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WHEN Dr. MacKay writes on an educational subject his utterances are sure to command wide attention. His position as Superintendent of Education gives him ample opportunity to judge of over-pressure in schools, and his opinions on that question in this number have not only the weight of authority, but they deal with it effectively and almost from every point of view.

THE March number of the *New Brunswick Magazine*, published by W. K. Reynolds, has an excellent table of contents, embracing articles on The New Brunswick Militia, by Lt.-Col. Maunsell; Old Times in Victoria Ward, by I. Allen Jack, D.C.L.; At Portland Point, by Rev. W. O. Raymond, M. A.; The Acadians Desolate, by Hon. Pascal Poirier; Our First Families, by James Hannay, with interesting references to provincial chronology, notes and queries, etc.

THE Calendar of the Summer School of Science has been published, and may be obtained from the Secretary, Mr. J. D. Seaman, Charlottetown, P. E. I. The opportunities the School affords to secure abundant recreation amid some of the finest scenery in North Eastern America and to come in contact with enthusiastic teachers and students of science, should take many to the Restigouche next summer. It is not too soon to form plans, and to enter upon the courses of reading and study laid down in the Calendar.

WEBSTER'S INTERNATIONAL DICTIONARY is to be preferred for its wisely chosen vocabulary, from which useless and unauthorized words have been excluded, for its modern spelling, for its concise and carefully worded definitions, for its quotations illustrating the use of words, for its excellent appendices, and for numerous other points of merit. Its universal use in the schools and colleges indicates the high esteem in which it is held by educators.

QUEBEC, which among the provinces of the Dominion has had the reputation of being among the most backward in educational matters, does not altogether seem to be classed as such. She is the most progressive in the matter of superannuation of teachers, and was among the first to adopt a measure for the centralization of schools. A measure has been introduced in the legislature there to provide free text-books for the pupils of the public schools, also one to bring about compulsory education. In that province, also, it is proposed to make rural districts do their share, by enacting that teachers' salaries shall not fall below a certain minimum.

THE annual report of the School for the Blind at Halifax has been received, and contains some very interesting reading. It shows that 122 blind persons have been in attendance the past year. Sixteen of these graduated or left school, leaving 106 present on the first of December last. Of these 67 are males and 39 females. Sixty-three are from Nova Scotia, 29 from New Brunswick, 6 from P. E. Island and 8 from Newfoundland. The income for the support of the school is from three sources: a per capita grant of $150 for each pupil from the province to which he or she belongs; interest upon investments; subscriptions and donations. This income is practically sufficient to make education for the blind free to those who partake of its benefits.

The instruction given in the school at Halifax is thoroughly modern, embracing the branches of a general education with music, typewriting, physical and manual training. The admirable work done by Principal Fraser and his associates calls for the hearty sympathy and support of all interested (and who is not?) in the education of the blind.

The article on Compulsory School Attendance in this number, by Miss Grace Murphy, will be read with interest by parents and teachers. Laxity of attendance is doing more to sap the efficiency and interest of our schools to-day than any other cause, and it is time that legal measures should be put in force to remedy this evil.

Sir John Bourinot, in his recent lectures before the higher educational institutions of these provinces, on Canadian Literature and Our National Development, has done much to place before the youth of this portion of Canada high ideals of patriotism and to give them incentives to enter fully into the development of their own country.

The Canadian public is under a fresh obligation to the Copp, Clark Company, of Toronto. These enterprising publishers have just issued a large wall map of Canada, which for clearness, excellence of finish, accuracy of detail, and generally up-to-date features, surpasses any other. The details which mark the map and which make it so interesting a study as one stands before it are its strong, bold outlines of coast, mountain ranges, river, and boundary lines. No pains have been spared to make the work as absolutely correct as possible, and it incorporates the information derived from the most recent surveys. This feature, and others named above, make it invaluable to schools, where the pupils are ever on the alert to find out and compare the more recently explored portions of the Dominion with the older provinces.

There are a number of special features, which will be found of great service. Among them are the lengths of the large rivers, the heights of land throughout the Dominion, and the feet above sea level of the various large lakes. The coal fields of Canada from Vancouver Island to the Maritime Provinces are all clearly marked, and the map gives one a capital idea of how rich we are in this important mineral. The gold and silver bearing districts are also defined, and the markings indicate the vastness of the area possessed by our undeveloped precious metals. The national parks of the Dominion are marked in distinctive colors, and the area given which is covered by each. The heights of mountains in the Dominion are also set down.

Added to these features are the lines showing steamship routes, their direction and distances; the railway lines completed and projected; ocean cable lines; areas of the various provinces and districts, with other features and excellences that are continually coming into view as one studies this latest and best effort of Canadian cartography.

Free Text-Books.

It must be gratifying to those in New Brunswick who have education in charge that the recent election developed no hostility from either party. One candidate advanced an idea of a constructive rather than a destructive nature, which aside from politics will command the attention of thinking men and women of all parties; that of free text-books for the pupils of the public schools. This seems the logical outcome of free public schools, and its accomplishment can only be the work of time and judicious legislation. There is apparently already a respectable sentiment in the province in favor of such a measure, and notwithstanding the absence of any enactment regarding the matter, a small beginning has been made in a few localities. The Review has more than once advocated such a step and it has been a subject for discussion at Teachers' Institutes.

In the United States and other countries, the experimental stage has long since been passed, and wherever tried the cost has been much lessened and many advantages have resulted. It does not appear from the experience already gained that it would be judicious for a state or province to enter upon the business of providing text-books, but rather that it should be the duty of the township or district. This would insure greater economy and prevent any tendency to jobbery As in either case the cost would have to be borne by the people it would matter little except that greater care would be exercised by the smaller sections.

The Review would suggest to legislators that the measure receive early attention, and that if no further step be taken, at least the option be given school sections of determining whether or not they may assess themselves to provide free text-books for the pupils attending their schools.

Nova Scotia School Report.

The annual report of the public schools of Nova Scotia for 1897–98 has been received and read with much interest. That which impresses one the most forcibly in perusing Superintendent MacKay's reports is his intimate and up-to-date acquaintance with the trend of educational thought and practice elsewhere. No policy of drift is indicated by his work, but rather does he seem desirous of keeping his province fully abreast with the most progressive, in as far as her resources and public opinion permit.

The general report begins with the significant sentence: "There was progress during the year in all departments." That he is amply justified in making this statement may be briefly shown. Sections without

schools decreased from 153 to 124. Schools increased from 2,346 to 2,385. Enrolment of pupils increased from 100,847 to 101,203. The number of pupils daily present on an average increased from 54,922 to 57,771 —the best attendance in the history of the province. Teachers increased from 2,485 to 2,510, and, more important, normal school trained teachers increased from 752 to 798. One rather curious increase, in view of the tendency of the times, is the increase of male teachers—from 576 to 614—and a corresponding decrease of female teachers. There was an increased vote, both for buildings and teachers' salaries, though it is to be regretted that the latter have not increased. In no department of public school work does Nova Scotia make a better showing than in that of the high schools. From 1892 to 1898 the attendance has increased from 1,432 to 3,304, while the number who passed has increased from 175 to 1,229.

