PAGES

MISSING

LISTENING TO THE FAIRIES

From a Painting by Bodenhausen

The Educational Review.

Devoted to Advanced Methods of Education and General Culture

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THE EDUCATIONAL REVIEW,
St. John, N. B.

We have to thank many of our subscribers for the prompt responses they have made to the calls made upon them to pay up their subscriptions. And yet there are a few who linger like "winter in the lap of spring." Please do not delay. Compare the number on your address wrapper with the number in the notice just above and then act accordingly.

The supplement picture that goes with this month's REVIEW might appropriately receive the larger title, "Listening to the Fairies of the Springtime."

The calendar of the Summer School of Science is printed and will probably be in the hands of teachers before this number of the REVIEW reaches them. If you have not received a copy write the secretary, J. D. Seaman Charlottetown, P. E. I.

The Rural Science School will meet in Truro in July and August. Full information may be obtained from Principal Cumming of the Agricultural College or Professor DeWolfe of the Normal College.

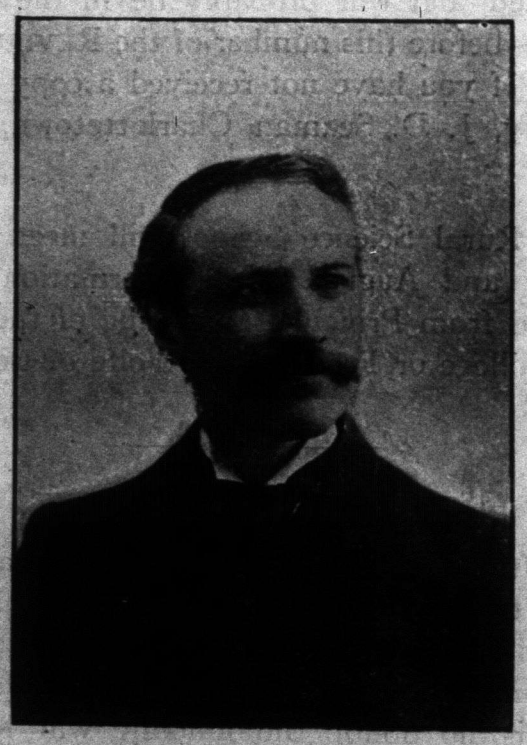
COLLEGE ENDOWMENT.

The friends of Mt. Allison University are undertaking to raise an endowment fund of a quarter of a million dollars to put that institution on a good financial basis and increase its efficiency. There is no doubt the amount will be raised. Mt. Allison has many friends throughout the Dominion and many graduates possessed of means who could easily raise the sum needed—and more if the University were in financial stress. Recently the friends of Dalhousie University have rallied to its support and raised the sum of half a million dollars for its enlargement and more vigorous life. In the past few years Acadia has raised an equal sum, and neither institution has reached the limit of what it may expect from a generous and appreciative constituency. If Mt. Allison had been less modest in its request and had asked boldly and confidently for double the sum there is no apparent reason to doubt that its friends would have risen to the occasion. It is the day of large gifts. The splendid property that Mt. Allison has accumulated and its educational achievements in the past warrant its friends in being generous.

THE LATE DR. JOHN BRITTAIN.

After a four months' illness Dr. John Brittain, professor of Nature Study in Macdonald College, Quebec, passed away, in the 64th year of his age.

The late Dr. Brittain's life was devoted to teaching He was born on a farm near Sussex N. B., November 22, 1849, and began to teach when he was seventeen years of age. He conducted schools in different parts of King's County and at St. Martins N. B., taking his second class license at the Normal School, St. John, in 1868 and his first class in 1874. It was at the Superior School, Petitcodiac, of which he had charge for



eleven years, that his powers as a teacher began to be noticed. He interested his pupils in Nature study of which he was one of the first teachers in these provinces to perceive the advantages. Regardless of cost he secured the latest and best scientific books, and devoted his leisure moments to the study of plants, insects, birds, the stars, formations of soil, etc. Indeed there was no branch of natural science in which he did not attain a marked proficiency, and he gave himself up to the study of some of these subjects with an almost passionate earnestness, making his pupils fellow-workers with him and companions of his daily excursions into the fields and woods. Nor did he neglect literature. His mind was a storehouse of the thought of the best writers of English, and rich was the intercourse which his most intimate friends enjoyed with him in literature and the study of nature.

It is plain to see that a teacher who taught the rudiments of learning with a thoroughness that was natural to Mr. Brittain, who flashed into the daily lives of his pupils, the brightest gems of literature, who relieved the monotony of country life by giving a new interest to the surroundings of the boys and girls was destined to leave a marked impression on the educational life of the country.

It is not to be supposed that the light of such a teacher could be hidden. Many of his fellow-workers came from far and near to get a new inspiration into Nature study and to go away with a fresh view of the dignity of teaching. He was soon called to other and more important fields, first to the Normal School of New Brunswick, where he taught natural science for fourteen years and led the pupil teachers to introduce Nature study into their schools. When Dr. James Robertson was selecting teachers to take charge of the Nature work and school gardens introduced by Sir William Macdonald into the eastern provinces, Dr. Brittain was the choice of that clear sighted educationist, first to take charge of the school garden work in New Brunswick and in 1907 to become the director of Nature study in Macdonald College, which position he held up to the time of his death.

The late Dr. Brittain was an excellent authority on the birds and plants of New Brunswick. The results of his observations were, however, embodied in his teachings and in his text-books for school, two of which have been published—Nature Lessons for the Common School and Elementary Agricultural and Nature Study, rather than in any special contributions to science on these subjects. His collections of birds and plants are preserved in the Museum of the Provincial Normal School at Fredericton. He reorganized the department of chemistry in the University of New Brunswick before taking up his work at Macdonald College, and the University conferred on him the degree of Doctor of Science.

As a teacher Dr. Brittain was earnest, inspiring, tactful, and his influence has been most marked in leading to better and more improved methods of teaching. He loved his work with a devotion that sacrificed other considerations to its successful prosecution. In manner he was quiet and unassuming and a great favorite with his pupils and fellow teachers.

The late Dr. Brittain was married in 1871 to Miss Charlotte Bonney. The family consists of

eight—three sons and five daughters—of whom William, Ethel (Mrs. Rutter, now principal of the department of Domestic Science at Macdonald College) Mary and Bessie (Mrs. Robinson) are graduates of Macdonald College, and Horace and John are graduates of the University of New Brunswick.

NATURE STUDY AND OBSERVATION.

The work on bird observation undertaken by Mr. Perry and the teachers who are assisting him, the results of which appear in this month's REVIEW, are highly interesting and valuable. If these observations are made with care, and teachers and their pupils take some pains to become acquainted with the birds and others of our native wild animals, and to report briefly and concisely the consequences will be of value to nature study and school work generally. It will also be the means of gathering information useful to science, for much has yet to be learned concerning the movements and habits of birds, and other wild folk. Young people with their sharp eyes and quick intelligence may be relied on to do much of this observing and out-door work, if they are put in the way of doing it and the teacher is interested; but the teacher must be the leader. If she knows a little about birds and plants, she will soon be ambitious to know more, for the pupils will spur her on to fresh endeavor.

Read the notes in the REVIEW for this month; and we hope they will be read early. The reports should be sent in to Professor H. G. Perry, Acadia University, Wolfville, not later then the 25th of the month. Do not send to the REVIEW, St. John, as such reports have to be remailed, and stand a chance of being late. Send direct and early.

If teachers need help in nature study they should plan to attend a summer school. The advertising pages of the REVIEW contain information for them.

Oh, to be in England,
Now that April's there,
And whoever wakes in England
Sees, some morning, unaware,
That the lowest boughs and the brushwood sheaf
Round the elm-tree bole are in tiny leaf,
While the chaffinch sings in the orchard bough
In England — now.
And after April, when May follows
And the white-throat builds, and all the swallows!
Hark, where my blossomed pear-tree in the hedge
Leans to the field and scatters on the clover
Blossoms and dewdrops — at the bent spray's edge —
That's the wise thrush; he sings each song twice over,
Lest you should think he never could recapture
The first fine careless rapture!

