 2, 3; xxxvii. 35, 36; civ. 16, 17. Matthew vii. 17-20.

Choruses and solos.

Recitations and readings.

Essays and the recitation of memory gems.

A voting contest on "My favorite tree."

A voting contest on "My favorite flower."

A flower-drill.

Address by a clergyman or other visitor on "How to Beautify our Homes and Schoolhouses."

God save the King.

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In thirty years the proportion of male teachers in Scotland has declined from seventy to thirty-six per cent of the total number.

---

Please continue to send the REVIEW. I find it very useful, and I think it is a most desirable paper for teachers, especially those in country schools.—  
A. R. M.



**Death of Mr. J. W. Marriott.**

The death of Mr. J. W. Marriott, of Hamilton, Bermuda, a distinguished and highly respected teacher, took place on the 31st of January last, at the ripe age of 78 years. The greater portion of his educational life was spent in Newfoundland, where he was regarded as one of the foremost teachers. His first work there was as inspector and organizer of the schools of the Colonial and Continental Church Society. In this he was very successful, and to his efforts is largely due the present system of training teachers for the public elementary schools of the colony. Mr. Marriott was one of the first, nearly eighteen years ago, to extend a cordial recognition to the REVIEW, and he remained its constant friend up to the time of his death.

The Bermuda *Royal Gazette* of January 3rd has a warm tribute of appreciation for Mr. Marriott as a gentleman and teacher. It adds:

In the elucidation of principles underlying the methods of instruction Mr. Marriott was particularly apt. The simplicity with which he handled even abstruse subjects, and made them intelligible to a class, rendered learning a pleasure to those who came under his training, causing him to be named by a former pupil who has reached the highest round of the educational ladder, the "Pestalozzi of Newfoundland."

**The Prayer of Primary Teachers.**

"Father in heaven, it is by the vision of thy relation to us that we can apprehend our relations to these little ones. As we have accepted that high trust, so make us loyal to it. When our feet grow weary and our faith grows dim, help us to follow close after the ever-perfect one who taught us as even we are trying to teach. He it was who took the little ones in His arms and blessed them, who set the child in the midst, saying, 'except ye become one of these.' May the afterglow of that inspired teaching ever shine upon the path we are treading. May we bathe our tired spirits in its warmth and glory, and kindle our torches at the splendor of its light.

Grant that by patience, gentleness, insight, we may atone somewhat for our lack of wisdom and skill. We read among thy mysteries that the divine child was born of a virgin. May He be born again and again daily in our hearts, already touched by that remembrance and consecrated by its meaning. And this we ask for love's sake.—Amen."—*Kate Douglas Wiggin.*

**A Tempting Programme.**

Every school, no matter what disadvantages the teacher may be contending with, can carry out and improve upon the following suggestions. Begin at once. It will give your students something pleasant and profitable to do at a season when the regular tasks are looked upon as dull. It will brighten the lessons and the lives of the pupils. It will give them a love for nature and their surroundings. It will give them something useful to do,—some little department of nature in which they can work and lay a foundation for future study and pleasure.

Get a thermometer; one may be purchased at from 25 to 50 cents. Hang it securely in a shaded place outside the school. Let the pupils take observations and record them at 9, 12 and 3 o'clock every day. (One pupil may be trusted with this work on Saturdays and Sundays).

Record the birds seen with the names of those that the pupils are sure of. This number may be very small indeed at first, but it will increase as the pupils' interest and knowledge increase. Have frequent talks about birds, their habits, descriptions of them, their notes, how and where they spend the winter, how they spend the spring with us, the uses of birds to the farmer, the need of treating them kindly, etc. If the children are permitted to tell in class what they have noticed, they will keep a keen eye on everything around them for interesting points.

Note the first opening of early spring flowers; when the catkins of the alder, willow, poplar, birch, begin to shed pollen; the trees that are first to open out their leaves; the next; the last to do so. Keep an eye on the maples and notice their peculiar flowers; the flowers of the elm; the pines; the spruces. Notice the bright conspicuous blossoms of the bilberry, the cherry, and the thorn. Record later in the season when the first mature fruit appears in place of some of these flowers, such as the first ripe strawberry, the winged fruit of the red maple, the new pine cones, etc.

Keep a record of the clear, cloudy and rainy days; the windy days; the late frosts, if any; the disappearance of the snow; the breaking up of the ice in the streams, river or lakes near by; when the farmers began ploughing; when they began to sow seeds, and what kinds.

Let the pupils keep a daily record of observations in a form like the following, or make one suited to the needs of the district.

Date, 1905.	April 15.	April 16.
Weather.....	Clear, warm	Cldy., with showers
Temperature....	50°, 58°, 54°	46°, 49°, 48°
Wind.....	Light, S. W.	Brisk, N. E.
Birds seen .....	Song Sparrow—common	Fox Sparrow—a few
Plants in bloom..	Red Maple—c.	Mayflower—a few

Abbreviations may be used with the above, especially as to the occurrence of birds and flowers, such as *c* for common, *f* for few, etc.. The observations should be varied so that all pupils will have an opportunity of sharing in them and recording. Persist during spring, summer and winter. Next year will find the teacher with many eager and interested observers if the work is begun properly and with some enthusiasm this spring.

### The Schools of New Brunswick.

The annual report of the Schools of New Brunswick for the year ending June 30, 1904, has been received. It contains the report of the chief superintendent, Dr. Inch, statistical tables, reports of the principal of the normal school, inspectors and trustees, of the chancellor of the university, of the director of manual training, supervisor of school gardens, of the various educational institutes held in the province, with some of the more important papers read at the Provincial Institute in June last. There are illustrations of the Macdonald school building at Kingston and the pleasant interior of three of its rooms, representing the pupils at work. There is also a picture of the fine superior school building at Sackville.

It is a matter of regret that the condition of the rural schools is not more promising. There has been a decrease in the number of schools in operation, in the teachers employed, in the total number of pupils enrolled, and in the average attendance. The report states that "about 400 districts were without schools of any kind during one or the other or both terms of the year under review; 370 teachers were employed, where half the number would have done better work if the children could have been congregated in half the number of schools; and that in many of the districts where the worst conditions exist both trustees and ratepayers seem utterly indifferent, and in some cases oppose and obstruct every effort made to give their children better opportunities."

It is in the country schools that the masses of the population are educated, and if these schools show

a decline the prospect is discouraging. The report for centres of population is more encouraging, showing some increase in the enrolment of pupils.

The average enrolment for each teacher in graded schools was 43, and the average attendance 75 per cent of the enrolment; in the ungraded schools the figures corresponding to the above are 28 and 60. There were 69 schools with an average attendance of less than twelve, the lowest average being less than three.

Averaging for both terms of the year there was a proportion of one in 5.76 of the population at school. The total expenditure for the year was \$631,817.48, an average of \$9.60 for every pupil enrolled.

Dr. Inch recommends the same practical and reasonable suggestions for the improvement of schools that he has proposed in recent years: Consolidation of districts wherever practicable and the conveyance of children residing at a distance to a central school; parish assessment and parish school boards instead of district assessment and district school boards; and a compulsory attendance law.

### The Schools of Nova Scotia.

In his report of the public schools of Nova Scotia for the year ending July 31, 1904, Superintendent Dr. A. H. MacKay gives considerable attention to the newer subjects of instruction, such as manual training and school gardens. The outline of work done in the latter, with photographic illustrations, makes a very interesting report of itself, giving a history of school gardens, the plans adopted in each section of Nova Scotia, where they have been established, and the work that is being accomplished.

The report on the Middleton Consolidated school, the finest of its kind in the world, it has been stated on good authority, shows what has been done by the generosity of Sir William Macdonald in creating this model school. It is hoped that other portions of the province will profit by such an example. In Cape Breton a consolidated school is being established, the people voting their own money for its support.

In the Middleton school one notices that while the "salaries" of van drivers for the first year was \$5,462.40, the teachers received but little more than half this sum—\$2,796.28, a kind of distribution that may be viewed with some concern. It is stated, however, that the second year will witness a decrease in the cost of driving the vans, and an in-



crease paid to teachers through an increase in the teaching staff.

Dr. MacKay reports 240 sections without schools, an increase of 61 over the previous year. A considerable proportion of them, however, occur in more or less depopulated settlements. Salaries improved during the year, in many sections, but the scarcity of teachers continues owing to removal to the West or in the acceptance of more remunerative employments.

The total amount spent for education during the year was \$985,031. The number of pupils enrolled was 96,886 and the average daily attendance 55.7. The annual cost for each pupil enrolled was \$10.16.

The superintendent says: "The year shows a decided advance in nearly every respect except attendance. . . . New school buildings of improved design and equipment are going up in every quarter of the province; manual training instruction, school gardens and school libraries are advancing. . . . Fresh interest is being stimulated in thorough drill in the fundamental elements of a popular education."

#### Which Was Right.

There lived in Germany a little girl named Else. She had many brothers, and with one of them she used to play from morning to night.

There was one field of grain in which the children took a great interest. They watched its growth carefully, but, in spite of them, the sparrows would eat the seed.

"I am going to stay here all day in the field to frighten away the birds," said Else.

"I can do better," said William; "I shall make a scarecrow, and then we shall keep the birds away with no trouble to ourselves."

"My way is best," Else said. "My way is best," said her brother, stubbornly.

Else got a rattle and settled herself in the shade of some trees on the edge of the field. She rattled vigorously for a long time, and no bird dared come near. Then the warm air made her drowsy, and before she knew it she was fast asleep. What a fine feast the sparrows had then, to be sure!

William laughed at Else's efforts, and made his scarecrow. It was a terrible-looking creature.

"I'd like to see any bird dare come near that," he said, proudly. "Now we may play in peace."

Other things filled the children's minds, and it was a week before they went again to the field. There stood the fierce old scarecrow keeping guard, and—what do you think? A sparrow had built its nest in his coat pocket.—*Helen W. Banks, in The Outlook.*

#### April in Canadian History.

Just three hundred years ago Champlain and his band of explorers, weakened by disease and the rigours of a Canadian winter, were welcoming the return of spring to their dreary habitation on the Isle of St. Croix. Out of seventy-nine men, composing the first band of Europeans who wintered in New Brunswick, thirty-five had died and nearly half of the remainder were at the point of death. Champlain states that "the snows began on the 6th October," and that at the end of April the depth of snow was three or four feet, "lasting much longer, I suppose, than it would if the country were cultivated." This opinion seems to have been well founded when we compare his statements of the April of 1605 with our experience so far of that of 1905.