Dr. MacKay strongly advocates the amalgamation of small school sections into larger ones, and quotes the examples furnished by Victoria, Australia, and Massachusetts in this regard. He estimates the progress of each county by the proportion of trained teachers employed, and very conclusively indicates the advantages and some of the manifest disabilities of normal schools at present.

Nova Scotia is in advance of most countries, in that she has a state school of agriculture. The attendance at this school is not as large as it should be, but the Superintendent contends that in addition to its usefulness in an agricultural way, it has been most beneficial in the training of teachers, in its stimulating the development of an interest in the industrial side of education.

Referring to the fact that the Agricultural College at Cornell has commenced to issue leaflets or bulletins with "Nature" lessons and instructions as to how teachers should prepare themselves to do such work effectively, he goes on to say: "Just such work as our EDUCATIONAL REVIEW (which has always been recommended to our teachers) has been doing for some years already."

The compulsory clauses of the Education Act have been submitted and carried in many school sections in Nova Scotia. The consensus of opinions of inspectors and others in a position to judge of the effects seems to be that whereas some good has been done, yet there is not a sufficiently vigorous public sentiment behind the measure to render compulsion effective.

A most instructive compilation has been made of the compulsory attendance laws of other countries, which will repay a careful perusal by all those interested in the subject.

Reference is made in the report to the Dominion Educational Association which met in Halifax last summer; and the appendices contain, among other reports, those of the inspectors.

If we were to judge from their reports only, the Nova Scotia inspectors are an able and zealous body of men, and fully entitled to the distinction given inspectors in some of the other provinces of being "the right arm" of the school system. Their reports are worth the most careful perusal, as no one, not even the Superintendent, obtains as near a view, not only of the schools and their working, but of ratepayers and outside conditions as well.

We shall, in future numbers, deal more fully with some of the particulars of this excellent report.

TALKS WITH TEACHERS.

To return briefly to the subject of patriotism, referred to in last month's "Talks," I may add that in very many schools there is a picture of the Queen. Some of these pictures have been quite expensive, and others less costly. In nearly all cases they have been neatly framed. Some of them have been procured through the exertions of teachers and pupils, and others have been donated by good citizens. Since the Jubilee celebrations nearly all the schools of Charlotte County, especially, have been provided with these pictures, and such has been the effect upon the sentiment of the county that at the last meeting of its county council a unanimous vote was passed to appropriate a sum not exceeding fifty dollars for the purpose of procuring a picture of Her Majesty the Queen to hang in the County Court house. This only goes further to show that patriotism takes its root in the schoolroom. Would it not be well for those schools as yet unprovided with the Queen's picture to take early steps to secure the same?

It seems to me that we teachers do not sufficiently set before our pupils the resources and advantages of Canada. I think it is safe to say that we are not nearly so diligent in this respect as our neighbors to the south of us. Without being boastful, we can claim many advantages with truth and certainty. Canada has the wheat belt of this continent, and the quality and productiveness of this grain is not surpassed by that of any other region in the world. Canada produces the best barley in the world, and the same may be said, with equal truth, of oats and other northern grains. Canada makes the best cheese, bacon and butter produced on this continent. She already commands the cheese market of the old country, and is making rapid strides toward that in pork and butter products. Canada

equals, if not surpasses, all other countries in the quality of northern fruits, such as apples, pears, plums, and other small fruits. Canada has the most extensive fisheries of any country in the world. Canada has the greatest timber reserves in the world. Canada is believed to possess greater mineral resources than any other country. This is known to be true of gold and nickel, and is believed to be of less developed minerals, such as iron, coal, copper, lime, etc. Canada has more unoccupied fertile land than any other country.

Teachers should emphasize these facts more. They should bear in mind that there are many agencies at work to advertise the United States, not the least being the large number of Canadians residing there. There are many American newspapers circulated here, and very many more of their magazines and other periodicals than of ours. In this connection also there may be mentioned the many American educational papers read by Canadian teachers. These are American and patriotic, if anything, and those who read them cannot but be influenced by them. Canadians esteem and admire their neighbors, but it must be remembered that less than half the continent belongs to them.

A prominent lecturer and man of letters, Sir John Bourinot, has been with us during the past month, and has dealt with a subject too seldom referred to and very imperfectly understood by many of us — "Canadian Literature." In his concluding remarks he referred to the breadth of the work required in the public schools, and deplored the absence of depth, or something to that effect. And his remarks provoked echoes. It would be refreshing and helpful to those who have laid upon them the burdens and responsibilities of courses of instruction, instead of these constant iterations of "too many subjects," to have some substantial suggestions as to the direction of curtailment. Instead of that, constant resistance has to be made to the demands of excellent citizens for a further enlargement of school work. On the one side it is urged there are too many subjects, on the other more are demanded. In Toronto home study is abolished, in other places the school hours are being shortened. It is doubtful if any one subject could be dropped from the school curriculum without exciting opposition, and it may be doubted whether those who advocate such in general terms have given the matter careful consideration.

Alderman's Wife—"I see that the members of the Spanish cortes don't get any salary at all. I wonder how they live?"

Alderman —"Maria, I never divulge professional secrets, especially to women."—*Chicago News.*

For the Review.]

Over-Pressure in Schools.

As the cause of over-pressure of study in some of the public schools appears to be misunderstood in some quarters, I hasten without waiting for the regular issue of the *Journal of Education*, to indicate to the public interested in the matter, the origin of the evil and the means of its prevention.

Injurious pressure of study is more repugnant to the spirit of the public school system than defective school attendance itself; for of the two evils the former is the more unnecessary and absurd.

Over-pressure is the vice of strong teachers under a vigorous system, when the general law can not be held chargeable for it on account of compulsory enactments or of pecuniary inducements. Where the teachers are weak and the system languid there is never any complaint of over-pressure; quite the opposite. But it does not follow that where there are no complaints of over-pressure the teachers must therefore be weak; for the perfect teacher is one who is always watchful for the first symptoms of over-pressure in any pupil in order to prevent it, very often, too, with but indifferent assistance from the parent.

The Course of Study

prescribed for the public schools is not responsible for "over-pressure." First, because it fixes no time within which pupils must pass from one grade or standard to another. Second, because it does not even induce either teachers or trustees to press pupils to pass the given standards, by making the public grants of money dependent upon the number passing each standard on examination, as in some countries, and as in the English system until within a few years ago. A common school draws just as much public money when all of its pupils are in grade one and remain in it without advancement for years, as when they are being promoted a grade annually. High schools, and even county academies, draw as much public money should all their pupils be in the lowest grade and remain in it for ever without even attempting to pass any of the grades or standards "D," "C," "B," or "A," as if they led the province at the provincial examinations. Unlike some other systems, then, there is neither compulsion nor financial inducement in the Nova Scotian system to require either teachers or trustees, who generally appreciate the value of money grants, to force pupils to over-study.