Home Thoughts from Abroad.— BROWNING.

ARBOR DAY.

How to Observe It.

If you have kept other Arbor Days with the children this should be your best. If this is your first, prepare to observe it so that the day will linger long in the memory of the children and recall pleasant things about trees and flowers and birds and a happy gathering in the schoolroom. The day will give an opportunity to invite parents and friends to the school. The invitations may be prepared on maple leaf forms and written by the children. Have a committee of larger girls to prepare some refreshments. Nothing promotes sociality and good feeling more than a little something to eat and drink, and when passed round by the teacher and her committee it will be appreciated by fathers and mothers and make them feel at home. The teacher should make up a programme for the day, consisting of readings, recitations, songs, dialogues and little papers and stories prepared by the pupils on what they have studied or read in school. This latter feature will be enjoyed by parents. We have heard of a teacher who arranged her programme so that it followed out the life plan of a tree for a year. It opened with a song of spring. Then a pupil gave the story of the sap beginning to flow. A boy told of his visit to a sugar camp. Twelve children gave a recitation on trees made up from quotations from authors. Other children may give stories about trees including the "Story of Johnny Appleseed" (found in the REVIEW for April, 1912). Short papers on the colours of leaves in autumn and why the leaves fall would naturally follow, closing with some description of trees in winter. This and back numbers of the REVIEW will help teachers to make up a plan of exercises.

Above all, in the lessons of the day, aim to create a spirit of Arbor Day,— to love the trees, to save them, and to thank God for their use and beauty. Perhaps there have been lessons enough during the year on the furniture made from trees and their various other uses. Make the lessons of Arbor Day on the living tree, how good a friend it is to us in its beauty and shade.

Planting a Tree.

On another page Mr. DeWolfe gives some good suggestions about planting trees and shrubs. But if all the trees, planted since Arbor Day was first observed in these Provinces, had grown, we would

have had school grounds beautifully ornamented with trees and pleasant to the view. But there are too many school-houses with grounds bare of shade and needlessly ugly. How can they be made more attractive? A little energy is required and a determination not to repeat the mistakes of former years. The planting of a tree should not be undertaken without careful study and forethought. The chief reason why trees die after planting is usually due to carelessness in transplanting.

An excellent authority on tree-planting, Mr. W. F. Macoun, Dominion horticulturist, gives the following directions:

Trees and shrubs should be dug as carefully as possible so as to retain a large proportion of the roots. The more roots there are the surer one is of getting the tree to live. The roots should not be allowed to become dry from the time of digging until the trees are in the ground again. They must be prevented from drying in transit by protecting them with wet moss or wet sacking. If the roots of evergreens, especially pines, become dry even for a short time the trees are almost sure to die. When planting, a hole should be dug large enough so that the roots may be spread out and not crowded or doubled up, and deep enough so that the tree or shrub will be from one to two inches deeper than it was in the woods or nursery. By planting a little deeper than it was before, provision will be made for a little heaving which often takes place the first winter, but planting too deep is almost as bad as planting too shallow. It is important to have the tree at least as deep as it was before digging and, as stated, best to have it a little deeper. The soil when thrown out of the hole should be put in two separate heaps, the surface or good soil in one and the subsoil in another. If the soil is all poor, to get the best results some good soil should be brought to at least partially fill the hole. The tree is now placed in an upright position and the good soil is first thrown gently back about the roots of the tree. As it is important for the soil to come in close contact with the roots it should be trod firmly down with the foot, when thrown in. If there is not enough good soil available to fill the hole the poorer soil may be placed on top of the good. Manure should not be put in the hole with the soil as it may burn the roots and make the soil so loose that it will dry out easily. Better apply the manure to the surface of the ground in the autumn and work it in beneath the surface the following spring. After planting, the tree or shrub should be cut back well, the amount of heading in depending upon the amount of roots on the tree. If a large proportion of the roots are cut off a large proportion of the top should be removed, otherwise the large leaf surface will transpire so much moisture that the tree will dry up before the roots begin to take in more. This is why shade trees are cut back so severely when planted, but it is not necessary to reduce the trees to mere poles as is too frequently done, causing a bad crotch in the tree later on where the stub dies back and where rot is likely to get in.

Before leaving the tree the surface soil should be loosened again so as to leave a thin mulch of loose soil on top which will prevent the moisture evaporating as rapidly as it would do if the ground were left hard. The surface soil should be kept loose throughout the summer and the best growth will be obtained by keeping a circle of from two to three feet or more in diameter around the tree free of grass and weeds, where the soil will be kept loose and where the rain and air may find a ready entrance. If trees and shrubs are transplanted with care they should usually live. Early in the spring is the best time to transplant most kinds of trees and shrubs, evergreens included. Evergreens may be transplanted in summer, but greater precautions must be taken to do it successfully, and it is not recommended. Both evergreens and deciduous trees may also be planted in the autumn successfully, but on the whole they do not do so well as if planted in the spring.

CENTENNIAL ANNIVERSARIES OF THE WAR OF 1812

XI.—The Capture of York—The Battle of Miami.

April 27.—On the twenty-fifth of April, 1813, Commodore Chauncey, with a fleet of fourteen vessels, sailed from Sackett's Harbour, having on board a considerable body of troops under General Dearborn and General Pike. Their destination was York, the capital of Upper Canada. Apparently they had no intention of holding the place if they should capture it; their chief objects being to take or destroy a new ship built there during the winter and to carry off the military stores.

York, now Toronto, was then a small village with about seven hundred inhabitants. General Sheaffe, who was there at the time, was about to do something towards strengthening the defences of the place; but when Chauncey's fleet appeared, on the evening of the twenty-sixth, he saw that he had delayed too long.

On the morning of the twenty-seventh, the invaders commenced to land near Fort Tarento, or Toronto, an old French fort some two or three miles west of the town and harbour. Somebody had blundered, and the landing met with little resistance. When they were all ashore and ready to march towards York, they outnumbered the defenders nearly three to one. The British, with heavy loss, opposed and checked the advance until the western battery, which protected the town, was damaged by an explosion, making the place untenable. Sheaffe then abandoned York and retreated towards Kingston; burning the new ship, destroying a large part of the naval stores, and leaving the militia officers to surrender the place.

As the victorious invaders drew near the town, a large powder magazine blew up, scattering stone

and timber among them and killing more of them than had been killed in battle. General Pike was among the injured, and he died of his wounds before the surrender of the town. The explosion was said to have been accidental. If it had been a part of General Sheaffe's plan for the destruction of military stores, this was not admitted. The enemy looked upon it as a wanton destruction of life and property after actual resistance was over.

Sheaffe reached Kingston in safety, taking with him most of the regular soldiers; but he had lost at York the credit he had won at Queenston, and he was soon relieved of his command and transferred to Lower Canada.

Terms of capitulation were arranged in the afternoon of the twenty-seventh, by which the remaining troops, to the number of about three hundred, were surrendered as prisoners of war, and all that remained of the naval and military stores was given up. Then followed the destructive work of the invaders for which this date is chiefly memorable. They burned the parliament buildings with their library and records, robbed the church of its silver, and carried off the books of the town library. They also plundered private property in violation of the terms of the capitulation, and several private houses were left in ruin. These depredations were, perhaps, the work of riotous soldiers or sailors who had got beyond control; or of undisciplined youths in officers' uniform, of whom, unfortunately, there were too many in the hastily organized United States army. Commodore Chauncey, before he sailed away, collected and sent back some of the books. The burning of the parliament buildings was avenged in the following year by the burning of the public buildings at Washington.

May 5.— Near the site of the present city of Toledo, General Harrison who had retreated to Miami after the battle of Raisin River, had built a new fort to strengthen his position; naming it Fort Meigs, in honour of the Governor of Ohio. At the end of April he held this fort with a garrison of thirteen hundred men; and he was daily expecting the arrival of as many more, under the command of a general who bore the remarkable name of Green Clay. Procter, who had been promoted for his victory at the Raisin and was now Brigadier-General Procter, knew of the expected reinforcement, and determined to attack Fort Meigs before General Clay's arrival. Leaving Amherstburg for that purpose on the twenty-third of April, he reached the Miami on the twenty-eighth, with about a thousand white troops, and some fifteen hundred Indians under Tecumseh. He immediately began the erection of batteries on the left bank of the river, opposite the new fort.