It was on April 20, 1534, that Cartier set sail from St. Malo, France, on his first voyage to Canada.

In April, 1616, Champlain returned to Quebec from the country of the Hurons after a winter spent among that tribe studying their language, and after having undertaken an unsuccessful campaign against their enemies, the Iroquois.

On Easter Sunday, April 17, 1645, Fort La Tour in St. John harbor was captured by Chevalier d'Aunay and the unfortunate Lady La Tour made prisoner.

April, 1760, witnessed the capitulation of Montreal to the English and the completion of the conquest of Canada.

On the 29th of April, 1792, Capt. George Vancouver, commanding H. M. S. "Discovery," entered the straits of Juan de Fuca. George III was then on the throne of England.

York (Toronto) was captured by the United States troops, April, 1813.

April 25, 1849, riots occurred in Montreal over the passage of the Rebellion Losses bill, and the parliamentary library was burned.

In April, 1858, gold was discovered in British Columbia and immigrants began to pour into that country.

Hon. T. d'Arcy McGee was assassinated at Ottawa, April 7, 1868.

In April, 1881, the Royal Society of Canada was founded.

During the Rebellion in the Northwest in 1885, the massacre of Frog Lake took place April 2nd; on the 14th April Fort Pitt was abandoned, and on

the 24th the Canadian troops under Gen. Middleton received a severe check at Fish Creek, near Batoche.

April 4, 1887, Colonial Conference opened in London.

April 29, 1891, first of the C. P. R. steamers arrived at Vancouver from Yokohama.

April 17, 1892, death of Hon. Alexander Mackenzie.

April 26, 1900, great fire in Ottawa and Hull.

April 9, 1903, death of Sir Oliver Mowat, Governor of Ontario.

The first turbine passenger steamer to cross the Atlantic, the "Victorian," 12,000 tons, of the Allan Canadian Line, reached Halifax April 1, 1905. She carried 1,464 passengers, who were kept informed of the world's news during the voyage by means of Marconi wireless telegraphic messages.

[The first steamship to cross the Atlantic was the "Royal William," also Canadian, which made the passage from Pictou, N. S., to London in 1833.]

### Our Native Trees.—No. II.

By G. U. HAY.

In the last number the uses and the beauty of trees and how to tell their age were mentioned. Let us here try to tell the life-story of the tree and how it grows.

Every plant has a life history of its own. If we try to read this from the plant itself we shall find that the story is in many respects wonderfully like that of a human life. Plants are born into the world from parents; they are fed in infancy from a store of food laid up for them by the parent plant; they have to struggle to maintain themselves against hunger, cold, disease and the attacks of enemies; and they die—the common lot of everything living. We may plant the seeds of a bean, pea, or sunflower and learn the whole story in one season of a few months. If we plant the seeds of a parsnip, carrot or evening primrose, the story will appear in two chapters, broken by a long winter. If we plant the seeds of an oak, elm or maple, it may take very many years to complete this life story.

#### THE STORY OF A RED MAPLE.

Suppose we try to read the life-story of a Red Maple, Canada's emblem. Its bright red flowers, appearing in early spring, and its leaves crimsoning the forests in autumn must be known to every-

In June hundreds of its two-winged fruits\* may be seen on a full grown tree. These soon drop to the ground, or a strong wind may carry them some distance from the mother plant, to drop them in the forest; or on the grassfields, where a tough mat of leaves and roots prevents their sinking into the soil; or on ploughed fields, where if they grow they will be torn up as weeds by the farmer. Many may become the food of birds. Only a few out of many thousands reach a spot favorable for growth. The wings wither away. The rains beat the little fruits containing the seeds into the yielding earth and the seed coverings gradually soften and break away. The germ, or little plant within the seed, under the influence of moisture and sunshine, uncurls itself. It is a wee thing, consisting of a tiny stem and two crumpled leaves, in which is a very small store of precious food, for the mother-plant had to be saving in fitting out thousands of her young brood. From one end of the stem a little root is pushed forth and finds its way into the ground,—a tiny anchor for the new-born plant. The crumpled food-leaves straighten out as they quickly push up into the air and sunshine, and a small green point, the bud, appears between them, shooting upward and sending out the first green maple leaves. The plant has now root, stem and leaves, all the parts needed for its growth and to enable it to make its own living. If the young shoot is not crowded out by other plants, if its young and tender leaves are not eaten off by browsing animals, and if it lives in spite of accidents and the frosts of winter, it may grow to be a strong and beautiful tree. But how many "ifs" enter into the young life of a tree!

Boys and girls should plant maple trees in boxes and study their growth. If the plants are cared for and watered during the summer holidays, they will be tiny maple trees several inches high by September.

#### HOW TREES GET THEIR FOOD.

Let us go out and look at a Red Maple tree. Its trunk, forming a support for the branches and leaves, is held securely in its place by strong roots which run in every direction and take a firm hold of the soil beneath the surface. Branching from these are rootlets and root-hairs which suck in the water. All through the roots, stem and branches are little passages through which the water, con-

\* The popular idea of a fruit is that it is something good to eat, but in plants the term is applied to the seed-vessel and whatever may be joined with it to assist in protecting or scattering the seeds.



taining mineral matter and gases dissolved in it, is carried up to the leaves. Some of this water is kept for use in the tree. The larger part of it, however, merely acts as a "carrier," taking up mineral matter in solution, depositing it in the leaves and then passing out into the air as vapor through little mouths. These little mouths (stomata), so small that our eyes could not see them were they many times sharper, are constantly breathing in from the air oxygen and another invisible gas called carbon dioxide. The sunlight and the little particles of leaf-green (chlorophyll) in the leaf acting upon the gases, the water and mineral substances form, by a wonderful chemical change, the plant food starch. This, *changed for the time into sugar*, in order to be dissolved in the ever useful water, is carried down, just inside the bark, to branches, stem and root to build up the growing parts of the plant or to be stored up for future use.

Do we realize that the leaves of our Red Maple are doing work? That all the world's food supply is being made in those busy waving grasses and other leaves that seem only to be idly swaying to and fro in the summer wind?

In a future number the different kinds of maple trees and their uses will be described. We have five native species of maple in Eastern Canada. In two of these the flowers come out *before* the leaves; in one the flowers and leaves come out together; in the two others the flowers come out *after* the leaves. These maples differ in their shape, their bark, flowers, fruit and leaves. Will school children plant their seeds this season, and then learn to know the maple trees near their homes by the flowers, fruit and leaves? Will the teachers help them?

Out of the 100,000 and more school children in the Maritime Provinces, probably not one hundred know the different maple trees. We should try to make children acquainted with what is about their homes; and what is more interesting than the trees?

The total enrolment of the public schools of the United States exceeds 15,000,000; attendance nearly 11,000,000. There are 95 manual training schools with more than 33,000 students. The total number of teachers approaches half a million, of whom 70 per cent are women. The average monthly pay for a man is \$50, for a woman \$40.

### Drawing for the Lower Grades. V.

PRINCIPAL F. G. MATTHEWS, TRURO, N. S.

The figures in the last article were, on account of space, reproduced smaller than the originals. It should be understood, however, that the larger the children can make the drawings, the better will be the results, both as regards the drawing, and more especially the effect on the pupil. A length of from four to five inches is a good size to start with, and this may be increased as the children become more proficient. The suggestions offered will be found to give sufficient material to cover quite a number of lessons. Meanwhile the ruler drawings may be continued on the following lines: If set squares are obtainable, it will be well to introduce them at this stage. Two kinds should be used, one with angles of 90, 60 and 30 degrees, the other with angles of 90, 45 and 45 degrees. The first exercise is to make use of the set squares to draw parallel lines. Fig. 14 shows the method. The ruler is held with

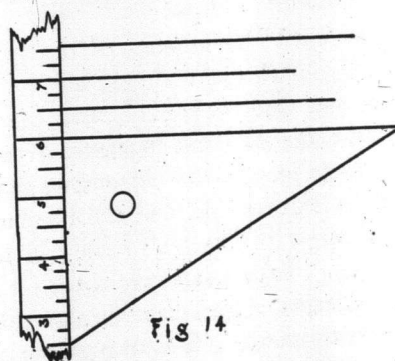


Fig 14

the thumb and the third and fourth fingers, leaving the first and second fingers free to manipulate the set square. Care must be taken that the square sits firmly on the ruler. At first the children will find it easier to move the set square with the right hand, but after a little practice, they should be encouraged to use one hand only, except in cases where the square has to be moved some distance. Plenty of practice can be given in this kind of work in constructing designs based on straight and parallel lines.

Angles and degrees will form the subject of the next lesson. This is about the most difficult lesson yet, and requires some careful handling. A good introduction is as follows: Describe a large circle on the blackboard, and draw two diameters at right angles to one another. Fit the square corner of the set square into each of the four angles, and show that each is a right angle. Now explain that as we use long measure to determine length, a vor-

dupois for weight, and other measures for time area, contents, etc., so we use a measure to determine the size of an angle. First demonstrate by means of a set square, and a number of similar angles formed by lines of various lengths that the space between the lines, which we wish to measure, does not depend on the length of the lines. Then divide one of the right angles into nine equal parts, and one of these sub-divisions into ten equal parts, pointing out that the width of one of these very sharp angles is called a degree. (Fig. 15A).

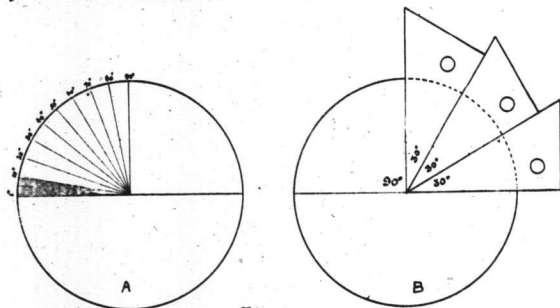


Fig. 15.

By questions elicit the number of degrees in half a right angle, one-third of a right angle, two right angles, and the whole circle. Now take the set squares ( $30^\circ$ ) and fit them together in one of the right angles. (Fig. 15B). This shows the method of trisecting a right angle, and the number of degrees in the angle of the set square can be found by the children. Take away two of the set squares, and place the larger angle of one in their place. It will be found to exactly fit, giving us the angle of  $60^\circ$ . Demonstrate similarly with the  $45^\circ$  square, showing the method of bisecting a right angle.