Over-Pressure of Study

is most generally the fault of the parent, who, without taking thought, expects his child, who is not able to do the average work of the class, to advance as rapidly as

those who do the full work. This inability arises from various causes, such as the premature promotion of the pupil from a lower grade, from a rudimentary education defective as compared with that of other members of the class, from a natural lack of intellectual power, from imperfect physical health, from bad habits native or acquired, or from the conditions affecting the time for home study. It has happened that the parent of such a child acts as if he would have the work of the whole class cut down to the point which would make it easy for his child to follow, regardless of the injury which would be inflicted upon the majority of the pupils by the loss of a portion of their time, and the danger of acquiring the habit of intellectual indolence.

As a matter of fact, on the day of this writing, a complaint came from one of our county academies that the general progress of one of the classes was so slow that a few of the ablest of the pupils were deemed to be in danger of injury from the acquiring of idle habits. It has been urged that one of the evils of the present system is the "class-teaching," which retards the genius, by forcing him to keep pace with the average pupil; that the system is bound to annihilate our geniuses in the long run, to a greater extent than it will shut out the dullards by the "over-pressure" necessary to pass the successive standards; that in a free high school system the unfit can be eliminated only by examination on standards; and that if there is no such elimination the system is defective, in so far as it encourages the unfit to spend time and energy that might be useful in some other field than the high school.

The action of this beneficent law of elimination, no matter how necessary and useful it may be eventually, not only to the public, but to the individual, is most painful, however, in its first effects on those coming under its influence. But there is no possible form of incantation, divination, or manner of juggling, by which the process of elimination can be accomplished without a momentary pang of pain to some one, or by which the half work of a weak pupil can be truthfully stamped and dealt with as equal to the whole.

Again, the teacher may be the prime cause of over-pressure. This may arise either from his desire that the school should stand high in the public estimation on account of the success of his pupils in passing the prescribed standards with eclat, or on account of the convenience of discipline and oversight of the pupils' work if exemptions in various degrees are not required to be allowed certain pupils in the same class. This problem of discipline and oversight is what makes it specially difficult for the teacher to temper the class work to various pupils as they are fitted to bear it. There are so many details which must be perpetually in the mind of the teacher, that there is a great temptation to simplify the problem by treating all the pupils of his class exactly alike with respect to their studies.

The Ideal Method

of treating this problem would be to give the teacher a class of no more than ten or fifteen pupils, instead of forty or fifty. Each could then be dealt with individually much more effectively. The genius could be allowed to run on at his own speed, while the tender pupil could be allowed to saunter on at his natural pace. But it would make the public system exactly four times as costly.

Then again, over-pressure may result from the pupil's own ambition. And more than pupils injure themselves in this manner. In the exercise of religion, in the pursuit of gold; in the altruistic devotion to others and in the selfish fight for glory, the story is the same.

Here, the wise and watchful care and counsel of parents and teachers are evidently the only guards. No general law can prevent the evil in the student more than it can in all the other domains of human activity.

Our Provincial Course of Study

was first promulgated nineteen years ago (see Educational Report, 1885). Within the last six or seven years it has been considerably simplified on the whole, as can be seen from the records from year to year. It contains not a single unnecessary subject in its imperative side. It prescribes no more of each than can be thoroughly mastered, with spare time for the general enjoyment of home life, by the majority of those who come into each grade properly prepared.

But this course of study is not, necessarily, the syllabus of the year's work in every school, or in any school. Even in the County academies, Regulation 13 provides that "*The grading of each institution should for economy and efficiency be adjusted to its local conditions, that is, to the number of the students and of the staff of instructors,*" *etc.*

The necessity of such a regulation must appear from the consideration of the different requirements in a single school room with reference simply to what the pupils from the town want to do, and what the young men and women who come from the country schools to study there want to do. The latter come to work; and in the course of study there must be a year's work for them or else they are losing a portion of their time and their money, and must therefore attend an institution which for them will be more economical of those two commodities. The town pupils are at home, and wish to have the leisure of enjoying to an easy extent home life and

perhaps social amusements such as skating, cycling, boating, etc., and often extra studies such as music and art. For which class must the course of study be adapted? For the county students for whose education the academic grant is awarded the institution, or for the town pupils for whom the town supplements this grant and provides the building? There is thus seen to be a difficulty in framing a course of study for even a single school. How much more difficult to frame one for all the schools in the Province?

Such a thing has never been attempted to be done, for the slightest experience is enough to suggest its impossibility. The courses of study are simply series of standards, arranged at the most convenient distances apart, which each pupil may traverse just as fast or as slowly as the circumstances of his particular class and teacher and his own ability may allow.

But strange to say, the complaints of over-pressure come, so far as can be discovered, from pupils who are taking optional subjects in addition to the imperative ones, sometimes such optional nearly doubling the study necessary for the imperative work alone. And those who undertake to discuss the subject in the press are altogether unaware of it.

Then, even in the county academies which are subjected to stricter conditions than either the high schools or common schools, trustees have the power to admit pupils for the study of even a *single* subject (see Regulation 5, County Academies). The school management is virtually under local control in these respects; and it is rightly assumed that local conditions can be best understood by the local educational authorities. It would certainly be unwise to transfer that power to the central office where the administration would necessarily have to be on general principles, and therefore could not be adapted elastically to local needs or peculiarities.

Over-Pressure Illegal.

Added to all this, the general law not only does not compel over-pressure of study in any school, not only does not even induce it by awarding grants on the results of examinations (which are always voluntary so far as the general law is concerned, although the local authorities assert the power of making them more or less compulsory, in some sections), but teachers are cautioned by a standing notice against the danger of causing over-pressure.

The following paragraphs form the official introduction to the series of courses of study prescribed as a guide for the different kinds of schools, and as such they appear twice a year in each issue of the *Journal of Education*. The foregoing explanations, it is hoped, will enable the reader to take in their meaning more fully.

"1. The public school course of study may be considered under the sub-division of the common and high school courses. They furnish a basis for the classification of pupils by the teachers, and for the examination of schools by the inspectors, while they also secure a definite co-ordination of all the work attempted in the public schools of all grades, thus fostering the harmonious interaction of all the educational forces of the province."

"2. These courses are to be followed in all schools, particularly with reference to (1) the order of succession of the subjects, and (2) the simultaneity of their study. The fulness of detail with which they can be carried out in each school must depend upon local conditions, such as the size of the school, the number of grades assigned to the teacher, etc. As suggestive to teachers with little experience, contracted forms of the detailed common school course for miscellaneous and partially graded schools are appended.