Early on the morning of the first of May, his guns were in position and the bombardment began. It continued for four days; at the end of which time the enemy's guns were silenced, but the fort was not surrendered.

On the morning of the fifth of May, General Clay's army appeared, coming down the river in boats. A very violent rainstorm to some extent covered his movements. One-third of his men he landed on the south side of the river, where there were but few besiegers, and they reached the fort with little loss. The other two-thirds, under a subordinate officer, Colonel Dudley, had orders to land on the north side, take the British batteries, spike the guns, and then return to their boats and cross over to the fort. They took the batteries; but they spiked the guns with the wooden ramrods of their muskets, which did no real injury, and they disobeyed the order to return at once to their boats. The result was a signal defeat. The captured batteries were soon retaken; Dudley himself and about four hundred of his men were taken prisoners; many others were killed in action, and, of the eight hundred and more who had landed with him, only a hundred and fifty reached the boats and made their escape. Meanwhile a small British battery on the other side of the river was taken and retaken. The Brittish lost less than a hundred men in both encounters; the loss of the Americans was six or seven hundred.

There is too much truth in the story of Indian atrocities at Miami. Forty of the prisoners taken in this battle were killed by Indians before Tecumseh rode up and put a stop to the massacre, and Colonel Dudley was among the victims. It was the work of Chippeways who had taken no part in the fight.

The Indians found such rich spoils in the capture of General Clay's supplies that most of them went off home with their plunder, leaving General Procter with so few men that he had to abandon the siege. On the ninth, therefore, he broke up his encampment and withdrew, taking with him all his guns and stores. Although he had failed to capture the fort, he was satisfied that he had effectually checked the enemy's advance for the time. Nevertheless, he foresaw that a further advance could only be a question of time if the British finally lost control of the lake. The support for which he had asked in vain was now more needed than ever.

NATURE STUDY OF ANIMALS.

H. G. PERRY, Wolfville, N. S.

Bird Observations — Some Winter Birds.

RUFFED GROUSE (Partridge): While this bird must be fairly common throughout the larger part of the Maritime Provinces, but four reports mention it, Yarmouth, Truro, Wolfville, and Leamington, Cumberland Co., N. S.

SAW-WHET OWL: Quite rare at Yarmouth.

SNOWY OWL: Very rare at Yarmouth. Several other reports mentioned owls, but did not particularize.

HAIRY WOODPECKER: Very rare at Yarmouth.

DOWNY WOODPECKER: Occasional at Yarmouth, Wolfville, Summerville, Hants Co., N. S.; Lower Millstream, Kings Co., N. B.; Black Lands, Restigouche Co., N. B.; Fredericksburg, York Co., N. B.

HORNED LARK: Fairly common at Yarmouth from November 1st—March 1st; seen at Wolfville during the winter.

BLUE JAY: Wolfville; Truro, a pair seen February 22; Leamington; Riverside, Albert Co., N. B.; Lower Norton, King's Co., N. B.; Lower Millstream; Narrows, Queen's Co., N. B.; Black Lands and Fredericksburg.

CANADA JAY: Frequently seen near Yarmouth. Mr. Allen of Yarmouth writes that he has seen them carrying nest material as early as March 12. Miss Murray, Leamington, Cumberland Co., writes that none have been seen in that vicinity, though usually they are fairly common. Seen near Belmont, N. S., during December. Reported from Lower Millstream, Fredericksburg, and common at Black Lands.

AMERICAN CROW: Very common, Yarmouth, Wolfville, Truro, Leamington, Summerville; reported from Lower Norton; Lower Millstream; Narrows and Salmon Creek, Queen's-Sunbury Counties, N. B.; and Liverpool, N. S.

PINE GROSBEAK: Yarmouth, Wolfville, Leamington and Liverpool, N. S.; Lower Millstream, Black Lands and Hartland, N. B.

Mr. Allen reports that though it is usually considered a winter bird in Nova Scotia, he has found it several times in the vicinity of Yarmouth during June and July; and that Mr. H. F. Lewis saw one feeding young in Yarmouth Co., July, 1911.

ENGLISH SPARROW: Very common throughout our range. Miss Murray reports she has not seen it at Leamington, N. S. Watch for the first nesting and report.

PURPLE FINCH: Several seen feeding, February 6, Truro; a few wintered in Wolfville; reported from Summerville.

AMERICAN CROSSBILL: Flocks occasional, Yarmouth, and Wolfville; Lower Norton, Black Lands. Search for the nests during February and March. These birds have the reputation of changing their winter haunts from year to year, on account of food conditions. Observation is needed on this point.

WHITE-WINGED CROSSBILL: Occasional, Yarmouth; several seen at Truro during the winter.

REDPOLL: Flocks quite frequent towards spring, Yarmouth.

AMERICAN GOLDFINCH: A few seen near Yarmouth, Liverpool and Wolfville.

SNOWFLAKE: Very scarce, Yarmouth; twenty reported from Summerville; quite frequent, Leamington; common at Lower Norton; Lower Millstream; Narrows; Salmon Creek and Black Lands.

TREE SPARROW: Rather rare, Yarmouth; reported from Summerside and Leamington.

SONG SPARROW: A few seen, Yarmouth, Liverpool; several during February and March, Wolfville; reported from Summerville, Lower Norton and Riverside.

SLATE-COLORED JUNCO: A few, Yarmouth, Wolfville, Liverpool and Truro; also a pair reported, February 17, Leamington; reported from Riverside.

CEDAR WAXWING: A flock, 40-50, November 15, several about February 20, Yarmouth; Narrows, N. B. At Yarmouth were found feeding on the berries of black alder (Ilex). Mr. Allen never saw it before during the winter.

MYRTLE WARBLER: Occasionally seen in flocks during winter, Yarmouth.

BROWN CREEPER: Yarmouth, usually with Kinglets, and Chickadees; one reported from Summerville.

WHITE-BREASTED NUTHATCH: Lower Norton, N. B., in flocks.

RED-BREASTED NUTHATCH: Truro, Lower Millstream, and Black Lands, N. B.

CHICKADEE: Very common in all places mentioned in these notes.

ACADIAN CHICKADEE (formerly Hudsonian Chickadee): More common than the other Chickadee at Yarmouth; common at Wolfville, and Truro.

GOLDEN-CROWNED KINGLET: One of the most common birds in woods, Yarmouth; quite common Wolfville, Truro, and Lower Norton.

ROBIN: Some found at Yarmouth, Liverpool and Wolfville; scarce, Truro; several seen, Summerville; very rare, Riverside.

Song Sparrows, Crows, Junco, Chickadees, Grackles and Golden-Crowned Kinglet. The latter I had the good fortune to see and hear more distinctly than ever before. Little signs of vegetation except in the tree tops; but I found alder nearly or quite ready to shed its pollen,—a record date for this place.— J. V., St. Stephen, N. B.

Crow, English Sparrow, Chickadee Blue Jay, Snow Bunting, Cedar Wax-Wing and a large grey bird with red on the head, generally seen before a rain. (Probably the Pine Grosbeak.)—A. B. K., Butternut Ridge, N. B.

Besides the foregoing the fox sparrow is reported from Riverside, N. B., seen March 7, also the Meadow Lark, from same place, seen March 11, and 12. The woodcock is reported from Lower Millstream. Careful observation should be made in both these cases, and all further information, and corroborative evidence reported. Mr. Harrison F. Lewis reports that he discovered three evening grosbeaks at Truro, March 17. Professor Harlow of Truro Normal School also saw the birds and agreed with Mr. Lewis's determination. As this bird is said to be fairly common from Lake Superior to the Rocky Mountains, and is rather rare in Ontario and Quebec, with no records whatever, as far as I can learn, from the Maritime Provinces, this report is of more than ordinary interest.