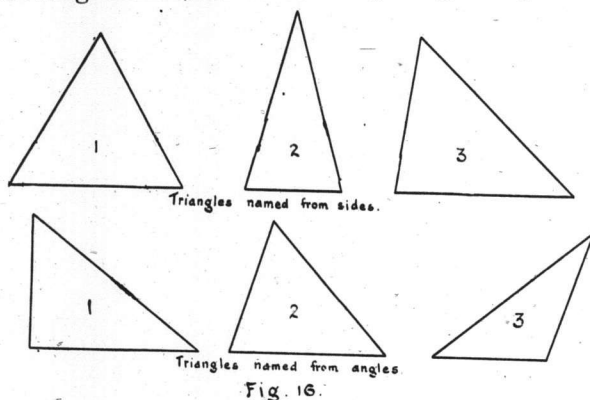


Fig. 16.

Following this a lesson on triangles may be given. Draw the various kinds on the blackboard and give their names. Show that they are named according to their sides and according to their angles. (Fig. 16). Those named from their sides are:

- (1) Equilateral—having three equal sides.
  - (2) Isosceles—having two equal sides.
  - (3) Scalene—having three unequal sides.
- And those named from their angles are:
- (1) Right angled triangle—containing one right angle.
  - (2) Acute angled triangle—containing three acute angles.
  - (3) Obtuse angled triangle—containing one obtuse angle.

The children should be taught to recognize these in any position. By means of the  $60^\circ$  set square show that the equilateral triangle is also equiangular, and with the ruler and  $45^\circ$  set square that the right angled triangle may be isosceles. From the above may be deduced the fact that the three angles of any triangle together contain  $180^\circ$ , or, as the children will learn to prove later, "are together equal to two right angles." In connection with the triangles the terms base and apex, or vertex, with their meanings should be given, and the fact pointed out, and demonstrated with set squares, that in the equilateral and isosceles triangles the apex is vertically over the centre of the base. From the foregoing the children will easily see the methods of drawing the various triangles. The only two that need be mentioned are the equilateral and isosceles. In the former the length of base being given, it only remains to place the  $60^\circ$  set square on the base and draw lines from either end

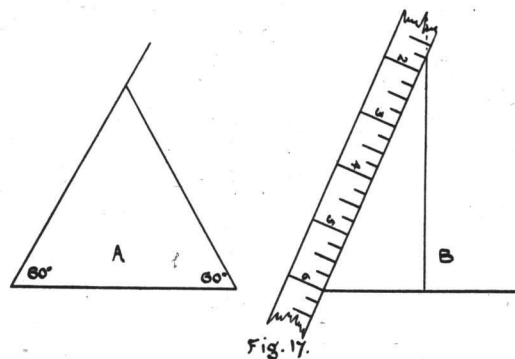


Fig. 17.

until they meet. (Fig. 17A). In the latter the base being given, it should be measured and the middle point found. At this point a perpendicular is erected. If the height is given, mark it off on the perpendicular and join to end of base. If the length of side is given, fit it between the end of the base and the perpendicular. (Fig. 17B). This latter method may be adopted with the equilateral triangle, if set squares are not available.



**Trailing Arbutus.**

[The following tribute to the Mayflower was written by the late R. C. Hubly, a member of the first contingent of volunteers who went from Canada to South Africa in 1899. Mr. Hubly was at that time a teacher at Hampton, N. B., and nobly responded to the call of duty. Exposure on the South African veldt brought on a disease to which he succumbed some months after his return from the seat of war. The lines, written several years ago, were given to the REVIEW for publication, but as the season was inappropriate, they have lain neglected, but not forgotten, until now.—EDITOR.]

Dear little, modest flower! promise of summer!  
Daughter of spring cradled in ice and snow!

The mayflower coming, as it does, when the last cold gasps of dying winter mingle with the warmer, fragrant breath of spring, is, perhaps, the most welcome of all flowers. How eagerly, for days before it appears, we search the copse, in the hope that some bud, more forward than its mates, may have burst into bloom! How when found we pounce upon it, as if it were a long lost gem! How we bear it home to preserve it long after perfume and beauty are fled!

The mayflower teaches many lessons to the pupil of Nature. First, perseverance. He who would find the flower may not glance carelessly over the field, but must stir the leaves ere he will see its sweet, modest, blushing face, for even in its boldest moments it will only peep from beneath its leaves; here we have a lesson in modesty. True worth shall be brought to the front, and nobility never seeks to push itself forward, but waits to be discovered.

Then, the humility of the flower! Entitled by its beauty to hold its head as high as does the rose, qualified by its perfume to rank with the lily; as deserving of recognition as any, it prefers to occupy a lowly position, as though to teach you and me that lowliness cannot debase; that where goodness is there is elevation.

The lover of the mayflower knows that among the half-withered and smaller leaves the blossom is to be found, while the larger thrifty plant presents often no flower as if the leaves sacrificed their very life in the birth of the blossom. On the other hand, those large, showy leaves come short of the honor due to their withered neighbors; they in their selfishness give no blossom to the world; do less towards making it more beautiful. So those who are most forward in this world generally disappoint us, and leave behind no monument of worth.

I have been teaching for fifteen years, and have always taken the REVIEW. Have found it a great help, and no teacher should be without it.—C. H. G.

**The Formula of Water.**

By JOHN WADDELL, Ph.D., School of Mining, Kingston, Ont.

A friend of mine was asked by a young man if he would tutor him in chemistry in preparation for an examination. "How much do you know about chemistry already?" said my friend. "Absolutely nothing," was the reply, "except that HO<sub>2</sub> is water." I will venture to say that nine out of ten (perhaps even ninety-nine out of a hundred) of the pupils studying chemistry in our high schools, and I might include the junior classes in our colleges, though they would laugh at the mistake of saying HO<sub>2</sub> instead of H<sub>2</sub>O, could give no satisfactory reason for preferring the latter formula to the former.

The majority of pupils on being asked could suggest no reason at all. They have been taught it so, and if they have thought of the matter at all, which is unlikely, they may have some kind of hazy idea that a great chemist by a brilliant intuition hit upon the formula and that it is therefore right, of course. They do not know that even as late as twenty years ago some great chemists, such as Bunsen, wrote HO as the formula, and are not troubled by a conflict of authority.

Other pupils will attempt to give reasons for the formula they employ. Among the most sensible of the reasons will probably be that the molecule of water consists of two atoms of hydrogen and one atom of oxygen, or that the electrolysis of water gives two volumes of hydrogen for one of oxygen. But in the first reason the fact is overlooked that not only have we never seen atoms or molecules, but we can never hope to see them. Our ideas of atoms and molecules are deductions from observation and experiment, and instead of the argument proceeding from the premises of atoms and molecules to the formula, the argument should go from experiment to the formula, and the accompanying deduction that the molecule of water contains two atoms of hydrogen and one atom of oxygen.

The argument from the electrolysis of water is based on experiment, and is to a certain extent good, but it is not conclusive because it is possible that the quantity of hydrogen represented by H would occupy twice the volume of the quantity of oxygen represented by O. Carried out consistently, the argument would lead into error in some cases. Ammonia, to which the formula NH<sub>3</sub> is given, decomposes into three volumes of hydrogen to one of nitrogen, but, on the other hand, phosphine, to which the formula PH<sub>3</sub> is given, decomposes into six volumes of hydrogen to one of phosphorus.

There are two arguments in favor of the formula H<sub>2</sub>O that can be easily followed by the junior student; one is entirely experimental, the other involves a short train of reasoning.

The first argument is based on the decomposition of water. When water is decomposed by the electric current, all of the hydrogen separates at one pole and all of the oxygen at the other. Also when

steam is decomposed by red-hot iron all of the hydrogen is set free and all of the oxygen is retained by the iron. But when sodium acts on water all of the hydrogen of the decomposed water is not set free—half of it only is set free; the other half, together with all of the oxygen, unites with the sodium, and when the water that has not been acted on is evaporated by heating the solution, a white substance, caustic soda, consisting of sodium, oxygen and hydrogen, is left behind, the amount of hydrogen in the caustic soda being equal to the amount that was set free. The hydrogen in caustic soda may be liberated by fusing the caustic soda with additional sodium, sodium oxide being formed at the same time. This experiment shows that the hydrogen of water can be divided into two equal parts. The oxygen of water has never been divided. In every operation in which oxygen is taken from water all of the oxygen holds together. The simplest way of representing these facts is by the formula  $H_2O$ , for this shows the possibility of separating the hydrogen into two parts and indicates the impossibility of dividing the oxygen.

The second argument is based on Avogadro's Law, and is a little more theoretical than the first. Avogadro's Law is that equal volumes of different gases, under the same conditions of temperature and pressure, contain equal numbers of molecules; that is, if a certain volume contains 100,000,000 molecules of hydrogen it would contain 100,000,000 molecules of nitrogen, or ammonia, or marsh gas, or water vapor. We do not know the volume of 100,000,000 molecules, and we cannot adapt our volume to contain any specified number of molecules. But we can choose a liter as our standard volume, and if Avogadro's Law is true a liter would contain the same number of molecules of every gas, and the weight of a liter of the different gases would give the relative weight of the molecules. A liter of hydrogen weighs .09 grams, a liter of nitrogen fourteen times as much, of ammonia eight and a half times, of marsh gas eight times, and of water vapor nine times. But these numbers, which would all be fractions, are not very convenient and have no very evident connection with the formula of the gases or with the weights of the various constituents of the gases; and instead of taking a liter of hydrogen as the standard, it might be better to take the volume of hydrogen that would weigh a gram. This volume is a little over eleven liters and it contains 14 grms. of nitrogen,  $8\frac{1}{2}$  grms. of ammonia, 8 grms. of marsh gas and 9 grms. of water vapor. The same volume would contain 18.25 grms. of hydrochloric acid, of which one-half gram would be hydrogen and 17.75 grms. chlorine.

If possible, however, it is best to adopt such a standard volume that the formula will represent volume as well as weight. It has not been found possible to decompose hydrochloric acid in any way so as to divide the hydrogen into two parts or the chlorine into two parts, and hence the most satis-

factory formula is  $HCl$ . If we are to make the formula represent grams we have the gram formula weight, or, as it is usually called, the gram molecular weight. The symbol  $H$  must then stand for one gram of hydrogen and the symbol  $Cl$  for 35.5 grams of chlorine. Now, 36.5 grams of hydrochloric acid occupy the volume 22.4 liters (approximately), so this volume is the most convenient to use.