"3. The public school course of study is the result of the observation and experience of representative leading teachers of the Province, under the suggestion of the experiments of other countries, and the criticism of our own teachers in provincial conventions assembled for many years in succession. A system developed in such a manner must necessarily in some points be a compromise, and presumably therefore at least a little behind what we might expect from the few most advanced teachers. But it is also likely to be a better guide than the practice of the majority without any mutual consultation for improvement. The successive progression of studies is intended to be adapted to the order of development of the powers of the child's mind, while their simultaneous progression is designed to prevent monotony and onesidedness, and to produce a harmonious and healthy development of the physical, mental and moral powers of the pupil. The apparent multiplicity of the subjects is due to their sub-division for the purpose of emphasizing leading features of the main subjects which might otherwise be overlooked by inexperienced teachers. The courses have been demonstrated to be adapted to the average pupil under a teacher of average skill. The teacher is, however, cautioned to take special care that pupils prematurely promoted or in feeble health should not run any risk of 'over-pressure' in attempting to follow the average class-work."

A. H. MacKay.

Halifax, March, 1899.

NATURE STUDY.

Many teachers are asking what books they should use as helps in giving "Nature Lessons." They are not satisfied when advised to use the "book of nature." They want prepared lessons—giving information, order of presentation, and illustrations all ready. In some cases they would like it all the better if each member of their class had a copy of the lesson, for then it could be learned and recited like so many pages of a history lesson. Teachers who need such helps from books or from educational papers are not properly qualified to teach. The teacher who cannot take an ordinary object, examine it, note its characteristics, and then be prepared to lead his pupils in an orderly way to make their own examinations and discoveries and a proper record of them—such a teacher should take a course in a normal school.

But there must be a transition stage. Many of our teachers can neither give a good "nature lesson" nor attend a normal school. Yet with the proper kind of help they might be put on the right track, without being led slavishly to follow any set of printed lessons. A book that would clearly indicate the proper methods

to be pursued, that would point out without giving the information that must be obtained from books, etc., such a book would reduce to a minimum the evils likely to arise from the use of mere information books which might be used as texts by the pupils.

We have lately seen a book entitled "Object Lessons for Standards I, II, and III, based on circular 369 of the Education Department." It was prepared by two Normal School teachers, Garlick and Dexter, and is published by Longmans, Green & Co., London. As our readers can see from the sample lesson which we give below, the pupil has to cultivate the habit of obtaining knowledge directly by handling and watching the objects. Class rambles are recommended to develop the faculty of observation and "to give that love of nature which is such a happy possession for all time."

From the circular of the English Education Department we select a few suggestions. Habits of observation are better cultivated by the thorough examination of a few objects than by the superficial treatment of many. Choose only objects which can be directly examined or at least adequately represented. Avoid technical language. Encourage children to bring to the school illustrative specimens, to make drawings and simple records of the objects. Excursions must occasionally be made to see objects in their proper surroundings, and to see objects that cannot be taken into the school room. Good object teaching should train the children to observe and compare; it should impart information; and it should be the basis for instruction in language, drawing, number, modelling and other hand-work.

SAMPLE LESSON — ICE.

Things required,— Ice, water, candle, cork, clay; tin canister quite full of ice formed by putting tin full of water into freezing mixture; salt, medicine bottle, cork, string. *This lesson should be given in winter time.* (Pupils' ages, about eight).

	Observations and Experiments.	Results.	Inferences.
1.	Ask child to put hand on ice.....	Hand becomes cold.	Ice is cold.
2.	*(a)* Compare color of ice with colors on color card; further, compare color with that of water.	The color is not found on card.	Ice, like water, is colorless.
	(b) Make several scratches on surface of ice with penknife. Refer to appearance of ice on pond upon which skating has taken place.	Ice becomes white.	Ice appears white when scratched
3.	*(a)* Split off thin layer of ice; hold before lighted candle; compare with glass.	Candle can be seen through thin layer of ice, but not through a thick lump.	A thin layer lets the light through, a thick layer does not.
	(b) Hold lump of ice before lighted candle; contrast with glass.		
4.	Get child to hold piece of ice in hand. Contrast with pieces of ice lying on table.	Ice turns into water.	Heat melts ice.
5.	Place ice in water; also place cork in water. Refer to previous lesson on floating in water.	Both ice and cork float in water, but the ice floats deeper down in the water than the cork.	Ice is lighter than water, but not much lighter.
6.	*(a)* Take a piece of ice, force it into a lump of clay; melt ice.	The hole is not full of water.	Water formed from ice takes less room than the ice.
	(b) Previous to lesson freeze some water in an open tin canister in accordance with directions in 7; introduce the canister *full of ice* to to class; melt ice.	The can is not full of water.	
7.	Prepare a freezing mixture by mixing equal parts of pounded ice and salt. Let child feel the freezing mixture. Insert tightly corked bottle full of water into mixture; allow it to remain about a quarter of an hour. The cork should be tied down with string. *Compare with bursting of pipes in frosty weather.*	Water has turned to ice and bottle has broken.	Cold causes water to turn into ice, which takes up more room than water.

BLACKBOARD SKETCH.

Ice.
- Cold.
- Colorless.
- Melts with heat.
- Lighter than water.
- Takes up more room than water.

A conversation lesson on winter might follow.

Oral composition to follow.

L. H. Bailey says in his inimitable style: "When the teacher thinks chiefly of his subject, he teaches science; when he thinks chiefly of his pupil he teaches Nature Study." Could any distinction be clearer than that?

In the first two grades there is much of nature with language and number teaching. When geography begins it is all a study of nature; but independent of all correlated work, there should be a period of about fifteen minutes given to definite, clear, carefully arranged study of nature each day in the first grade and for twenty minutes in the second and third grades, and perhaps twenty-five or thirty minutes after that.

The things to keep the eye and ear open for in the early spring are the first birds, the first buds, the first bugs. Incidentally think about the departure of the frost—when it goes and how; about the mellow earth and how it gets warm; about the March winds, the sunny days, the April showers; about the plowing and harrowing. This is a good time to study soils, and the action of frost and river upon the soil and the land. A barnyard is a great study on the first warm days. If you are in a maple sugar country, that is a good study in March.

After all, there is nothing better than to keep before the children in these days the best of the poetry of spring. There is nothing in nature so wonderful as the waking up of nature, the coming to life of a world that has been asleep for months. Poetry often helps us to be reverent.

"Once more, and yet once more,
Returning as before,
We see the bloom of birth
Make young again the earth."