It is encouraging to find, even with the short notice given, a very ready response to my suggestion in the March issue of the REVIEW. I wish to thank all who have contributed. A good start has been made, it is a move in the right direction, and I think that we should continue the work for a time as a part of our nature study page. Let us at once extend the reports to the spring migration. Let all students and lovers of nature join in the work. Reports on postal cards, giving dates of first arrivals, and when seen in numbers as far as possible, and mail direct to me at Wolfville. We require data concerning a wide area, that we may be able to fix the time, rate, and path of migration of our various species. Interest your friends and fellow teachers, and spread the work.

Mail your reports any time from the 20th to the 25th of each month. The tabulated account will appear in the next issue of the REVIEW.

Note that many of the birds mentioned this month are only partial winter residents with us. The Robin, for example, is found sparsely scattered over a wide area during the winter, but the spring migration gives us flocks of these birds. Such birds should appear in the spring reports.

Other First Appearances.

In conjunction with this work we should note the first appearance of other animals. The insects are especially interesting and instructive. Cocoons and chrysalises will soon be giving out their treasures. There is nothing more inspiring to the young student than his first butterfly, and if it is the result of his own work and experiment it is highly educative.

Watch closely for Cocoons. Examine fences and buildings near cabbage and turnip fields of last summer. In sheltered nooks and crevices you will find the chrysalis of the cabbage butterfly. Collect by removing a small portion of wood with each, place in a fruit jar, in their natural position, cover with cheese cloth or cotton, and watch for butterflies. Some may yield very small flies; these are parasites of the Cabbage Butterfly. Here is good material for a lesson on parasites. Name several other animals that have parasites. Show the value of parasites in keeping pests in check. Has the Brown-tail Moth natural parasites in our country. Collect some Tent Caterpillar rings in apple-trees, etc., and keep in school in covered jars. Note that in a few weeks, at most, the young, the small caterpillars, come out. Are there many? Where have they been during the winter? If you wish to hasten the work break the ring loose, and dissolve it partly in a few drops of alcohol; the the young caterpillars are then readily seen. Notice how they have passed the winter. Why did the moths place the rings near the end of the twigs?

Hibernating Forms.

Several hibernating forms, as the house-fly, the Mourning Cloak (Antiopa butterfly), and the moth of the green apple worm have begun in some parts, to make their appearance.

The house-fly deserves special notice. It is one of the great scourges of mankind. His filthy habits and rude familiarity are quite enough to

condemn him, but late investigations have shown he is the carrier of several disease germs, especially of typhoid. Dr. Howard, head of the department of Entomology, Washington, D. C., has for this reason re-named him the typhoid-fly. They hibernate during the winter, and from the few of early spring descend the myriads of late summer. The progeny of a single pair will under favourable conditions number hundreds of millions before the end of summer.

Campaign Against Flies.

Start a campaign against the fly, and get in some good work early. One killed in April means thousands less to kill in August. Inform yourself regarding the fly, and tell your pupils of the danger it is to the community. A campaign against flies to be effective should proceed along four lines: First, kill all those that appear early; second, remove all filth and manure heaps, their chief breeding places; third, catch in summer, beginning in late June or early July, in large traps, placed out-of-doors, all that come near your dwelling; and fourth, from the first have the whole neighborhood co-operating with you. As teachers, see that the educational part of the work is done, then the campaign becomes easy. Direct and teach, and teach and direct. Dr. C. F. Hodge, Clark University, Worcester, Mass., has written several leaflets regarding the fly and its ravages. The State Board of Health of North Carolina, Raleigh, N. C. issues Special Bulletin No. 11, The Plague of Flies and Mosquitoes, which is sent upon request. It contains some valuable information, and some good suggestions. Most of the State Boards of Health issue similar literature, which can be had for the asking. Dr. C. G. Hewitt, Dominion Entomologist, is author of a small book, House-flies and how they Spread Disease, published 1912, for sale by Copp, Clark & Co., Toronto, price 25c. It is a most valuable little book and should be in the hands of every teacher.

TEACHERS' INSTITUTE FOR KINGS AND HANTS, N. S.

The Teachers' Institute for the district of Kings and Hants Counties N. S., was held in the Alumnae Hall of Acadia Seminary on the 19th and 20th March. About 140 teachers attended and helped to carry through an excellent programme, with spirit. Much of the success of theInstitute was due to the efforts of Inspector Robinson and he was ably seconded by Superintendent Dr. A. H. Mackay, Inspector Campbell of Truro and members of the faculty of the Acadia Institutions, many of whom willingly gave their time and contributed by their sympathy and co-operation to the interest of the proceedings.

The public meeting held in the hall of Acadia University on the evening of the 19th, was addressed by Principal DeWolfe of Acadia Seminary, President Cutten of the University and Dr. A. H. MacKay, Superintendent of Education. The addresses of these experienced educationists were listened to with keen interest by the large audience, and the attractive musical programme given by members of the Acadia Seminary added much to the general enjoyment. This was followed by a reception in Acadia Seminary and dainty refreshments were served by the Household Science Department.

The hearty welcome accorded to the teachers, many of whom are graduates of the Acadia Institution, and the opportunity to revisit their alma mater and inspect the new buildings and other improvements were greatly appreciated, and contributed not a little to the educational value of the meeting.

The proceedings at the various sessions of the Institute were made up of informal talks, lessons given to classes of pupils drawn from the Wolfville schools, and the answering of questions which presented some difficulty to the teachers. Inspector Campbell made clear many processes in arithmetic; Miss Jessie B. Campbell B. A. read an excellent paper on Geography; Miss Sadie Wylde and Miss Eva B. Lockhart conducted classes in Reading, leading the pupils in a very intelligent way to grasp the content of what they had read; Miss Gertrude Reddy dealt with the outline of one years work in Object Drawing for grades 4, 5, and 6, and Miss Barrett with problems in Chemistry; Principal R. W. Ford, B.A. gave an excellent lesson to a class of advanced pupils on Geometry, and Professor L. A. DeWolfe of the Normal College a bright and informal talk on Nature work.

The Institute was a very successful one, adapted to meet the needs of the teachers and serving the purpose well.

In curves the yellowing river ran,
And drooping chestnut-buds began
To spread into the perfect fan,
Above the twining ground.

(Sir Launcelot and Queen Guinevere)

BOTANY FOR APRIL.

L. A. DeWolfe.

April is a Month for Planning.

as well as for acting. The teacher will have the children tell her what grows in yonder swamp or woodland, on yonder hillside or riverbank. Together, they will plan excursions to find the first opening flowers. They will keep a record of the dates of blooming, and of the home surroundings, and associates of each plant.

Think of the plant not simply as an object to be studied, but as a living thing influencing and being influenced by its environment. Did the plant choose its present locality, or was it forced there? This introduces a discussion on the struggle to exist, — a subject treated in every text-book and illustrated everywhere in real life.

Some Early Spring Plants.

At this season, I like a lesson on the Alder. One gets such comprehensive illustrations here of the modifications for special work. On a single twig, we find the staminate catkins, the pistillate catkins and the well-covered leaf buds. Possibly last year's pistillate catkins still adhere to the same twig. The structure and arrangement of the individual staminate flowers should interest one. Here one can begin the study of pollination. Watch the alders for insect visitors. Similarly, watch other flowers when they appear. Make a list of wind-pollinated and of insect-pollinated flowers, with remarks on your discoveries.

Among early showy flowers is the Dog Tooth Violet or Adder's Tongue or Fawn Lily. How much earlier does it bloom on a south slope than on a north one? Is there ever any disadvantage in this? If a hard frost came a few days after the flowers on the warm slope had opened, would those on the north slope suffer? What bearing has this on farming and fruit-growing? Is it always wise to have early-blooming fruits on a south slope?

Try to pull up Adder's Tongue Lily by the roots. Were you successful? Investigate. Dig one up. How deeply does it go? What is the root like? Compare the depth of the bulbs belonging to leaves of various sizes. It is interesting to know that it takes six or seven years from seed before the plant reaches the fruiting age. During this time, the bulb is growing larger and burying itself more deeply in the ground. In a bed of these plants it is possible to find those of all ages, from one year to maturity. Try transplanting them to your school garden, and watch them grow.