There are many gaseous compounds of hydrogen, and not one of them contains less than a gram of hydrogen in 22.4 liters. A number contain exactly one gram, some two, some three, some four, etc. In the same way the volume 22.4 liters contains 35.5 grams of chlorine, or some whole multiple of 35.5 grams, but never less. Similarly, no compound of oxygen in the gaseous condition contains less than sixteen grams of oxygen, no compound of nitrogen, less than fourteen grams of nitrogen.

If, then, 22.4 liters be taken as the standard volume, the weight of the various elements that it contains will be once, twice, three times, or some other multiple of the atomic weight. Twenty-two and four-tenths liters of ammonia contain 14 grams of nitrogen, and as no gaseous compound of nitrogen contains less than fourteen grams in this volume, it is reasonable to represent fourteen grams by the symbol  $N$ . There are three grams of hydrogen in this volume of ammonia, and so ammonia is represented by the formula  $NH_3$ . Water vapor contains two grams of hydrogen and sixteen grams of oxygen in 22.4 liters. No compound of oxygen contains less than sixteen grams of oxygen in this volume, hence the formula of water is written  $H_2O$ . If any new gas were discovered containing eight grams only of oxygen in 22.4 liters, eight grams would require to be represented by the symbol  $O$ , and the formula of water would be  $H_2O_2$ . Hitherto no such gas has been discovered, and it would be strange if among all the compounds known none should have the minimum quantity of oxygen.

Expressed in terms of the atomic hypothesis, it would be strange if among all the compounds of oxygen known, none should have less than two atoms of oxygen in the molecule, and still further that none should have an odd number of atoms.

It is hoped that this article may be of use to teachers in their endeavor to help pupils to understand the real meaning of chemical formulæ.

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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.—*Boston Herald*.



**School Gardens.**

PERCY J. SHAW, B. A., TRURO, N. S.

Why not have a school garden this year? It will furnish pleasant variety for you in your school work, give a new point of interest for the children and be a great aid in the nature work.

Select a site for the garden near to the school-house, and where the children will pass it as they come to and go from school. If no suitable land can be had on the school ground, ask a neighbor whose land adjoins for a small piece. Have it situated conveniently for the school, under the eye of the teacher and pupils, so that it will seem a part

it is better to dig only the beds and leave the walks green. Have the ground well manured, if possible, as this not only supplies plant food, but humus, which holds the moisture in a dry time. If manure cannot be obtained, commercial fertilizer or hardwood ashes may be substituted.

Unless the school ground is enclosed, the garden should be fenced to protect it from wandering stock, which might in a short time destroy the work of the season.

The garden may be laid out in rows, or plots. If it is small, planting in rows is preferable, as it economizes space. If there is plenty of room, plots four feet by eight feet, or larger, might be used



SCHOOL GARDEN AT OLD BARNS, COLCHESTER CO., N. S.  
(Courtesy of Education Dept., N. S.)

of the school. An arrangement could be made with the neighbor by which he would receive his "shares" of the product of the garden on condition of looking after it during the summer vacation.

The garden may be as small as two square rods, or as large as a quarter of an acre. Twelve feet by thirty-six is the size recommended for the schools of the State of Illinois by Professor Blair, of the State Agricultural College. Often the small garden is more satisfactory than the large one, as it is more easily attended and furnishes quite enough material for the average country school.

It is better to have the ground plowed in the fall, but a good garden may often be had on ground made ready in the spring. Having selected a site, get a neighbor to plow it for you, or if the garden is small, have the boys spade it. In the latter case,

with walks three feet wide between. It is advisable to have a carefully drawn plan of the garden before beginning to plant. Let each pupil submit a plan of his plot to the teacher for approval before work in the garden begins. Then each one will know what he is to plant, and where he is to plant it when he goes to the garden to work. This avoids confusion, and the drawing of the plan furnishes a good exercise in mathematical drawing.

One of the obstacles in the successful working of a school garden is the shortness of the growing season during which school is in session. When the garden is nicely started, the summer holidays come and no more school work can be done with the plants of the garden until late in August. On this account it is well to choose largely seeds which can be planted as soon as the ground can be worked

in the spring, to have as much growth as possible before school closes in July. Such flowers as sweet peas, and vegetables like beets, onions, spinach, parsnip, lettuce, radish and peas may be planted as soon as hard frosts are over. Try to have all the ordinary vegetables represented, and all of the easily grown flowers. Have a plot in one corner for wild flowers. These may be obtained when classes go on excursions to the woods or fields. They may be planted thickly and replaced if they die.

The study of plants has been, and is now, successfully carried on without a school garden. Plants of the fields and woods are gathered, studied and then thrown away, the flowering and fruiting stages receiving the most attention. The daisy and buttercup may not be recognized in their early stages. With a garden the plant must be, and is, known from the seedling stage to maturity. It is a study of living plants throughout their life history. The conditions of germination—heat, moisture and air—may be taught by experiment. The region of root growth may be made out by marking the root at equal intervals with indelible ink and observing the lengthening of the spaces between the markings after further growth has taken place. The seed leaves, their history, the plumule, arrangement of leaves on the stem, structure of flower and function of its parts, the different families represented in the garden, the weeds and insects, are all good subjects for study.

The subject of pollination is interesting. Fruit growers plant a staminate variety of strawberry along with a pistillate variety in order to secure the fertilization of the pistillate flower. Teach children why this is done when they set out their plants. In like manner, let them see the use of the tassel of the corn, why varieties mix when planted in proximity, and the use of the false blossom of the pumpkin. In this way our knowledge of botany will be applied to the every-day work of the garden.

A further use of the garden is in bringing to the school interests which are useful to the teacher in teaching the ordinary work of the school. Children who are growing plants in the garden have much to tell about every day. Teachers who are in the habit of using the child's interest for teaching reading, arithmetic, drawing, etc., find the school garden valuable for the material it furnishes for these lessons. For example, the following reading lesson was given to a junior grade last fall from the blackboard: "The corn has two

kinds of blossoms. One kind of blossom is at the top. The other blossom is at the joint. Each blossom at the top has three stamens. The stamens bear pollen."

All this information was obtained from the pupils who had gained their ideas from examining the corn. Terms were given for the idea when necessary and the sentences then written on the board. Whether the facts remain with the pupil or not is of little moment. The language was more real to the pupils because they had first received their ideas through their senses, and afterwards expressed them in words instead of trying first to get the ideas through words. In this way much language work, both written and oral, may be based on the garden work. So also with number work and drawing.

In the growing of flowers, planting of ornamental trees and shrubs, much may be done to awaken ideas of the beautiful. Get the children to work with you in planning and providing the proper setting for the school building, and they will appreciate good surroundings more and take better care of the school property. They will be making gardens at home, and the good influence of the school garden will extend throughout the section.

Said a child to its mother, after working over its school tasks one evening until eleven o'clock:

"Mamma, do you suppose the teacher will say it's good?"

"Doesn't she ever tell you so?" asked the mother in return.

"Not every often," said the child, with a sigh, putting her books aside.

What a lesson for teachers in that simple question. Oh, do not withhold the "word fitly spoken." Give it now. A teacher's heart should be overflowing with love and sympathy for those entrusted to her care. Let the Great Teacher be your modci.  
—*Home and School Education.*

The sentiment of the months in connection with flowers and gems is as follows:

- January—Snowdrop, garnet.
- February—Primrose, amethyst.
- March—Violet, bloodstone.
- April—Daisy, diamond.
- May—Hawthorne, emerald.
- June—Honeysuckle, agate.
- July—Waterlily, ruby.
- August—Poppy, sardonyx.
- September—Morning glory, sapphire.
- October—Hops, opal.
- November—Chrysanthemum, topas.
- December—Holly turquoise.



**The Cry of the Little Peoples.**

The cry of the Little Peoples went up to God in vain;  
The Czech and the Pole, and the Finn and the Schleswig  
Dane.

We ask but a little portion of the green and ancient  
Earth;

Only to sow and sing and reap in the land of our birth,  
We ask not coaling stations, nor ports in the China seas;  
We leave to the big child nations such rivalries as these.  
We have learned the lesson of time, and we know three  
things of worth;

Only to sow and sing and reap in the land of our birth.

Oh, leave us our little margins, waste ends of land and  
sea,

A little grass and a hill or two, and a shadowing tree.  
Oh, leave us our little rivers that sweetly catch the sky,  
To drive our mills and to carry our wood and to ripple by.  
Once long ago, like you, with hollow pursuit of fame,  
We filled all the shaking world with the sound of our  
name;

But now we are glad to rest, our battles and boasting done,  
Glad just to sow and sing and reap in our share of the  
sun.

And what shall you gain if you take us, and bind us and  
beat us with thongs,

And drive us to sing underground in a whisper our sad  
little songs?

Forbid us the use of our heart's own nursery tongue;  
Is this to be strong, you nations; is this to be strong?  
Your vulgar battles to fight and your shopman conquests  
to keep;

For this shall we break our hearts, for this shall our old  
men weep?

What gain in the day of battle, to the Russ, to the German,  
what gain

The Czech and the Pole, and the Finn and the Schleswig  
Dane?

The cry of the Little Peoples goes up to God in vain,  
For the world is given over to the cruel sons of Cain.  
The hand that would bless us is weak, and the hand that  
would break us is strong;

And the power of pity is naught but the power of a song.  
The dreams that our fathers dreamed to-day are laughter  
and dust,

And nothing at all in the world is left for a man to trust.  
Let us hope no more, or dream, or phopshy, or pray;  
For the iron world no less will crash on its iron way.

And nothing is left but to watch, with a helpless, pitying  
eye,

The kind old aims for the world and the kind old fashions  
die.

RICHARD LE GALLIENNE.

London Chronicle.

Formal politeness and military smartness are cultivated in the Berlin schools. No slouching or lounging is tolerated. A boy called to the black-board advances and retires on "the double."

**Mineralogy.—No. VI.—Blow Pipe Analysis.**

L. A. DEWOLFE, NORTH SYDNEY, C. B.

Having described briefly the rocks and minerals occurring abundantly, a few less abundant, and consequently more valuable ones, may be of interest. Perhaps one could choose no better group than *stibnite*, *pyrolusite* and *galena*. On account of their resemblance, the three taken together afford good training in careful observation of details.

All are heavy, lead-colored, soft minerals, with bright metallic lustre. Just as all Chinamen look alike to us, so do these minerals, to the one unacquainted with them. A closer study, however, reveals distinguishing marks that enable one to know them at sight. A very short note on these differences will serve to supplement the study of the specimens themselves. Without the specimens, it is useless to follow this article; for no amount of written description can convey to the mind what five minutes of comparing and contrasting the minerals themselves will teach.