—*American Primary Teacher.*

Are you getting ready for spring? Is anything growing in your school-room? Have you thought of what seeds to plant in boxes of soil? Get the boxes ready. Make a list of seeds you will plant. Make a plan of your school grounds, or better, let the older pupils make it. Mark the places for flower-beds, for shrubbery, for trees. Determine beforehand all that you will do to make your school surroundings brighter and more beautiful than last year. Gather together all the literature to make Arbor Day instructive as well as pleasant. Finally, look out for the April number of the REVIEW which will help you to prepare for Arbor Day.

Many teachers say: "I cannot teach music." There are some places that give the teachers the option of teaching the music or of paying some one to do it, and it is surprising how soon all the teachers learn how to teach music.

Jack Frost as an Artist.

The sculptor who chiseled the pendants
Which hang round the temple of Dian,
Has come with his brush and his pencil
To decorate everyone's window.

The shop fares as well as the palace,
The poor man as well as the rich.
He paints for the one and the other,
He paints while he pinches them—each.

T. Now, how many of you have watched him painting? (Large show of hands.) Now, will you tell where, and also what you saw?

S. On our window. When I breathed on the pane the frost was melted. Then I saw it freezing again. Small spears of ice shot out from the circumference of the melted spot. Some of these were long, and from their sides ranges of smaller spears shot out like the web fibres along each side of the quill in a feather.

T. But when the feathers growing out from the circumference met each other, what occurred?

S. The feathers could not grow any further, but the spaces between them were soon filled in with fine lines of frost needles.

T. When we examined the snow crystals seen in the snow flakes the other day, and the hoar frost clinging to the dry grass stems in the morning, you noticed that their shape was most commonly—

S. Star-shaped, mostly with six rays.

T. And as there are 360 degrees in the complete circle, how many degrees would there be in the angles between each ray of the snow crystal?

S. Six; because each angle was the same size.

T. Why did the small drop of water—so small that, perhaps, we could not see it—explode into a six-rayed star instead of freezing into a minute round pellet of ice?

S. Because it is the nature of the water atom—of the water molecule—of the water stuff. That was all we could be sure about.

T. Very true. But there is something more. You remember in our lesson, "Why Winter lingers in the Lap of Spring," (See EDUCATIONAL REVIEW, 1897, January, page 152), that we found when water at 32 degrees Fahrenheit changes into ice at the same temperature, a considerable amount of heat is given out?

S. O yes. For every grain of ice formed, as much heat would be given out as would warm up 142 grains of water one degree.

T. Very good. Now suppose a minute drop of water is cooled down to the freezing point and a still more minute crystal of ice is then formed, all the rest of the water is warmed slightly, is it not?

S. Yes; but the water is all the time throwing off that heat into the colder air, and then more of the water freezes.

T. And the rest of the water is slightly warmed?

S. Yes, until it is at last all frozen.

T. Which part of the minute drop of water containing the crystal of ice would cool most rapidly?

S. The furthest outside parts, the water on the arms of the crystal, and that may be the reason why all the water in the small drop runs out towards the arms and cause the arms to grow?

T. Perhaps so. But when your ice feather was growing on the window pane, were the secondary, the finer ice needles, running out from the main needles at an angle of sixty degrees?

S. I think most of them were, except where one feather was crowding another growing one. Then you seem to think that the ice growing on the window pane is trying to become a six-rayed star, but as it cannot grow back at all, and has to compete with others like itself on each side, it has to grow out in one direction more or less.

T. Yes, you have the idea. It is mainly the one ray that can develop, and on each side of it, secondary rays at an angle of nearly 60 degrees feather out until they fill up the field between the competing feathers.

S. But then, why are not all the feathers exactly alike, and all the angles at 60 degrees exactly?

T. Out of what are the frost flowers made?

S. Out of water.

T. Where is the water?

S. Spread out over the pane.

T. Is it all the same depth on every portion of the pane?

S. No, it can hardly ever be spread that evenly. For sometimes when breathing on the melted frost work I could see a current of water move down the pane. Then some parts of the pane have various amounts of dust, or grease, or roughness, as well as different amounts of water or water vapor.

T. Very well. The coldness of the air being supposed to be even over the whole pane, which region should be covered with ice crystals first?

S. The shallowest, because less heat would be given out, and the water would be all congealed more rapidly than elsewhere.

T. The ice feather going in that direction would get ahead of the other feathers, which would then abut against the leading one, would it not? And then, does the cold air always cool every part of the pane equally?

S. No, for sometimes cold air pours in through chinks in the putty or frame of the pane, cooling some portions more rapidly than other portions; and the warmer air within the room meets the centre of the pane in its motion about the room, and there are waves of warmer and colder air.

T. Your observation is quite correct so far. And these elements you have already noticed will account for a great many of the vagaries of the growing frost feathers. See if you can observe these points illustrated in the next frost-feathered pane you study.

The Heavens in March.

The first month of spring witnesses the retreat of the constellations which formed the glory of the midwinter nights. The early evenings of March are not entirely deprived of the presence of Sirius, Orion, and their splendid attendants, but these stars are on their downward way, and, as they approach their setting place, they do not sparkle with the dazzling beauty that characterizes them when they are mounting from the east or crossing from the meridian in the crisp air of January or December. At 9 o'clock, p. m., in the middle of March, they are all in the western half of the sky, while far less brilliant star groups occupy the zenith and the east. Leo is near the meridian, with Hydra stretched across the south, and the quadrilateral of Corvus rising well above the eastern hills. Behind Corvus come the leading stars of Virgo, while Arcturus glows redly in the northeast, and the Great Dipper is conspicuous between Arcturus and the pole.

THE PLANETS.

Mercury is an evening star, reaching its greatest elongation east of the sun on the 24th, when it will set nearly two hours after sundown. It should be easily seen in the western twilight for several days before and after that date.

Venus is a morning star, and still brilliant, although gradually losing magnitude as she retreats from the earth. She rises between 4 and 5 o'clock in the morning, and moves in the course of the month from Sagittarius into Aquarius.

Mars, which distinctly outshone its neighbors, Castor and Pollux, in Gemini, during the winter, is yet conspicuous. It will be interesting during the month to watch the motion of the planet with reference to the two stars. Mars rises about noon and sets in the small hours of the morning, so that it can be seen all night long.

Jupiter, the king of the planets, now in the western edge of the constellation Libra, rises at the beginning of the month about 11 o'clock, p. m., and, at the end of

the month, about 9 o'clock. It is accordingly coming into fairly good position for observation.

Saturn is in the lower part of Ophiuchus, between Scorpio and Sagittarius. It is a morning star, rising, in the middle of the month, about 2 a. m.

Uranus in Ophiuchus, about 5° north of the red star Antares, rises one hour before Saturn.

Neptune in Taurus is too faint for recognition by the naked eye.

It is interesting to note that the new asteroid discovered by Dr. Witt last year, which at times approaches the earth many million miles nearer than Venus is at inferior conjunction, has at last received a name from its discoverer. He has chosen to call it Eros. Eros, though a very small planet, is likely to play a very important part in the future history of astronomy.