The practice of destroying rare plants should be discouraged. Knowing their habit of growth and reproduction will guide one in this. Does the picking of Adder's Tongue Lilies lessen the crop for next year? If the leaves are left to feed the bulb, no harm results, excepting that seeds cannot spread to start new beds. How are these seeds usually scattered?

Among other early flowers which are worth looking for are the Blood-root and Spring Beauty. These are not common to all sections of the provinces.

Make the School Grounds Attractive.

The mere finding of flowers, however, and noting their life relations is not the only botanical work for early spring. Why can we not assist Nature as well as admire her? Possibly a teacher can do no greater work than that of beautifying the school-grounds. Do not wait until Arbor Day. To plant a few trees on that day is commendable. But that is not the limit of one's opportunities. Why is every school-ground not a bower of native and imported shrubbery and flowers? The influence it would have on the home grounds in the section is almost incomputable.

Why not begin at once by getting one or two good seed catalogs? Have the children select what they would like to see on the school premises. Perhaps they would like to get something for the home garden at the same time. Impress upon them the danger of neglect during vacation. Then call for volunteers who will be responsible for its care during that period. If the teacher contemplates leaving at the end of the term, she should will her share to the next teacher; and appoint trust-worthy pupils executors of the will. In that way, she is combining business training with Nature study; and doing it all in the spirit of play.

The matter of selecting material is not difficult. Along the north side of the grounds, I should plant some hundreds of our native trees and shrubs, conifers, poplars, birches, maples, dog-wood, Indian pear, wild cherry, hawthorn, wild roses, etc. Do not set them in straight lines; but mass them. Keep in mind their habit of growth. Taller trees should be behind shorter ones. The conifers should be suitably placed for winter wind-break. Among these trees, and in the shade of the school house, plant ferns and shade-loving flowers. Have the children notice what plants grow in the shade.

In transplanting, try to give their natural conditions. Mosses that grow under trees could be planted in leaf mould, and would serve to keep the ground moist. In spite of care, some plants will die. Try to find the reason. What conditions were unnatural?

The seed catalog will suggest vines, for covering out-buildings and unsightly corners. The children can bring roses and lilacs from home; for these spread rapidly by suckers. Flowers and vegetables can be grown in beds near the fences or buildings to avoid interference with the regular play ground. The children are entitled to their play periods. Often, however, they will give a recess period or an hour after school to the garden. Some of the regular school time, however, should be devoted to this out-door work.

An Hour That May be Well Spent

Here, another idea suggests itself. In too many sections, the cruel habit of keeping children sitting in school until four o'clock still survives. If a teacher is modern enough to suggest closing at three, the trustees will object. One way out of the difficulty is to close school-room work at three, and spend the last hour in the garden or the fields. The closing at three would soon become a settled habit at all seasons. The teacher who advocates early closing to save herself an hour's work is not worthy of consideration, unless it benefit the children as well.

During this afternoon hour, she can assign problems and topics in arithmetic, geography, composition, commerce, etc., as suggested by the Nature work. The text-books then become books of reference, as they should be, instead of lists of abstract facts to be memorized.

All teachers are, doubtless, aware that a good school garden entitles the trustees to an additional twenty-five dollars from the municipal funds. This can be used in buying seeds, shrubs, fertilizer and tools if necessary.

If the school-ground soil is not suitable progressive men will donate a half day's work with team to haul good soil from elsewhere. Or a piece of ground near the school might be available. Even a swamp that the owner considers valueless has tremendous possibilities.

The field for investigation and initiative is big. No teacher need plead ignorance of these things. Be a learner with the pupils; and the joy of doing and discovering things repays, many times, the effort.

THE KINDERGARTEN AND THE PRIMARY.

MRS. ADA MAREAN HUGHES, TORONTO.

The aim of the Primary school is to teach a child how to read, write and spell, and to know a little of the processes and combinations of number. This work is to be a basis for higher education in literature, history, mathematics, science, subjects named in the curriculum of the higher grades. The work is intended to help the child to know things. The kindergarten puts things in the child's hands. These things are accurately made, and embody in material, number, form, size, color, all the elements that are combined in material things. This material suggests definite ideas. The child handles them, divides, puts together, transforms, distinguishes form and color, compares size and qualities and is always alert, eager and progressive in effort. The child creates at first hand mathematical ideas which make mathematical formulæ when written. He knows them through handling material. He is making arithmetic, geometry mensuration. His knowledge is vital because he has himself discovered and recognized through original experience.

* * * * * *

He is getting a vocabulary of words that stand for real things. He still plays, but his play is becoming more purposeful through accuracy of material and guided activity. The will of the individual is our hope against the evils of heredity and environment. The training of the will ought to be the most distinctly vital purpose in education. The more thoroughly the will is centred in the action, the more vital the exercise and the more thoroughly the brain is nourished with the blood which circulates through it. In early childhood the will responds to influence much more readily and completely than later, either for orderly action or for caprice, and tendencies become fixed into habits more and more tenaciously as childhood passes over into youth. This is evidently the most important time for will training.

* * * * * *

When there is a natural appetite the body is built up by food taken. So with the mental growth. There must be the appetite of interest and curiosity before the mind assimilates the thoughts of others. Experience precedes vital knowing. An occasional child may be persistently interested in learning to read and not correspondingly interested in doing things. Such a child

needs encouragement in a more varied exercise of all the creative faculties to prevent a one-sided and premature development which lacks in breadth and strength. Precocity is much to be dreaded. A forced plant gives bloom early but fails in later development to fulfil the complete order of its being.

* * * * * *

The exercises of the intelligently conducted kindergarten are infinitely more interesting to the normal child than being suddenly called from play and bodily freedom to give attention to signs in a book which he is told say "It is an ox" or more logically "The cat sat on a mat." He has little or no interest in these thrilling (?) tales. Curiosity is not looking out from his mind to understand. The conditions are not favorable to eager interest. He must learn to read sometime to be sure, but is it not reasonable that he must want to know something that is written before the exercise of reading will have the best effect? The brain like the digestive organs cannot assimilate much unless there is a desire for the food taken.

* * * * * *

Our system of education has not yet produced the results we hope for viz., the making of a class of citizens ideally intelligent and appreciative. Until we have perfect results we must not make the fatal mistake of resting in satisfaction with methods which claim our respect chiefly because they have come to us from an honored past but which have as yet failed in giving us ideal results in developing a vitally intelligent and efficient generation of men and women.

MARTIN LUTHER'S LITTLE TAME ROBIN.

I have one preacher that I love better than any other on earth; it is my little tame robin, who preaches to me daily. I put his crumbs upon my window-sill, especially at night. He hops on to the window-sill, when he wants his supply, and takes as much as he desires for his need. From thence he always hops to a little tree near by, and lifts his voice to God and sings his carol of praise and gratitude, tucks his little head under his wing, and goes fast to sleep, and leaves to-morrow to look after itself. He is the best preacher that I have on earth.—*Martin Luther.*

Three peas in a pod:
Prepare! be punctual! persevere!
To this important rule adhere.

A TERCENTENARY.

G. O. Bent.

The year 1913, is the three hundredth anniversary of an event of considerable historic interest, namely, the first clash between the French and English in America.

So much is heard of the "Mayflower" and her cargo that we are apt to lose sight of the fact that Anglo-Saxon civilization was well established in America before the voyage of the "Mayflower" in 1620. Jamestown, Virginia, was founded in 1607. The Virginians laid claim to the whole Atlantic coast, from Florida to the Gulf of St. Lawrence, although the French had preceded them, in the north, by their settlement in Acadie in 1604.