Stibnite is the most valuable ore of antimony. Its chemical symbol is  $Sb_2S_3$ . It is really distinguished by its very easy fusibility—melting in the flame of a candle. That mined in this country is either compact or fibrous; but I have seen excellent crystals—four-sided prisms, five or six inches long—from Japan. In the fibrous or columnar specimens of our own country, however, the columns are very plainly cross-striated, similar to the striae on quartz crystals.

By fusion, sulphur is drawn off from stibnite, leaving metallic antimony. The metal is an important constituent of several alloys, such as type-metal, Britannia metal, Babbitt metal and pewter. It is also used in medicine. It is mined in Hants County, N. S., and in York County, N. B.

Pyrolusite ( $MnO_2$ ) is a valuable ore of manganese. It occurs in Hants and Colchester Counties, N. S., and in several counties of New Brunswick. Though it is somewhat blacker than stibnite, the two are very similar in physical properties. High school students are familiar with it in powdered form as the manganese dioxide used in the laboratory preparation of oxygen, chlorine, bromine and iodine. The most common form of its occurrence in Nova Scotia is in masses of radiating fibrous structure—the fibres being about the size of sewing needles. Sometimes, however, it is granular. It is used for coloring glass and pottery, and in making steel.

Galena ( $PbS$ ) is the most common ore of lead. Though it is found in nearly all kinds of rock, limestone seems to be its most natural home. Nearly all the extensive lead mines of America are in limestone. Galena is reported from Cape Breton Island, and from Kings and Charlotte Counties, New Brunswick; but so far as I know, it has not been mined in the Maritime Provinces.

While this mineral resembles the two preceding, it is somewhat heavier; and its metallic lustre is more silvery. Moreover, except in the granular varieties, the perfect cubic cleavage serves admirably to distinguish it. Where such cleavage is absent, some sort of test may be necessary to satisfy the cautious student as to its identity. Galena very often contains paying quantities of silver, and is then called *argentiferous galena*.

The advisability of chemical tests for minerals calls for a very brief outline of simple experiments easily performed in any schoolroom. The most necessary apparatus for testing minerals is the blow-pipe. A mouth blow-pipe costs only about fifteen cents. With it, one needs a piece of charcoal and an alcohol lamp (or Bunsen burner, if you are where gas is used). I find an ink bottle a very good substitute for an alcohol lamp. Get a cork to fit the bottle; punch a hole through it, and insert an iron pen-holder. Through this pass common candle wicking, doubled to snugly fit the holder. The holder prevents the cork from burning. A pint of alcohol (methylated spirits), which costs about thirty cents, will serve for a long time.

Besides these, a three inch piece of No. 27 platinum wire, costing about twenty cents, will be almost indispensable. A dollar invested in small test tubes, glass tubing, the common acids and salts, and some litmus paper would equip a school for very many instructive tests and experiments—not only in mineralogy, but in general chemistry.

Let us see what tests we can apply to the three minerals of the present article. First, get someone to instruct you in the use of the blow-pipe. It is easy to show you, but difficult to describe. The only art to acquire is to be able to breathe and blow at the same time. Having accomplished this feat, make a small cavity in your charcoal; place in it a fragment of stibnite; and with the blow-pipe, direct the alcohol flame upon it for a minute. Notice the easy fusibility and the dense white fumes which coat the coal. (This coating is the oxide of antimony. Where did the oxygen come from?) Continue heating until the mineral fuses down to a metallic globule of antimony. Is it brittle or malleable? Treat in the same way a fragment of galena. Unless heated cautiously, it will break and fly away. Which of the two minerals melts more easily? The yellow coating from the galena is litharge (PbO). Can you, from any source, learn some of its uses? Do you see any difference between the metallic globules of antimony and lead obtained in this way? (They look alike, but lead is malleable and antimony is brittle. Moreover, you know the minerals apart by the color of the oxide coatings—antimony being white, and lead yellow).

There are many other tests worth knowing—both for these and other minerals. Flame tests and bead tests are very important, but they cannot be given here.

### Domestic Science in Rural Schools.

HELEN N. BRILL, Principal Domestic Science School, Halifax, N. S.  
[Under Direction of the M. T. T. Association of Nova Scotia].

Domestic science, as the form of manual training for girls, may now be said to have gained an assured footing in the Nova Scotian school system. The leading educationists in the province, while not perhaps as yet realizing that it is, as a well known English author maintains,\* "the greatest of all the sciences, and the mother of all the arts," still freely admit not only its great practical usefulness, but also that its value as a means of mental training is not inferior to that of any of the other branches of school study; that when properly taught it has been found to be a help rather than a hindrance to all the other studies.

With all this conceded it is a little disappointing to find that neither it nor the corresponding study for boys, mechanic science, has as yet been accorded its proper place on the curriculum of school studies; that both are still merely optional subjects which pupils may take or not, as they see fit, and which, if they do take and devote the required time and attention to them, will count them nothing, or next to nothing,\* at their examinations. Just so long as such a state of things exists, so long will parents and pupils alike be led to regard the subjects of comparatively little importance, and pupils be obliged to give up the study of them exactly at the time when they are beginning to appreciate the scientific part, and to acquire some dexterity in the manual part—to give them up so that may devote the time and attention to subjects that will count.

What is wanted is that the Council of Public Instruction should by deeds—not words—show that these subjects are to be considered as a necessary part of every school boy's and school girl's education, and as such must be taught in all schools, rural as well as town and city. It may, it is presumed, be taken for granted that the desire to have these subjects taught, and the need for them are as great in the rural districts as in the cities, and such being the case, is it just that country schools should be deprived of such valuable factors in the education of their pupils?

It may be said that it is practically impossible to introduce such subjects, and especially that of domestic science, into many rural districts; but that we are not prepared to admit. No doubt there will be difficulties to be overcome, as has been found to be the case in introducing it anywhere, but the future will undoubtedly show that there is no impossibility in the matter. Where consolidated schools have been opened the problem has been solved, for one teacher can give the lessons to pupils from several school districts, but even where consolidation does not exist, surely some method might be devised whereby the instruction might be supplied.

\* Philip Hammerton in his book "The Intellectual Life,"



The plan adopted by some of the training schools of domestic science in the old country might be tried, namely, to make the giving of such lessons in country schools the closing part of the graduates' course of training. There a properly qualified instructress and a graduate out from the training centre, give a course of so many lessons in a certain district, and then the graduate returns to the centre, and another takes her place, and so on till the required number of lessons is given in that district, when the same thing is repeated in another. This plan has the double advantage of securing the instruction to the children, and of increasing the efficiency of the graduates, by giving them some practical experience in the work before they have charge of a centre.

Then it is also an inexpensive plan, as no salaries need to be paid, the instructress having her salary from the training school, and to the graduates it being merely a part of their training, for which no remuneration cannot be expected. In the matter of equipment, too, there need be no very great outlay, and nothing need be required but what can be obtained in any school district. The aim should be rather to teach the great scientific principles of all cookery, than to show how to prepare a number of elaborate dishes. In promoting this aim, the stated teachers of the school could no doubt give valuable assistance.

In the by no means distant future it is to be hoped that numbers of the normal school students will take the special course of training for domestic science when they finish their other studies, and so special teachers for the subject be no longer required.

But in order to induce students to do this, it would be necessary greatly to augment the rate of salaries supposed at present to be sufficient.

These are the things I prize  
And hold of dearest worth:  
Light of the sapphire skies,  
Peace of the silent hills,  
Shelter of forests, comfort of the grass,  
Music of birds, murmur of little rills,  
Shadow of clouds that swiftly pass,  
And, after showers,  
The smell of flowers,  
And of the good brown earth—  
And best of all, along the way, friendship and mirth.  
—Henry Van Dyke.

"Every lesson should be a composition lesson; no lesson a grammar lesson," is the principle laid down in the New Zealand curriculum. Formal grammar has been practically abolished in the primary schools.—*Australian Journal of Education.*

Will the subscriber who sent a question in trigonometry for solution some weeks ago kindly send his address?

### The Review's Question Box.

P. A. F.—Is Africa an island or not? That is, does the canal make it an island? If it is an island, then is there such an isthmus as "Suez," which is mentioned and marked in the geography?

Africa is a peninsula. The artificial stream of water known as the Suez canal does not make "Suez" any less an isthmus.

M. L. W.—Will you kindly mention in the REVIEW books containing material for use on Empire Day? What are the best books on Canadian writers and their works?

"Canada During the Victorian Era," (Bourinot), "Handbook of Canada," "How Canada is Governed" (Bourinot), "The Great Dominion" (Parkin), "Brief Biographies" (Miller), "Stories of the Mapleland" (Katherine A Young), "Builders of the Dominion" (Emily P. Weaver), "History of the Union Jack" (Barlow Cumberland). Several of the above are published by Copp, Clark & Co., Toronto. "A Survey of the British Empire," published by Blackie & Son, London. "The Web of Empire" (Sir Donald MacKenzie Wallace), Macmillan & Co., London. "Colonies and Colonial Federations" (E. J. Payne), Macmillan & Co., London. "Canadian History Readings," EDUCATIONAL REVIEW, St. John. "Patriotic Recitations and Arbor Day Exercises" (Hon. G. W. Ross, Toronto).

Bourinot's "Intellectual development of the Canadian People" and Rand's "Treasury of Canadian Verse" are the best books on Canadian writers and their works that we know of.

Back numbers of the REVIEW for May contain much suitable matter for Empire Day, and so will next month's number, to be issued about the fifth of May.

F. B. H.—Please solve the following: A bill before parliament was lost on a division, there being 600 votes recorded. Afterwards there being the same number of voters, it was carried by twice as many votes as it was before lost; and the new majority was to the former as 5 is to 4. How many members altered their minds?

Let  $x$  = number of yeas at first vote.

$600-x$  = number of nays at first vote.

$600-x-x$  = number of votes by which bill was lost.

$y$  = number of persons changing their minds.

$x+y$  = number of yeas at second vote.

$600-x-y$  = number of nays at second vote.

$x+y-(600-x-y)$  = number of votes by which bill was carried.