[Eros was the Greek name of the god of Love, corresponding to Cupid of the Romans.—Ed.]

The sun enters Aries, and the astronomical spring begins on the afternoon of March 20.—*Garrett P. Serviss in Scientific American.*

Music in School.—Grade I.

By Luella E. Blanch.

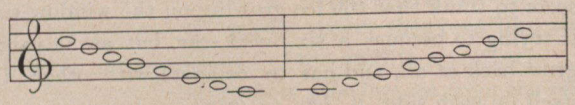
A Grade I. pupil in September knows as little of music as of any other subject. The teacher will need a pitch-pipe or a tuning-fork pitched at *c*, from which to get the required pitch of the songs. Seven or eight minutes given to music, morning and afternoon, will be found quite time enough for this grade. Commence by finding out what songs the children know. There will probably be quite a variety, and from them the teacher can select the one which seems most generally known, and have it sung until all the class know it. Then teach several other easy rote-songs. The first month may be devoted to this.

Now that the children have some idea of tones, give them the pitch of *c* (one octave above middle *c*), and have them try to sing it. Some will probably do so immediately; others will take longer. It may take a week to have the class sing it in unison, holding the tone, and not deviating from the given pitch. This tone is called *do*. Pronounce it *doe*, and always have it sung very softly.

Commencing with this tone, work down the scale. Sing *do ti*, and have the class sing it over and over until the children can sing it readily alone. Sing *do, ti, la*, and have the class repeat it. In this manner teach the entire scale, until the class can sing it alone in sweet, soft tones. This will require six to eight weeks; it must all be taught orally, and should be varied by several new rote-songs.

Then, commencing with low *do*, teach the scale in the ascending order of tones and names. Instead of *do, re, mi, fa, sol, la, ti, do*, the class will probably want to sing *do, ti, la*, as in the scale descending. Another month may be needed to have the class sing the entire scale up and down, in sweet, soft tones, and calling the correct syllables. Then, as they learn to count, have them sing down the scale to numbers, 8, 7, 6, 5, 4, 3, 2, 1, and back. Have them sing it to *loo*; to *la*. Give the children the pitch of *do*, and sing different tones to them, having them name the tones their proper syllable. This is excellent practice for them, and can be continued almost indefinitely.

Then show them the picture of the scale that they have been singing. Each note is the picture of a tone, and *Mr Do* lies in the third space and on the added



line below. Draw a staff on the board, and let the children make *do* in its proper place. Sing other tones, have them tell the syllable, and make the picture of the tone. Have them make the scale, being careful that they put the notes alternately on lines and spaces. Work from the board should not be begun earlier than eight or ten weeks before the close of the year.

Have scales written on slates, and paper, if possible. Teach new rote-songs continually.

Summer School Notes.

All readers of the Review desiring information respecting the Summer School of Science, can obtain the same on application to the secretary, Mr. J. D. Seaman, Charlottetown, P. E. I.

Campbellton, on the Restigouche River, the meeting place of the school for the present year, is not surpassed in the Maritime Provinces for picturesque scenery. The fact that several other scientific societies purpose meeting with the Summer School at Campbellton this year, will add greatly to the interest of the meeting.

With reduced rates of travel and very reasonable charges for board, those attending the school will enjoy a pleasant and profitable outing at a reasonable cost. Good board can be secured for $2.50 per week by making timely application to the local secretary, Mr. E. W. Lewis, Campbellton, N. B.

The fare from Halifax to Campbellton is $7.65; from St. John to Campbellton, $5.98; from Moncton to Campbellton, $4.52. Return ticket *free*.

Formal Opening of Windsor Academy.

Windsor has long been famous as the seat of the oldest college in the Maritime Provinces, and more recently for its Church School for Girls, with its fine buildings so beautifully situated.

But the accommodation provided for its public schools was of the poorest kind. This reproach has been removed, and now Windsor has a public school building of which she may well be proud—a building which will be taken as a model by other towns appreciative of convenience and beauty in school architecture. The building, which is of brick and stone, is bounded on three sides by streets. It is 112 feet long, 85 feet wide, and three stories high. One of the objections to co-education is removed by its having the entrances, halls and cloak-rooms so arranged that it is impossible for boys and girls to meet anywhere on the premises, except in the classrooms in presence of the teachers. On the first floor there are six classrooms, each 32x28 feet for primary pupils; on the second floor, six rooms for advanced pupils, a laboratory, a library room and a teachers' room, all appropriately furnished; on the third floor there are two classrooms and a beautiful hall, 80x40x19 feet, with a large elevated platform.

The rooms are all well lighted, heated and ventilated. Their convenience and beauty are not marred by supporting columns or other obstructions. The halls are exceptionally wide and bright. There can be no danger from fire, as every room is provided with three doors opening outwards, and the smaller children are all on the first floor. Elliot and Hopson, of Halifax, selected from eleven competitors, were the architects. James Reid, of Dorchester, was the contractor.

The building, which has been occupied since January was formally opened on the 25th of February. The assembly hall was crowded—Hon. M. H. Goudge, presiding. Inspector Roscoe, whose long and faithful service of nineteen years as school inspector gave special value to his testimony, stated that Windsor had a teaching staff not excelled in the province. The present handsome building was largely the result of their transforming educative work.

COUNTY ACADEMY AND PUBLIC SCHOOL, WINDSOR, N. S.

The Superintendent of Education, Dr. MacKay, in a brief but effective speech, assured the Windsor people that they had the finest, most commodious and best planned school building in the province. The architect had availed himself of the best educational experience, and all the modern improvements in school architecture had been embodied in this building. Here, where the

children spend five or six hours a day, it is most desirable to have pure air, brightness, comfort and convenience. He admired their wisdom in providing so large an assembly hall for social and patriotic exercises on Arbor Day, Empire Day, Closing Day, and on many other occasions. The hall could be utilized as the intellectual headquarters for public lectures, educational entertainments and the training of local talent.

He was followed by Hon. Attorney General Longley, who, as a member of the Council of Public Instruction, was delighted to see in Windsor such evidence of the advance of education. He pointed out that adverse criticisms upon the educational system and upon the course of study nearly always emanated from those who knew least about them. Much had been done, during the last few years, to simplify the course and adapt it to modern requirements. Special prominence was given to Nature studies, to science, to manual training, and to everything that enabled the pupil to apprehend his environment. The great educational need of the day was good teachers, without which fine buildings and the best educational appliances would avail but little. It was therefore the first duty of the Council of Public Instruction to provide the best Normal school training for teachers.

We regret that we have not space for an outline of the excellent speeches by the Hon. T. R. Black, Rev. Principal Forrest, Rev. Canon Vroom, and the U. S. Consul, Judge Hoke.