Among those interested in French colonization was the Marquise de Guercheville, "one of the most beautiful and zealously religious women of her time. "She was a patroness of the Jesuits, and sent out to Port Royal, in 1611, the two Jesuit missionaries, Biard and Masse. This was the first appearance of the Jesuits in New France. Huguenot sentiment was strong at Port Royal and there was much discord there for two years. Madame de Guercheville then resolved to establish a new colony, under Jesuit auspices. She and the Jesuits purchased from De Monts his rights in America and also secured a fresh royal patent. In the spring of 1613 a vessel named the Jonas, which had previously voyaged to Acadie, was despatched, with a party of colonists under La Saussaye, including two Jesuits, St. Quentin and Du Thet (a lay-brother). This vessel took possession of La Hève and then paid a visit to Port Royal, where Biard and Masse were taken on board. The course was then laid for the coast of Maine, the intention being to ascend the Penobscot, as far as the Kenduskeag River and establish their settlement at the present site of the city of Bangor. There were forty-eight souls in all on the vessel. Unpropitious weather and dissensions in the crew caused them to make a landing on Mount Desert Island, near the entrance of Frenchman's Bay, south of the present Bar Harbour. Here it was decided to remain. They named the place St. Sauveur, considering it their salvation, without any suspicion of the destruction so near at hand. There they raised their cross and began tilling the soil and building houses.

Thus they were busily employed, one fine

summer day, when an English ship, carrying fourteen cannon and sixty musketeers, suddenly appeared, bearing down upon them. Captain Samuel Argall, of Virginia, was in command. He had just come from a voyage up the Potomac river, during which he had performed his abduction of the celebrated Indian girl, Pocahontas, and carried her to Jamestown. The Frenchmen's vessel lay at anchor, with sails down and used as awning. A few men, including Du Thet, were on board. The English ship, Biard tells us, came on swifter than an arrow, driven by a propitious wind, the banners of England flying, and "tout pavis de rouge." Trumpets and drums made a horrible din. The unfortunate French, taken entirely by surprise, could make little resistance. Brother Du Thet fired off a cannon at the invaders, but neglected to take aim. A volley from the English gave him a death wound. Two other Frenchmen were killed and four wounded. Argall captured this vessel and another smaller one and took them to Virginia. The members of the colony were dispersed in various directions, some were on Grand Manan and Long Island, in the Bay of Fundy. Most of them found their way back to France after many vicissitudes. Among those taken to Virginia were the two Jesuits, Biard and St. Quentin.

Upon Argall's arrival at Jamestown, and conference with Governor Dale, it was resolved to complete forthwith the work of exterminating the French on the Atlantic coast. With his own vessel, and the two taken at St. Sauveur he sailed again northwards, with instructions to destroy all fortifications and settlements of the French as far as Cape Breton. Biard and St. Quentin were with him. A call was made to complete the levelling of St. Sauveur. Here, and in various other places, Argall erected English monuments, as the Jesuit Relations tell us, "declaring the whole coast to be under the sway of the British King." The remains of the settlement at St. Croix were destroyed, and, on the night of October 31, 1613, by the light of the moon, Argall with his three vessels sailed into the beautiful basin of Port Royal. In the morning a landing was made, but the inhabitants had fled. Nine days appear to have been spent here and the destruction and pillage were most complete, ending by the burning of the houses. Father Biard had his revenge. Some deny that he was Argall's pilot in the Baie Francaise, but they seem to have had a good understanding, and Biard speaks of Argall as a man "who has a noble heart." On the return voyage to Virginia, Argall's smallest vessel was lost. A call was made at Manhattan Island.

Thus the English asserted themselves and put a stop, for the time, to attempts at French colonization in Acadie which had been making, through trials and tribulations, for nine years. The English made no attempt to colonize Acadie until Sir William Alexander's unfortunate Scotch colony of 1628.

In Alexander's map of Acadie the Bay of Fundy is called "Argall's Bay."

These English expeditions from Virginia had, however, a more important bearing upon history than appears to be generally recognized. Without a decided check, such as administered by Argall, the French would undoubtedly have extended their settlements southwards. Even in Massachusetts Bay, instead of the Pilgrim Fathers, might have appeared another very earnest people, the Jesuits. But the "Mayflower" came, and many other ships, and the Puritans became rooted in New England, only to be overwhelmed later by various strange and less pious peoples, who had no proper appreciation of the severities of life.

Argall, who appears to have been a good specimen of the old English sea-rover and adventurer, was deputy-governor of Virginia for two years; became Sir Samuel Argall in 1622, served as admiral in Spanish wars, and died in England in 1626.

Such, in brief, were the circumstances under which the first shots were fired in the long struggle between French and English in America. A Jesuit was the first to lay down his life. Just a hundred years later, in 1713, Acadie became permanently British, by the treaty of Utrecht. In fifty years more, in 1763, all Canada was finally ceded to Britain by the treaty of Paris. Another hundred and fifty years have passed, and in this good year of 1913 those who still cherish the traditons of La Belle France are found living in peace and amity under the Union Jack, Canadians all, and following, with faith, the rising star of the great Dominion.

The boy who rocks the boat for fun,
Or plays he'll shoot you with a gun,
May some day get a little sense,
In the dear school of experience.

CORRESPONDENCE PAGE,

My pupils enjoyed Mr. DeWolfe's lesson of March; and some of them said they didn't know before, that lambkill and some other wild plants were evergreens till they found them mentioned as such in his botany lesson of last month.

They have studied the evergreen trees and ean write fair compositions on these, but were so surprised to think those plants belonging to the heath were evergreens, that, yesterday, they went up the river and brought cranberry vines, tea-berries, lambkill, club mosses etc. The snow was so deep and is deep in places yet, that they couldn't get any low growing plants.

One of my girl pupils is going to write a letter on what she learned in the woods. She came back to school yesterday after being in the lumber woods since Christmas. She wasn't well and her parents took her to the pine woods and lived in camp till last Saturday.

If she can make her stories as interestlng on paper, as she does when she relates some of her experiences to us, I know they will be worth printing.

LAURA J. EDDY,

Bathurst, N. B., April 1st.

Teachers: Brothers and Sisters in the profession, are we awake to the fact that in our hands is placed, to a large extent, the making or marring of the future of our nation in moulding the characters of the future citizens. Let us see to it then that we endeavor to make a good impression on those characters. As the Cretans of old were known everywhere to be "liars" may the Canadians of the future be known throughout the world to be all that is truthful and sincere. I say sincere, yes, for it seems to me so few really know or practice that word. To be sincere in all their dealings, we should instil it into their beings and let the children see how important in life it is. How many of ourselves have suffered through the insincerity of some we have trusted. Let us make the children profit by our experience.

Again, how few children can centre their thoughts on any one thing and carry it through as Macaulay must have done when he was asked on returning from the Sabbath service to repeat word for word the sermon. The memories of our children are not trained as they should be, and do we set them a good example? If they could see us in our Teachers' Institutes rising and reading our thoughts from a paper when it would be so much more interesting and impressive if we would deliver it without the paper. "No confidence in our memories."

May I suggest that there be more time spent on memory training. You will hear people say to-day, "Oh how I wish I could remember this and that" While, it would have been so easy for them to remember such things if they had had a little memory training in youth.

We should be content with what we have but not until we have made the most of it. Let us make the most of the trust placed in our hands, and train those characters gently but firmly.

Riverside, N. B. ANNETTA M. CHARTERS.

April 1; 1913.

An inspector of schools in New Brunswick mentions to the REVIEW that the scarcity of teachers is becoming a serious question in his inspectorate. The teachers who have recently graduated from the Normal School he cannot find filling positions in the schools, at least in his own counties, and he assumes that they have either gone to the West or have become stenographers or typewriters. Nor is the outlook for the future less serious. He finds few in the schools of his inspectorate in preparation for Normal School. We cannot think that this condition of things is general.

THE CAT AND THE MONKEY.

A cat and a monkey were very good friends. One day a little boy put some chestnuts in the fire to roast, and soon they began to burst with the heat.

"Oh, how good those chestnuts smell!" said the monkey. "I must have some of them, but how can I get them? If I put my paws in the ashes I shall be burned. O, I know!" he cried, and off he ran to find his friend the cat.