That is,  $2x+2y-600$ .

$$\begin{aligned}
 (1) \quad 2x + 2y - 600 &= 2(600 - 2x) \\
 (2) \quad x + y : 600 - x &:: 5 : 4 \\
 \text{By transposing (1)} \quad 3x + y &= 900 \\
 \text{And simplifying (2)} \quad 9x + 4y &= 3000 \\
 \text{Multiply (1) by 3} \quad 9x + 3y &= 2700 \\
 \text{Subtract (2)} \quad \underline{9x + 4y = 3000} \\
 & \quad \quad \quad -y = -300 \\
 & \quad \quad \quad y = 300
 \end{aligned}$$

J. E. M., LIVERPOOL, N. S.—I am very much interested in birds, though I have not much time to devote to their study. Last summer I learned to distinguish about sixty of our land birds by sight. I also learned to recognize the songs and calls of many of them. For several winters we have been feeding in the back yard juncos, bluejays, Canada jays; song, fox, tree, chipping and English sparrows; black caps and Hudsonian chickadees, woodpeckers, a sap-sucker and four squirrels. They have not only been a source of amusement, but also of much information concerning their table-manners.

Will you kindly answer the following questions:

1. Does the American goldfinch, when wintering in Nova Scotia, change its yellow coat for a gray one? I have noticed, during the last two winters, a bird identical with the American goldfinch in size, flight, call and color of wings, but with a gray body. I have seen them singly and in small flocks eating thistle seeds.

2. I saw with flocks of robins this spring several black-birds that seemed to be a little smaller than the average robin. The song, or call, sounds like "chuck-e-derk," the first two notes sounded quickly, the last one drawn out. These sounds are immediately followed by one like "deek," seemingly a reply from a second bird of the same kind. Is it the rusty blackbird?

1. The American goldfinch or thistle-bird changes its coat in winter to the color of the female, which is grayish brown, with an olive tinge, on the upper parts. The pine siskin or pine finch is nearer to the color of the bird you describe.

2. Yes.

Hay's History of New Brunswick has already won a place for itself. It is very popular among the pupils of Grades III and IV. Its legends appeal strongly to their imagination, and thus awaken and keep alive their interest in this subject.—*Inspector Mersereau, in N. B. School Report.*

Johnnie—Papa, do two negatives make an affirmative?

Papa—That's the rule.

Johnnie—Well, you said "No, no," when I asked you for a quarter this morning. When do I get it?  
*The Ingleside.*

Each month the REVIEW is received with pleasure and read with enjoyment.—M. E. M.

### Mental Arithmetic. IV.

F. H. SPINNEY, NORTH SYDNEY, C. B.

#### COMMISSION.

Commission is a branch of arithmetic of great practical value, and furnishes a variety of interesting problems.

Teachers frequently find some difficulty in making clear the distinction between the forms used in commission charged for buying, and commission charged for selling articles of commerce. A careful drill in mental arithmetic will make clear that very slight distinction.

Start with such verbal questions as: If an agent in Halifax sells \$100 worth of potatoes for farmer Jones, and charges him \$6 for doing the business, what will the agent charge for selling potatoes to the value of \$200? \$300? \$400? How much money will he send to the farmer out of the \$100? out of the \$200? out of the \$300? out of the \$400? Later on explain that what the farmer receives is called proceeds.

After the terms are understood, arrange some questions, for mental drill, in the following form:

I. Value of Goods Sold.	Rate per \$100.	Commission.	Proceeds.
\$700	\$5	?	?
\$900	\$4	?	?
\$400	\$5½	?	?

When answers have been supplied by the pupils to twelve or more such questions, erase the figures in the second column, and have them replaced. Then add more in that form.

II. Value of Goods Sold.	Rate per \$100.	Commission.
\$700	?	\$28
\$600	?	\$33
\$360	?	\$18

Now add harder ones for the use of the pencil. Let the pupils find an original form for a "written expression." If their forms are clumsy, suggest one more concise. The following answers the purpose: Rate per \$100 =  $\frac{100}{100}$  of \$28 = \$4.

Then proceed to find "Value of goods sold."

III. Value of Goods Sold.	Rate per \$100.	Commission.
?	\$6	\$12.00
?	\$5	\$ 2.50
?	\$5	\$ 0.20

Do not ask for a written form until a great many questions have been solved mentally. Twenty or more such questions as above can be solved in five minutes.

The following is a concise written form:



$\frac{100}{100}$  value of goods sold = \$12  
 $\frac{100}{100}$  " " " " =  $\frac{12 \times 100}{100} = \$200.$

The pupils will find the greatest difficulty when the proceeds and rate % are given. They should first be formed from group I by erasing the number in the first and third columns.

IV. Value of Goods Sold.	Rate per \$100.	Proceeds.
?	\$5	\$665
?	\$6	\$470
?	\$4	\$864

To obtain a "written expression," ask the pupils how many parts out of 100 the farmer receives.

Then  $\frac{100}{100}$  value of goods sold = \$665  
 $\frac{100}{100}$  " " " " =  $\frac{665 \times 100}{100} = \$700.$

The following form can be used in solving problems relating to investing money for others:

Money Invested.	Rate.	Com.	Total Money Sent to Agent.
\$ 800	3 %	?	?
\$1600	2½ %	?	?

All the above forms can be repeated in doing these, The following are of course most difficult:

Money Invested.	Rate.	Total Money Sent to Agent
?	3 %	\$ 824
?	2½ %	\$1640

In order that the agent may spend \$100 he must receive \$103. Then,

$\frac{100}{103}$  of money invested = \$824  
 $\frac{100}{103}$  " " " =  $\frac{824 \times 100}{103} = \$800.$

Make all the questions very easy during the first few lessons. In this way you will secure the attention of every member of the class, and they will all attempt to solve the questions as the difficulty is increased.

### Gems About Birds and Plants.

When Nature had made all her birds,  
 With no more cares to think on,  
 She gave a rippling laugh and out  
 There flew a Bobolinkon. —C. B. Cranch.

I can tell you what that bird was—a kingfisher, the celebrated halcyon of the ancients about which so many tales are told. It lives on fish, it builds in holes in the banks, is a shy retiring bird, never to be seen far from the stream where it inhabits.—John Aiken.

The sparrows chirped, as if they still were proud  
 Their race in Holy Writ should mentioned be.  
 —Longfellow.

I took the wren's nest;—  
 Heaven forgive me!  
 Its merry architects so small  
 Had scarcely finished their wee hall,  
 That, empty still, and neat and fair,  
 Hung idly in the summer air.  
 —D. M. Mulock.

A light broke in upon my soul—  
 It was the carol of a bird;  
 It ceased—and then it came again  
 The sweetest song ear ever heard.  
 —Byron.

Man counts his age by years, the oak by centuries.  
 Tiny seeds make plenteous harvests.  
 Earth with her thousand voices praises God.

The breath of flowers is far sweeter in the air (where it comes and goes like the warbling of music) than in the hand.—Bacon.

[Remember this all who pick blossoms for pastime, and throw them by the roadside to wilt and die.—EDITOR.]

Flowers have an expression of countenance as much as men or animals. Some seem to smile; some have a sad expression; some are pensive and diffident; others again are plain, honest and upright, like the broad-faced sunflower and the hollyhock.—Henry Ward Beecher.

Flowers are words  
 Which even a babe may understand.  
 —Bishop Cox.

Flowers preach to us if we will hear.  
 —Christina G. Rossetti.

The shy little Mayflower weaves her nest,  
 But the south wind sighs o'er the fragrant loam,  
 And betrays the path to her woodland home.  
 —Sarah Helen Whitman.

The eyes of spring, so azure,  
 Are peeping from the ground;  
 They are the darling violets,  
 That I in nosegays bound.  
 —Heine.

The violets prattle and titter  
 And gaze on the stars high above.  
 —Heine.

### RECITATIONS FOR ARBOR DAY.

HOW THE ROBIN AND HIS MATE CHOSE A NEST.

I was sitting alone by the maple tree,  
 I wasn't asleep—you needn't tell me.  
 Two voices I heard right over my head,  
 And this is precisely just what they said:

"Oh, Robin! Oh, Robin! I'm all out of breath;  
 Oh, Robin! Oh, Robin! I'm tired to death,  
 With 'Come look at this tree and now look at that,  
 I'll look no more. Oh, Robin, that's flat."

"Why Robina, Robina, Robina, dear,  
 You must be both tired and nervous, I fear."  
 And what do you think?—I'm quite sure of this,  
 I plainly heard Robin then give her a kiss.

"Oh, see, love, the fountain there by the path,  
 What a beautiful place for a nice morning bath,  
 And dewy and fresh at the breaking of dawn,  
 Fat worms will be plenty right here on the lawn,

With slugs from the garden, and all of the best;  
 Oh, Robina, here is the place for our nest."  
 Then gaily they flew to the top of the tree  
 And that's where they'll build as sure as can be.  
 —Selected.

Good morning, sweet April, so winsome and shy,  
 With a smile on your lip and a tear in your eye.  
 There are pretty hepaticas hid in your hair,  
 And bonny blue violets clustering there.  
 —Songs of the Treetop and Meadow.

#### WHAT DO WE PLANT?

What do we plant when we plant the tree?  
 We plant the ship that will cross the sea,  
 We plant the masts to carry the sails,  
 We plant the plank to withstand the gales,  
 The keel, the keelson and beam and knee,  
 We plant the *ship* when we plant the tree.  
 What do we plant when we plant the tree?  
 We plant the houses for you and me,  
 We plant the rafters, the shingles, the floor,  
 We plant the studding, the laths, the door,  
 The beams and sidings, all parts that be,  
 We plant the *house* when we plant the tree.  
 What do we plant when we plant the tree?  
 A thousand things that we daily see,  
 We plant the spire that out-towers the crag,  
 We plant the staff for our country's flag,  
 We plant the shade, from the hot sun free,  
 We plant all *these* when we plant the tree.  
 —Henry Abbey.

#### ARBOR DAY EXERCISE.

(Choose five children to stand in line. They raise hands for branches and repeat the first two lines in concert; then each child repeats a stanza alone, and as he closes writes the name of his tree on the blackboard. If these names are written in a vertical column, the initials will spell "Maple." The last stanza is to be repeated in concert).

If I put my arms up straight,  
 Quite a pretty tree I make. (In concert).

1. I'm a tree that's very sweet,  
 I give something good to eat,  
 And my leaves when they are grown  
 Have five fingers of their own.  
 Maybe you have guessed my name,  
 But I'll write it just the same.  
 (Maple).
2. I am loved of bird and bee,  
 The little buds you see on me  
 Next month will be blossoms white  
 (Such a very pretty sight).  
 And a treat I have in store,  
 When the summer days are o'er.  
 (Apple).
3. Tall am I as can be seen,  
 And my leaves are evergreen;  
 Nothing have I good to eat,  
 I can't give you any "treat,"

But if needles you would buy,  
 Come to me. I can supply.  
 (Pine).