HOME AND SCHOOL.

A Plea for Compulsory Education.

[Read before the Women's Council, St. John, by Miss Grace Murphy.]

Life is largely made up of action. The tossing infant, the playful school-boy, and the busy men and women of later life bear witness to it. The activities of early years have a determining influence upon the formation of character. Generally speaking, the more active the life, the happier it is. When failing health or infirmities of later years oblige us to give up first one form of activity and then another, we do it with regret. Activity rightly directed means life, health and happiness; misdirected or not directed at all, it runs wild, and makes havoc with the individual and the community.

The savage has few pleasures and few wants. His activities are for the most part directed to eking out a scanty subsistence, and in defending himself against aggressive neighbors. Civilized man also recognizes the need of self-preservation, but expends his surplus activities in the exercise of peaceful pursuits. Civilization has increased his pleasures and also his wants. To supply his necessities and gratify his desires, he labors. The nature of these wants is largely determined by his early training, that is by his education.

Ideals of education have differed with the centuries, and with races of men. We recognize it as the harmonious development of his physical, moral and intellectual powers. Omit the cultivation of one of these, the moral. We may have the powerful intellect and giant frame, whose motto is "Might makes Right,' unchecked by any kindly consideration of the claims of others. Omit the physical development, and though abounding in good will to all, and with intelligent aspirations to beneficent acts unable to bring to full fruition for lack of bodily strength. Grant, once more, the physical and moral qualities, yet for want of intellectual development the results will be meagre.

In the work of education, the home, the school and the church, are the recognized direct factors. These should be allied forces, having for their aim the protection of life and the formation of character. There is an indirect force also at work, that of the world around us. In proportion, however, as the first named factors do their part, the less injury will be received from the latter.

The early years of life are the formative ones, and it is only then that applied means are most productive. Youth is the period of development and therefore of training. No earthly love is so tender as that of the mother watching over the early years of her child; no power so potent to mould the young life to the desired form. But that mother has many cares pressing upon her. Others must assist her in the training necessary for the development of his powers, to fit him to take his place in the battle of life. In consequence of this, at an early age we find him in the school-room. This first day at school marks a distinct epoch in the life of the child. It is his first advance, as it were, into the outside world. In the home he was the one particularly cared for. In the school room he is one of many. He is now a member of a little community where the general good must be considered. He has become a part of a larger whole. Here he is trained to yield the individual desire to what is for the general good, to do it willingly, and to find a pleasure in the doing of it. He becomes accustomed to live in peace and good-will with those daily associating with him; to respect the rights of property in his own and his neighbors' belongings. When lost property is found he enquires for and

returns to the rightful owner. He is taught to speak the truth, to be accurate in regard to the accidents and incidents of school life, and to exemplify the working of the Golden Rule in the little world around him. Then again by the daily performance of duties with promptness and painstaking, he is learning lessons of neatness, punctuality and diligence. The laws of health and the penalties attached to their violation are gradually unfolded to him. His æsthetic nature, too, is cultivated to love the beautiful in art and nature. The eye is trained to observe correctly, the mind to understand and intelligently direct the performance of the hand. Regularity of daily employments trains to habits of industry. These habits cling to the child in all after life. They add to the value of the individual as a member of the community. By variety of objects and subjects of study, the development of his powers is to him a succession of delights. To work is to be active, and to be active is to be happy.

At a not very remote period in the history of our province, this training was the privilege of a favored few. It is now offered to all. Since 1872, this daily training for the youth of our land has been generously provided for by our legislature. The masses have accepted at least a portion of their inheritance. During the year of the introduction of our free school system, the attendance of the enrolled pupils of our city of St. John was 60%; last year, 1897, it had risen to a percentage of 79, a gain of 19%. From this it is evident that many of our pupils avail themselves but slightly of the privileges provided for them. A few there are whose names are not found on any school list. These latter classes, those who occasionally attend school, and those who do not attend at all, come from homes where parental training is lax, sometimes from homes where it is vicious. Had these children been subjected to the same training as their fellows, they would in all probability have become useful members of society, many of them a benefit to their country. Left to themselves, they are the pests of the community, afford occupation for our police, and provide inmates for our reformatories and prisons.

What is the remedy? Education in its truest sense. Instead of spending our strength in devising means to punish criminals, let us bend every effort to prevent their growth. *Make education compulsory.* "But the expense," is the cry. Poor-houses, prisons, and reformatories are expensive too, but they must be maintained to afford protection to the community from this very class. At this point it might be in order to know what has been done of late years for national education in England: "In 1870, government resumed obligation to secure school provision for all children between five and fourteen years." "In 1876, the law forbade the employment of children under fourteen years of age without proof of certain attainments, and made it the legal obligation of parents to secure the instruction of their children in elementary subjects." "In 1880, local authorities were obliged to make bye-laws, compelling parents to send their children to school." "In 1891, an extra grant in lieu of fees for all schools remitting the same, completed the measure of securing universal school attendance." "In 1893, the age at which a child may obtain a total or partial exemption from school attendance, provided he had secured the educational certificate required by the local bye-laws, was placed at eleven years."* "In 1896, in London elemetary schools, children under thirteen years of age, numbered 124,971. In the detailed account of these, 301 were given into custody by school visitors (truant officers); of these, 184 were sent to industrial schools; the others were let go for various assigned reasons."—*Education in Great Britain and Ireland, Ed. Com's Report of U. S. Schools, 1896.*

This gives us an idea of the work as carried out under the educational system of England and Wales. With the compulsory school law of the United States, we are all more or less familiar. The school system of Germany, particularly Prussia, had long been in advance of the rest of the world. France, since 1881, has had primary education compulsory. Norway has compulsory education. Denmark requires the attendance of all children from seven to fourteen years of age. A fine or imprisonment is enforced for non-performance of duty.

In a city like St. John, the expense of a compulsory school law need be but slight, if adopted in time. A little enlargement of the duties of the police would enable them to arrest truant pupils. These truants form a very small group in each building. They do not pass their days in solitude. The social instinct is too strong for that. Their names could be handed to the police, their haunts visited and the culprits taken in charge. The greatest trouble would be with careless parents, but this could be dealt with and the evil of irregular attendance largely decreased.

Insist that the youth of the land be trained to the exercise of the Golden Rule in early childhood and youth, trained to pains-taking activity in all the duties of life; trained to look upon labor not as a badge of servitude, but as an exercise of that trained activity, a worthy expression of the enlightened skill of the performer.

* It has recently been made twelve.—[EDITOR.]

For the REVIEW.]

What Kindergarten Does for the Children.

The majority of mothers have not a clear idea what the aim of the kindergarten is and how it develops the child. They know how happy the child is when he starts for the kindergarten, with what pleasure and delight he tells her, on his return, of the games they played, the songs they sang, and with how much delight and pride he gives her the mat he has woven, or his sewing card!