"Dear kitty," he said, "what beautiful hands you have! I think they were made especially for pulling chestnuts out of the fire. Won't you try it and see?"

So the foolish kitty put her paws in the ashes and pulled out the nuts, but in doing so she burned her fingers badly.

"Meow! Meow," she cried, "O, my poor fingers!" and while she suffered from her burns, the monkey ate up all the nuts.

MY LADY OF DREAMS.

MRS. JEAN BLEWETT, Toronto.

Back from the highway, my lady of dreams
Murmurs a roundelay tender:
Silence and fragrance, and flowers and streams,
These do you sing of, my lady of dreams,
Standing so stately and slender!

Silvery white where the lone shadows brood,
White where the starlight is streaming,
Silvery white through your virginal snood,
Silvery white through your veil and your blood —
You, with your singing and dreaming!

You, with a cloak of the loveliest green
Draping your warm whiteness over!
You, with the breath of the forest, I ween,
Mosses and briers with lilies between —
Haunts of the poet and lover!

Back from the highway, my lady of dreams
Murmurs a roundelay tender:
Silence and fragrance, and flowers and streams,
These do you sing of, my lady of dreams,
Standing so white and so slender!

WHY PLANT A TREE?

Why plant a tree? Because the birds
That 'trance the listening air,
May nest among the rippling leaves
And sing your praises there.

Why plant a tree? Because the beasts,
As seasons come and go.
May shelter underneath the boughs
And there mute thanks bestow.

Why plant a tree? Because you may,
As aging years invade,
Eat of its fruit, admire its form,
Or rest beneath its shade.

Why plant a tree? Because your son,
And his son's son again,
For this alone in future years
May rise and bless your name.

Why plant a tree? God himself
A garden set of old,
And if you follow in his way
You'll find mayhap, his fold,

So then if God, and child and you,
And beast and bird agree,
Why, man! get up and hunt that spade
And go and plant a tree.

THE SPRING MAID.

April, half-clad in flowers and showers,
Walks, like a blossom, o'er the land;
She smiles at May, and, laughing takes,
The rain and sunshine hand-in-hand.

So gay the dancing of her feet,
So like a garden her soft breath,
So sweet the smile upon her face,
She charms the very heart of death.

The young moon in a trance she holds
Captive in clouds of orchard bloom,
She snaps her fingers at the grave,
And laughs into the face of doom.

Yet in her gladness lurks a fear,
In all her mirth there breathes a sigh,
So soon her pretty flowers are gone —
And ah! she is too young to die!

Harper's Magazine

THE BOY'S SLING.

A great hulking boy with nothing to do
Was trying his sling with a hard stone or two,
And thought it good sport to shoot down and kill
Our sweet feathered songsters upon the green hill.
A dear little bluebird, perched up in a tree
Was singing the song of the happy and free,
With his pretty mate by him, how happy were they,
In God's blessed sunshine, that beautiful day.
In the midst of his song came a stone from the hand
Of that cowardly boy, skulking there on the sand,
And the bird's note of joy broke in a faint cry
And he fell on the roadside to struggle and die.
A bright life thus ended and laid out of sight,
A helper destroyed, who well earned his right
To his share of sunshine and his place in life,
His pride in his nestlings and his dear little wife.
His song had been hushed, but woe to the heart
So cruel and so mean as to act such a part.
Oh, never, dear children, thus sully your hand
By killing for sport the sweet birds of our land.

ARBOR DAY.

(For eight small children)

A is for apple whose fruit is the best,
R is for redwood, the pride of the west,
B is for beech whose small nuts we eat,
O is for orange with fruit juicy and sweet,
R is the rubber, a tree of Brazil,
D is the date-palm, many boxes to fill,
A is the ash our forests will boast,
Y is the yew tree, at Christmas used most.—*Kindergarten Primary Magazine.*

REVIEW'S QUESTION BOX.

M. O. M.—Please give what Prof. Waddell would call a perfectly correct answer to the questions on physics and chemistry in the provincial examination papers of July 1912?

If a locomotive weighing 100,000 lbs, starting from a station gains a velocity of twenty feet per second in ten seconds, what force is being exerted by the engine, assuming that the force is all employed in moving the locomotive? Name the unit in which your answer is given. Which of the following are units of force; foot, pound mass, pound weight, poundal, erg, gram, dyne, dyne-centimeter?

A velocity of 20 ft. per second gained in ten seconds is 2 ft. per second in one second. The force required to give one pound a velocity of one ft. per second in one second is called a poundal and the force required to give 100,000 lbs. a velocity of two ft. per second in one second is therefore $100,000 \times 2 = 200,000$ poundals. The unit is poundals. Pound weight, poundal and dyne are the units of force in the list given

What is produced if a mixture of ammonia gas and oxygen is exploded?

Nitrogen and water as shown by the equation,

$$4NH_3 + 3O_2 = 2N_2 + 6H_2O.$$

It is seen from the equation since the coefficient of NH^6 is 4 and the coefficient of O^2 is 3 (and the formulas of gases always represent the same volume) that the volume of oxygen required is only ¾ that of the ammonia. Therefore for 40cc of ammonia 30cc of oxygen would be required; ∴ 10cc of oxygen would be left over. The volume of nitrogen produced is 2-4 that of the ammonia, ∴ 20cc.

10cc oxygen + 20cc nitrogen = 30cc.

At the ordinary temperature water would be liquid and its volume would be negligible. If the temperature were above 100° C its volume would be three times that of the nitrogen because it would be a gas. The answer to both of these questions is a little more full than I should think really necessary from a candidate, because I hope the statement will be plain even to one who did not understand the question before, whereas I am satisfied if a candidate shows me that he understands it. If, however, a candidate gave the answers in this form I should be glad. —J. W.

GRADUAL SPRING.

Dream footsteps wandering past us in our sleep;
A restless presence stirring with the light;
The cry of waters where the snow was white;
A violet's whisper where dead leaves lie deep;
The dim wood's music makes a sudden leap;
Broken notes blending in a wild delight,
And lo! the whole world changes to our sight;
Promise is ended, we must turn and reap
Fulfilment, for the spring with all her wealth
Is with us, and compels us to her will.
Yet if the sun-dawn we should shun by stealth
Yearning for shadow and the darkened hours,
Sweet Lord, be pitiful, remembering still,
One lieth low beneath the budding flowers.

—CAROLINE NORTH, in Sunday Magazine.

EPIGÆA ASLEEP.

Arbutus lies beneath the snows,
While winter waits her brief repose,
And says, "No fairer flower grows!"

Of sunny April days she dreams,
Of robins' notes and murmuring streams,
And smiling in her sleep she seems.

She thinks her rosy buds expand,
Beneath the touch of childhood's hand,
And beauty breathes throughout the land.

The arching elders bending o'er
The silent river's sandy shore,
Their golden tresses trim once more.

The pussy-willows in their play
Their varnished caps have flung away.
And hung their furs on every spray.

The toads their cheery music chant,
The squirrel seeks his summer haunt,
And life revives in every plant.

"I must awake! I hear the bee!
The butterfly I long to see!
The buds are bursting on the tree!"

Ah! blossom, thou art dreaming, dear,
The wild winds howl about thee here.
The dirges of the dying year!

Thy gentle eyes with tears are wet;
In sweeter sleep these pains forget;
Thy merry morning comes not yet!

—WILLIAM WHITMAN BAILEY.

Providence, R. I.

First Lad — I have a dog that's nearly thirty inches high.
Second Lad — That's nothing. I have one that stands over four feet.

CURRENT EVENTS.

Violent storms and floods have caused much damage and loss of life in Ohio and Indiana, and in other parts of the United States during the last month.

The lapse of time has at length brought into effect the will of the people in the United States who voted last November for a change of administration. The Democratic candidate, Woodrow Wilson, is now President of the United States.

One of the last acts of President Taft's administration was to make a treaty with Nicaragua by which that country gives to the United States the exclusive right to build a canal from the Atlantic to the Pacific through Nicaraguan territory. This does not necessarily mean that the canal will be built.