4. I am called Apollo's tree,  
 People once made wreaths of me;  
 And they gave them to the men  
 Who did deeds to merit them.  
 Many are the stories told  
 Of these heroes brave and bold.  
 (Laurel).

5. People say when they see me,  
 "What a very graceful tree."  
 So the little fairy elves  
 Wanting some tree for themselves  
 Made one like me, I am told,  
 Giving it a crown of gold.  
 (Elm).

M A P L E who'll tell  
 What they altogether spell?  
 That's the tree we beg to say,  
 Many plant this Arbor Day.

—M. Helen Beckwith, in *School Education*.

#### A LAUGHING CHORUS.

Oh, such a commotion under the ground  
 When March called, "Ho, there! ho!"  
 Such spreading of rootlets far and wide,  
 Such whispering to and fro.  
 And, "Are you ready?" the Snow-drop asked,  
 "'Tis time to start, you know."  
 "Almost, my dear," the Scilla replied;  
 "I'll follow as soon as you go."  
 Then "Ha! ha! ha!" a chorus came  
 Of laughter soft and low  
 From the millions of flowers under the ground—  
 Yes—millions—beginning to grow.

"I'll promise my blossoms," the Crocus said,  
 "When I hear the bluebirds sing."  
 And straight thereafter Narcissus cried,  
 "My silver and gold I'll bring."  
 "And ere they are dulled," another spoke,  
 "The Hyacinth bells shall ring,"  
 And the Violet only murmured, "I'm here,"  
 And sweet grew the air of spring.  
 Then "Ha! ha! ha!" a chorus came  
 Of laughter soft and low  
 From the millions of flowers under the ground—  
 Yes—millions—beginning to grow.

Oh, the pretty, brave things! through the coldest days  
 Imprisoned in walls of brown,  
 They never lost heart though the blast shrieked loud,  
 And the sleet and the hail came down;  
 But patiently each wrought her beautiful dress,  
 Or fashioned her beautiful crown;  
 And now they are coming to brighten the world,  
 Still shadowed by winter's frown;  
 And well may they cheerily laugh, "Ha! Ha!"  
 In a chorus soft and low,  
 The millions of flowers hid under the ground—  
 Yes—millions—beginning to grow.—Emerson.



## CURRENT EVENTS.

The Intercolonial will have running rights over the Canada Atlantic when that railway passes into the control of the Grand Trunk. This will give it access to a port on Georgian Bay.

The Hamburg-American line is to have a new steamship fitted with a massive balance wheel, to reduce the rolling of the ship at sea. Everybody knows, or should know, how the revolving wheel of the gyroscope resists any change of position. The same principle applied to this larger wheel is to keep the vessel steady.

The new vessel in which Commander Peary hopes to reach the North Pole has been launched from a Maine shipyard. It is the first ship ever built in America for polar work, and is considered the strongest ever built for that purpose.

Mukden, the largest city in Manchuria, and the ancient capital of the Manchu rulers who now govern China, was taken by the Japanese on the morning of March 10th, the Russians escaping by way of Tie Pass, which was later occupied by the Japanese with slight resistance. It is estimated that nearly a million of men were engaged in the battles around Mukden, and the Russian loss is placed at 150,000 men, of whom 35,000 were left dead on the field.

Mukden is a city more than a thousand years old. Its ancient palaces are full of rich treasures. It has wide suburbs, and a large population in which the Chinese now outnumber the Manchus. Harbin, the Russian stronghold in Northern Manchuria, three hundred miles north of Mukden, is a new Russian city, in the centre of a rich agricultural region. Its population is almost wholly Russian, and foreigners are jealously excluded. Whether the advancing Japanese forces will try to reach Harbin, or turn aside to invest Vladivostok, remains to be seen.

Serious uprisings continue in many parts of Russia, and the state of affairs is such as to quite overshadow the crushing defeat in the Far East.

President Castro, of Venezuela, has curtly refused the United States government's request for arbitration in certain disputes arising from the claims of United States citizens in that country. The matters are before the Venezuelan courts. In the meantime, Holland has a grievance against Venezuela because of the imprisonment of Dutch sailors, and threatens to send warships to demand redress. Venezuela is weak because of sparse population and misgovernment, but evidently feels strong enough to defend its territory. The country ranks fourth among the republics of South America in size, fifth in trade, and sixth in population.

Great Britain and Italy have come to terms with the Mad Mullah of Somaliland. He is to come under the protection of Italy and have access to the sea.

The death of Jules Verne brings to recollection the fact that one of the most famous books, "Around the World in Eighty Days," owed much of its popularity to the absurd improbability of the story. Now, however, the tour of the world can be made in less than eighty days by very quiet and ordinary conveyance.

The suggestion of making the greater part of the journey from Europe to Australia by rail is not so absurd as it might at first appear. A new Russian railway runs to the borders of Afghanistan. Surveys have been made for a railway across Afghanistan, a distance of some four hundred miles, to Peshawar, in India. From this point, with some short breaks, there are railways now running to Burma; and there is one already under construction which is to run down the Malay peninsula to Singapore. A short sea passage of forty miles from Singapore would take the traveller to Sumatra. Here there is no railway as yet; so the voyage might need to be prolonged to Java, which has a railway running through its whole length. From this to Port Darwin, where the Australian railway system begins, would be the longest set trip in the route. Possibly, by the time when the trans-Australian railway is finished, the rest of the journey will be practicable; and then, of the twelve thousand miles' journey from London to Melbourne, seven-eighths of the distance may be travelled by rail.

The preliminary survey of the projected Grand Trunk Pacific road from Lewis to Edmundston is nearing completion, and the surveyors report a very advantageous route.

The government of Newfoundland will revoke the fishing privileges so long enjoyed by United States fishermen in Newfoundland waters. The action is taken because of the adverse action of the United States senate upon the treaty which, in return for these privileges, was to have given Newfoundland fishermen free entry for their fish at United States ports. French fishermen did not enjoy the privileges now to be withheld from the New Englanders, the most valuable of which is that of purchasing bait for the deep sea fishing.

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Let the child be taught to read fluently and to love good reading; let him learn to express clearly and forcibly his thoughts, both orally and in writing; let him be taught to observe, record, classify the phenomena of nature; let him be trained to understand his country's history, and the duties of a good citizen; let him be trained to keep his body sound and clean; let him be taught good morals and gentle manners, both by precept and example.  
—Hon. H. R. Pattengill, Michigan.

### SCHOOL AND COLLEGE.

Mt. Allison University this year will send two Rhodes scholars to Oxford, and both will do credit to their *alma mater* and to the portions of the empire they represent. Mr. Arthur J. Motyer, of Hamilton, Bermuda, has been awarded the Bermuda scholarship by the Rhodes' trustees. The other scholar, selected by the Mt. Allison faculty, is Mr. Frank P. Day, son of Rev. Geo. Day, of North East Harbor, N. S. He was prepared for college at the county academies of Lunenburg and Pictou. He is a fine specimen of physical manhood, is twenty-four years of age, is six feet two inches in height, and weighs one hundred and eighty pounds. Both are good all round scholars, and have a fine record as athletes. No examination is necessary in the case of either student, as Mt. Allison is now affiliated with Oxford University.

The programme of the Teachers' Institute for Kings and Hants Counties, N. S., has been received. There will be, in addition to the reading and discussion of papers on a number of different subjects, exhibits from different schools, of writing, drawing, wood-working and household science. The institute will be held on April 19th and 20th. Inspector Roscoe is the president.

Clinton H. Gray, who has taught the superior school at Jacksonville, Carleton County, for over twelve consecutive years, resigned on March 31st. The school during the remainder of the term will be under the charge of Abram M. Cronkhite, a student of the University of New Brunswick.

The pupils of the Shediac Cape school, of which Mr. Percy A. Fitzpatrick has had charge for nearly two years, are rejoicing in a fine library, which was formally opened on the 21st of February. Funds were raised nearly two years ago, chiefly through the efforts of the teacher, Miss Foster, for the purpose of purchasing books, but the delay was caused through the inability to purchase suitable ones. But on the above date an elaborate book-case, with fifty-seven books, which it is hoped will be added to each year, was opened. The books, which were purchased in England, are large, well bound, and high class in every respect, costing about \$30.

In a communication to Dr. J. R. Inch, Superintendent of Education, Mr. D. A. Hamilton, principal of the Consolidated school, Kingston, N. B., gives some very interesting facts about the attendance of pupils during the winter season. Only one day was lost owing to weather conditions—January 27th. Colds among the pupils lowered the attendance during the first two months of the term, but during March the attendance was good—about 90 per cent of the enrolment. The attendance from the central district is more irregular than the districts from which children are brought in vans.

The New Brunswick Sunday-school Association has published a list of dates and places of its tour through the province, beginning May 7th and ending June 5th. Rev. Geo. O. Bachman, of Pennsylvania, will be the principal speaker, and the singing will be under the leadership of Mr. Tullar, who gave general satisfaction last year.

The debate between Dalhousie University and the Uni-

versity of New Brunswick took place in Halifax in March, and the discussion was given in favor of New Brunswick. Dalhousie had the choice and took the affirmative on the subject—"Resolved, that Trades Unions are Beneficial to the United States and Canada." Judge Gregory, of the Supreme Court of New Brunswick, the sole judge of the debate, gave a most carefully considered judgment, which was that Dalhousie had taken the choice of sides, and the burden of proof was upon them, which, in his opinion, they had failed to establish.

The seventeenth annual institute of the Cumberland and Colchester teachers will be held at Springhill, N. S., on April 18th, 19th, 20th. A very full and excellent programme has been prepared for the occasion.

Rev. Calvin Goodspeed, of McMaster University, Toronto, has resigned the professorship of systematic theology and apologetics owing to proposed changes in the curriculum. Professor Goodspeed graduated from the University of New Brunswick in 1872. He was born at Nashwaak, N. B., in 1842.

An intercollegiate debate between Acadia and Kings College took place at Windsor on the evening of March 31st on the subject—"Resolved, that the United States is justified in enforcing the Munroe doctrine." Kings took the affirmative and Acadia the negative side. Dr. A. H. MacKay, chairman of the judges, awarded the decision to the Acadia debaters on account of superior arguments and better form of delivery.

Mr. R. R. Gates, of Middleton, N. S. (B. A. Mt. Allison), contributes an interesting article to the *Sackville Argosy* on the Marine Biological Station at Woods Holl, Massachusetts, and describes with illustrations some of the commoner species of salt-water algæ (seaweeds) to be met with on the north Atlantic coast, with notes on their structure and reproduction.