The fossil skeleton of a crested dinosaur, found near Calgary, has been placed in a museum in New York. This long extinct reptile was thirty-two feet long and fifteen feet high. Its jaws and teeth show that it probably ate water plants; and its great bulk is an indication that it lived in the water, or never went far from the water.

The British are sending a ship to patrol the North Atlantic and give warning of the presence of icebergs.

It is proposed that the three Canadian warships of the British navy, with the one Malay and the one New Zealand ships, shall form a group to be called the Imperial Squadron, with headquarters at Gibraltar. This arrangement will probably take effect as soon as the Canadian ships are built.

The Secretary of State for War has announced that the British army possesses a type of flying machine far superior to those of any other nations.

The death of Field Marshal Viscount Wolseley, better known to us as Sir Garnet Wolseley, took place on the twenty-fifth of last month. He was sent here at the time of the Trent affair, when a war with the United States was threatened; and sent men through to Quebec by the Temiscouata route in the depth of winter, the route which had been followed by the 104th Regiment fifty years earlier. He was also the leader of the Red River Expedition in 1870, and commanded the British forces in Egypt ten years later.

The capture of Janina by the Greeks, on the sixth of March, and the fall of Adrianople under the assault of the combined Bulgarian and Servian armies, after a siege of one hundred and fifteen days which took place on the twenty-sixth, have brought the Balkan war much nearer to its close. The month ends with the Montenegrins, who began the war, still hoping to take the Albanian town of Scutari, which will give them a seaport; but this they may be compelled to forego, as both Austria and Italy object to the allies obtaining a position that might enable them to control the entrance to the Adriatic.

King George of Greece, who was an uncle of King George of Great Britain and Ireland, was murdered by an anarchist on the nineteenth of last month, while walking in the streets of Salonika. He is succeeded by his son Constantine, who takes the title of Constantine I., King of the Hellenes. King George had intended to retire in favour of his son as soon as the war was over.

There is no doubt that the killing of the late President of Mexico was deliberate murder, and there has been a rumour of a plot for the assassination of his successor. New rebellions are springing up in the northern states of the republic, and there is no indication that the strong hand of the new ruler will be able to bring order and peace to the troubled land.

Jules de Payer, an Austrian whose father was the discoverer of Franz Joseph Land, will lead an expedition to explore that country. A wireless telegraph station will be erected, which will be in communication with the Eiffel Tower, in Paris; and two aeroplanes will be included in his equipment. He expects to remain for more than a year.

Captain Amundsen, who is preparing for an Arctic expedition to begin next year, will take with him two hydroplanes, believing that they will be useful in the summer months, when there is much open water.

Sir Ernest Shackleton announces that he will lead a scientific expedition to the Antarctic.

The trade of the Dominion for the past year has been much greater than ever before, and amounts to about a thousand million dollars in the aggregate.

SCHOOL AND COLLEGE.

Mr. Douglas M. Brown, recently of Enderby, B. C., is now Principal of the Consolidated School at West Summerland B. C.

Miss Eva Pearl Whitman, who recently had charge of the school at Craig, Sask., is now teaching at Baildon, Sask.

Miss Ellen M. Giberson of Bristol, Carleton County, N. B., is now teaching at Sooke, B. C.

Mr. Arthur Barry of Fredericton, is teaching the school at Black's Harbour, Charlotte County.

The formal opening of the new Prince Arthur School at St. Andrews, N. B., took place March 26th, and was the occasion of an interested gathering of townspeople and visitors. The building is very complete and a credit to the citizens. M. N. Cockburn, K. C., chairman of the school board presided, and addresses were given by Hon. W. C. H. Grimmer, Inspector Wm. M. McLean, Jas. Vroom, William Brodie and Chief Superintendent Dr. Carter. Pictures of Prince Arthur Duke of Connaught, the patron of the school, and of the "Victory," the gift of Mr. Brodie, were hung in the hall of the new building.

Mr. R. B. Wallace the efficient chief clerk of the Education Office, Fredericton, has had his salary increased two hundred dollars a year.

The Teachers' Institute of Carleton and Victoria Counties will be held at Woodstock, N. B., on May 1 and 2.

RECENT BOOKS.

Now that high schools are giving courses in practical gardening, there is need of an elementary treatment which shall furnish all the necessary facts on soils, plants, insects, garden planning, etc. Such a book is *Agronomy, A Course in Practical Gardening for High Schools* by Willard N. Clute. No previous knowledge is needed, either in botany for the study of plants or in chemistry for the preparation of soils, etc. Practical exercises furnish necessary experience, and copious references afford opportunity for further investigation. Much attention is given to the improvement of the home grounds in the vegetable and flower garden, on the lawn, etc. The book should inspire every etudent with a love for gardening. It will also prove a valuable gardening manual for the general reader, since it covers the whole subject of gardening. It is fully illustrated. (Cloth, 296 pages, price $1.00. Ginn & Company. Boston).

School Feeding by Louise Stevens Bryant (the title is suggestive) tells how to supply hot breakfasts, or lunches, or both, to all the children in the school at cost, and to some children free. Meals cost from one to five cents, and vary from a cup of cocoa and a cracker to three course dinners of soup, meat, vegetables, and pudding. Besides tracing the history of the movement, it gives much simple scientific information on nutrition and growth, and shows the actual working of school lunches, and how the system may be adapted to schools in this country. It shows how domestic science classes may do more practical work; how the larger children may help the smaller ones; how parents may be able to provide for their own families more intelligently and economically. It emphasizes the social side of the question, and its reading would prove useful to all teachers, parents and those who are interested in the education and physical welfare of children. Cloth, pages 345, price $1.50 net, J. B. Lippincott Company, (hiladelphia).

In *Matriculation French Essays* we have a series of elementary stories and exercises which may be used to great advantage in composition from the beginning of the student's course in French. Each exercise is followed by questions and there is a full vocabulary of words and idioms. (Cloth, pages 123, price 1s. 6d. University Tutorial Press, High St., London W. C.)

The *Intermediate French Reader* contains a collection of modern French extracts in prose and verse, intended for the use of candidates preparing for intermediate examinations. It may be used for general reading, the extracts being chosen for their literary value. The notes are brief and to the point and there are short biographical sketches which will interest the reader in French literature. (Cloth, pages 299, price 2s. 6s. University Tutorial Press, High Street London, W. C.)

Most persons who attend an opera wish to know only its story without reading its extended text. *Opera Stories* is published for these. They are of interest also to the general reader. The book contains portraits of leading singers. (Paper, pages 112, price 50 cents. Henry L. Mason, 188 Bay State Road, Boston, Mass.)

The Round Robin Reader is a monthly magazine containing good reading for boys and girls. The March number contains the following among other interesting matter. The story of Daniel Boone, the King Arthur Stories, the story of Edwin Landseer. (Price 15 cents. L. A. Rankin & Company, Boston, Mass.)

N. B. OFFICIAL NOTICES.

After the expiration of the present school year (1912-13), no school garden will be recognized unless the teacher has taken wholly or partially a course at a Summer or other recognized school in the subject of school gardening.

The following orders have been made by the Board of Education:

"The teacher, or in the case of a graded school, the principal, shall have power to suspend any pupil guilty of flagrant misconduct or gross disobedience—which suspension shall be at once reported to the School Board.

After the present school year (1912-13) "special aid to new schools houses in poor districts" shall not be given to school districts having a valuation of more than Fifteen Thousand Dollars ($15,000), nor shall these grants be given for purposes other than the building of new school houses in such districts.

Education Office,
March 3, 1913.

W. S. CARTER,
Chief Supt. Education.

Beginning with the preliminary examinations for Normal School entrance to be held in July 1914, and thereafter until further notice a combined paper in Writing and Drawing will be assigned for all classes.

The Board of Education has prescribed L. H. Bailey's "Beginner's Botany" after the present school year ending June 30th, 1913. This text will take the place of "Spotton's Botany" now in use.

After the end of the present school year (June 30, 1913). all School Boards will be required to provide in their schools the prescribed course of physical training.

W. S. CARTER.
Chief Supt. Education.

Education Office, Feb. 5, 1913.