Readers of the REVIEW will be glad to hear of Mr. S. A. Starratt, formerly a successful teacher in Yarmouth, N. S., and well known to all members of the Summer School of Science for his stimulating work in the physiology classes. Mr. Starratt is now an assistant instructor in science at Harvard University, and that his work is valued is shown by the fact that he is one of ten men chosen by the geological department to do some investigating in the West this summer. Mr. Starratt is also teaching in evening classes, and was recently presented with a loving cup by the members of the Wells evening school of which he is principal.

This is a plan which has been found very effective in bringing the children to school on time: In the front of the room have two flags. Call one the girls' flag and the other the boys' flag. In the morning, or at noon, when a girl comes in late, the girls' flag comes down. If a boy comes in late, theirs is taken down. If both flags remain up all day, at night erase the date from the calendar, and draw a tiny flag. The children are always pleased to see the flag on the calendar.—*Exchange*.



## RECENT BOOKS.

**THE ELEMENTS OF ANALYTIC GEOMETRY.** By Percy F. Smith, Professor of Mathematics in the Sheffield Scientific School, and Arthur Sullivan Gale, Instructor in Mathematics in Yale University. Semi-flexible cloth. 424 pages. Illustrated. Mailing price, \$2.15. Ginn & Co., Boston.

Beginning with a review of algebra, this book presents all the elementary methods and ideas of analytic geometry as a general science. It is adapted to the needs of colleges, schools of technology and preparatory schools.

**LABORATORY DIRECTIONS FOR BEGINNERS IN BACTERIOLOGY.** By Veranus A. Moore, Professor of Comparative Pathology, Bacteriology, and Meat Inspection, Cornell University, Ithaca, N. Y. Third Edition—enlarged and revised. Cloth. xxiii+151 pages. Mailing price, \$1.05. Ginn & Co., Boston.

In this edition the work has been thoroughly revised so as to include the latest results of scientific research. Although this practical guide was prepared with special reference to the needs of medical students, it will prove a valuable aid to all who are interested in the study of bacteriology.

**TEACHERS' HANDBOOK TO FRENCH FOR BEGINNERS.** By Jetta Sophia Wolff. Cloth. Pages 43. Price 2s. 6d. Blackie & Son, London.

This is designed for teachers, to accompany the volume "French for Beginners."

**MACMILLAN'S PICTURE ARITHMETIC,** Books I and II, paper, price 3d. each (Macmillan & Co., London), are intended to give interest to the arithmetic lessons. Incidentally they furnish also attractive lessons in reading.

**MACMILLAN'S NEW GLOBE READERS.** Infant reader I, price 6d.; Primers I and II, price 4d. and 5d. (Macmillan & Co., London). This is a series of little readers, carefully graded and with color illustrations. They are attractive and useful, furnishing interesting material for reading and word building.

**SELECT POEMS OF EMERSON,** price 2d. (Blackie & Son, London), contains a sketch of Emerson and some of his shorter descriptive poems.

Ginn & Co., Boston, furnish for ten cents a little "Manual of Mediaeval Writings," which presents a concise form the principles of the system.

**PRIMARY FRENCH COURSE.** Part II. By Otto Siepman, head of the modern language department at Clifton College. Cloth. Pages xxiv+244. Price 2s. 6d. Macmillan & Co., London.

This book comprises a reader, grammar and exercise book combined. The reader has been so arranged as to introduce the difficulties of the language gradually, and to supply sufficient examples for the points of grammar and construction which the pupil is to learn.

**BRITISH HISTORY IN REVIEW.** By M. MacArthur, Glasgow. Cloth. Pages 184. Price 1s. 6d. Blackie & Son, London.

This book is a boon to the teacher and student of history whose time is limited. The carefully arranged and classified facts, criticisms, summaries, etc., the outcome of experience in the teaching of history, will be found very helpful.

**THE WOMAN TRUSTEE, and Other Stories About Schools.** By C. W. Bardeen. Cloth. Pages 259. Price \$1. C. W. Bardeen, Syracuse, New York.

All the stories have a strong flavor of school, and that is about the best that can be said of them.

**AMERICA.** Cloth. Pages 176+xvi. Price 1s. 6d. Blackie & Son, London.

This is one of a series of readers on the continents of the world. Each is illustrated and provided with colored maps. The book before us is devoted to North and South America, and gives a general view of the countries in each, with descriptive sketches of the natural features, resources, habits of the people, occupations, etc.

**A NEW GEOMETRY FOR SENIOR FORMS.** By S. Barnard, M. A., and J. M. Childs, B. A. Cloth. Pages xv+333. Price 3s. 6d. Macmillan & Co., London.

This book contains, besides higher plane geometry, a complete treatise on elementary solid geometry. It is intended for students preparing for the Oxford and Cambridge local examinations; but will be found useful by engineering and other students who wish to acquire a practical knowledge of ratio and proportion, and the useful formulae of solid geometry.

**THE TEACHERS' RABELAIS.** Prepared by Geraldine Hodgson, University College, Bristol. Card. Pages 80. Blackie & Son, London.

About half of the book is taken up with an introduction which shows Rabelais as an educator. The remainder is devoted to the education of Gargantua,—a racy chapter, the satire of which will afford food for reflection and amusement.

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A SECOND LATIN COURSE. By E. H. Scott, B. A., and Frank Jones, B. A. Illustrated. Cloth. Pages xvi+265. Price 2s. 6d. Blackie & Son, London.

This excellent manual, following the First Latin Course, and written on the lines of that book, introduces the student to Cæsar's Gallic Wars. The same special features that characterize the first book are found here, viz., easy conversational practice, easy proverbs, and grammatical exercises with each lesson. Much attention is given to quantity, and a short account of the Roman Calendar is found at the end of the book. To teachers who wish to pursue the study of Latin on scientific principles and as a living language the book will be an invaluable aid.

OBJECT LESSONS IN ELEMENTARY SCIENCE. By Vincent T. Murché, F. R. G. S. Stage IV. Cloth. Pages 266. Price 2s. Macmillan & Co., London.

Some years ago the London school board issued a scheme of object teaching in elementary science, and these lessons, compiled and arranged for use in his own school by one of the teachers, have been found so useful that they were

published, and are now being issued in a revised edition. They have become exceedingly popular, not only in Great Britain, but in many parts of the Empire, and form a series of suggestive and useful lessons on a great variety of topics.

Tennyson's THE PRINCESS, with introduction and notes. By Ethel Fry, M. A. (Lond.) Cloth. Pages 137. Price 1s. 6d. Blackie & Son, London.

The notes to this convenient edition of "The Princess" are useful, as well as the introduction, which gives a brief sketch of Tennyson and the origin and purport of the poem.

In Blackie's "New Concentric Arithmetics," Book one, price threepence, we have a large and varied series of exercises in mental and written arithmetic which will be found of great service to the busy teacher.

Meycr's DER SCHUSS VON DER KANZEL. Edited with introduction, notes, exercises and vocabulary by Marion H. Haertel. Semi-flexible cloth. xiii+141 pages. Portrait. Mailing price, 40 cents. Ginn & Co., Boston.

The scene of the story (The Shot from the Pulpit) is laid on the shores of the Lake of Zurich, a map of which is added to the book. The whole presents a charming picture of Swiss life and scenery. The language is simple, idiomatic, and free from the peculiarities of South-German dialect. The edition is intended for students who have had from a year to a year and a half of preparation in German.



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## APRIL MAGAZINES.

The Easter *Canadian Magazine* is a fine number, perhaps the best of the long and excellent series it has issued,—rich in illustration and in the variety of its literary contents. The former embrace, in addition to the bright figure on the title page, beautiful representations of the frescoes of Michelangelo in the Sistine chapel at Rome—"the spot most sacred to art in all the world"—for which an appreciative sketch is contributed by Katherine Hale. The remainder of the number, excepting Russo-Japanese War Pictures, is distinctively Canadian, embracing stories, poems, the continuation of Professor Cappon's papers on Roberts and the Influences of His Time and other articles, with Current Topics, People and Affairs, and other sketches timely and interesting.... The *Chautauquan* for April contains an article on Progress in Geography which will appeal to every person interested in any one of the many phases of geography. Walter L. Hervey continues his series on How the American Boy is Educated by an article on The American Boy and His College, and Anna Botsford Comstock writes in *Nature Study* on The Cow....

Littell's *Living Age* for April 1st and April 8th have some noteworthy articles on live current topics from current periodicals. The effect upon our American universities of funds received from questionable sources and the lessons which English boards of trust should learn from it is discussed with much candor. The article appeared in the *Independent Review*. Among the cleverest of recent "skits" are "Alice in Newspaperland," from *The Speaker*, and "A Plea for the Abolition of All Learning," by Mercator Anglicanus in *Blackwood's*.... The April *Atlantic* opens with a remarkable article on The Cost of War, by C. J. Bullock, who looks upon warfare as rapidly becoming too expensive for endurance, a fact which makes for peace and arbitration as fast as nations shall begin to realize their burdens. There are other papers on current, social, political and literary subjects, with stories, sketches and poems, making up a spring number of great brightness and excellence. April being an important month in the fashion world, the April *Delineator* is primarily a fashion number, containing an elaborate portrayal of the spring styles and the latest fashion news. In *The Rights of the Child*, a new serial feature, it is announced Dr. Grace P. Murray will discuss every phase of the care of children; the first paper, on The Coming of the Child, contains information that has never before been presented in popular form and will be of great assistance to young mothers. Another series, *Little Sketches of Travel*, opens with an intimate description of the children of Oberammergau, later to be known to fame as the actors in the Passion Play.... The two initial numbers of *The Nature-Study Review*, a bi-monthly devoted to all phases of nature-study in elementary schools, have been received. They contain many excellent articles on this subject, which will prove very interesting and useful to teachers. Subscription one dollar a year, or a trial subscription of half a year for thirty cents. Published at Lancaster, Pa.... *Resources* is the name of a monthly illustrated journal devoted to Canada and Newfoundland. It is an excellent means of keeping teachers posted in all up-to-the-times information about Canada. Published in Montreal; one dollar a year, ten cents a copy.

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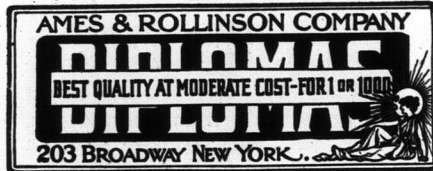


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