Frœbel aptly describes human nature when he says: "Man is at once the child of nature, the child of humanity, and the child of God." Every child has a three-fold nature, and it is the aim of the kindergarten to develop and educate the body, soul and mind of the child. This is done by exercises in marching, singing, playing, etc.; in training the child to be kind, helpful, considerate and unselfish, through his work with the gifts and occupations which are the symbols of his ideals.

Another direction of the activity of the kindergarten is the intercourse which the children have with nature. Their senses and perceptions of the beauty which nature everywhere offers in rich abundance should be awakened and trained. The care of plants and animals, under judicious guidance, offers the best means for this.

All the child's senses are developed in the kindergarten, but especially the sense of touch. Nothing is more contrary to nature than to forbid a young child the use of its hands. "Without the cultivation of the hand, industry and art would be impossibilities." For this development the kindergarten has a series of occupations — building, stick-laying, modelling in clay, weaving, etc. Thus the child "learns through doing." The chief aim in the kindergarten is the forming and developing of the child's character. The kindergartner does not think so much of the amount of work the child does, but she strives to educate and awaken all his faculties.

"The child who goes to a good kindergarten is indeed a happy one. His threefold nature is being daily fostered, cherished and allowed to grow. His character is being so built up that he is learning to find his happiness in right-doing and unselfish living. He is learning this by means of the play that is as natural to him as breathing. He is allowed to express his inmost self freely, to do what he can do, to try his own experiments, and find out things for himself. He has the joy of companionship with other children, and learns from them the lessons of each for all and all for each. * * * He is not only being led on the best possible path from home to school; he is not only being prepared for school, but he is daily being made happier in his home life, being fitted for later life, being prepared for eternity."

F. GRACE HANINGTON.

The school is a great thing, but it is not so great as the home. We want to see all schools work to help the homes, and all homes work to help the schools.

The most prominent of our educators admit that existing methods of educating children fall far short of the ideal, but every effort is being made to improve and better the prevailing systems. The teacher is almost alone in this work. The parents seldom give any assistance; in fact, a great many of them seem to have no interest at all in the methods used in the education of their children. This ought not to be. Every parent should take as much interest in his child as the teacher does. There should be perfect co-operation of the parent with the teacher, and until there is, present methods will not accomplish the best results in education. Teachers and parents should come in close relation to each other. They should get better acquainted.—*Oregon Teachers' Monthly.*

In the city of Brooklyn there are now organized seven societies of parents and teachers, who meet monthly in the school houses with which they are connected. Reports show that the discussions include largely the physical conditions of home and school as well as educational topics. Among the subjects are playgrounds, best mode of dusting schoolrooms, scrubbing floors, contagious diseases, cigarette-smoking, good breakfast, warm underclothing, air in the sleeping-chamber, baths, home work, primary teaching, reading, books, newspapers, pictures, music, etc. A teacher writes that "we learn much from the mothers, for they have had many experiences which young teachers only theorize about." The formation of such societies in our cities and towns is a movement from which much good ought to result to teachers, parents, and children especially.—*School and Home Education.*

Out of your private library, or, if you have a school library, out of that, lend to each of a number of pupils a good, interesting book. Allow a week or ten days for the reading. On a day to be selected, require each pupil to reproduce, in a composition of a prescribed number of words, the substance of what he read in the book.—*Selected.*

One day, some day, perhaps to-day,
The thing I pray for shall be mine.
The clouds may lift
And through the rift
The sunbeams drift.
Athwart the gloom a light may shine,
And brighten all my onward way,
Some day.

THE SCHOOL-ROOM.

Go to your class with a sunny temper and a cheerful countenance. These cannot be assured if you do not retire early enough for a night's thorough rest of body and mind, after an evening devoted to some rational relaxation following your day's exhausting labor.—*Ex.*

Correction of Oral Errors.—Let every teacher keep beside her on her table a pencil and note book, in which she can write down all the mistakes in English which her children make during a month. She will find at the close of the month that she has almost all the kinds of mistakes they will ever make.

These mistakes will differ, to some extent, with different sets of children. The teacher will find further, that when she has classified all the mistakes, she will not have a large number of classes or kinds. There will be defects in pronunciation, double negatives, wrong forms of pronouns, pronouns used for adjectives, verbs that do not agree with subjects, mistakes in the use of the principal parts of irregular verbs, auxiliary verbs used incorrectly, etc.

Now after the teacher has discovered what mistakes the children make, let her set to work conscientiously and systematically to drill them out of the language of the children. Take up one at a time and let the oral work and written work be directed against it.—"*Language for the Grades,*" *by J. B. Wisely.*

A Monthly Letter.—Once a month every pupil writes me a letter, which I answer, correcting his mistakes, praising him for whatever pleases me about his conduct and lessons, or pointing out the weak points in his deportment and work. I do nearly all of my disciplining in this way, and find that it results in a splendid spirit among the pupils and a great desire to please one who never corrects them publicly. I have tried it in sixth, seventh, and eighth grades, and it is has solved the question of government for me for all time. Of course it is considerable work for the teacher, but it pays, by driving away worry, and then, too, its effect on spelling, writing, and language is surpassing.—*Zada A. White, in the Iowa School Journal.*

Adjective Game.—There is a pleasant little game in which a person is described by adjectives whose initial letters spell his name: thus, John is just, old, honest, and nimble. At first, merely a single word may be taken, as May is merry, Katie is kind, Guy is graceful, Edward is earnest. The pupils will enjoy making lists of adjectives to be used in the game. They will search for them in readers and in the dictionary, and will often jot down those noticed in conversation. They gather the words for the fun of describing their classmates and others, but they are learning them more thoroughly than if they collected them merely to have a list of adjectives. Used occasionally, the game is an excellent device for increasing the vocabulary, especially in advanced grades.—*School Education.*

Composition.—1. Write two sentences about a minute, an hour, a day, a night, a week, a month, a year. 2. Tell how old you are, where you live, and how long you have lived there. 3. Tell something pleasant about someone in your home. 4. Tell something about every animal at your home. 5. Tell something pleasant about three playmates.

Make sentences in which the following words are used correctly: Time, thyme; thrown, throne; tied, tide; to, two, too; told, tolled; tax, tacks; team, teem; through, threw; toe, tow; trait, tray; tear, tier; tease, teas; tail, tale; their, there; track, tract; use, ewes; urn, earn; vain, vane, vein; veil, vale; vocation, vacation; veracity, voracity; witch, which; wither, whither; Wales, whales, wails; way, whey, weigh; weak, week; wait, weight; wood, would; ware, wear; wade, weighed; waist, waste; weather, wether; weakly, weekly; white, wight; wig, whig; yolk, yoke; zeal, seal.—*Western Teacher.*

CURRENT EVENTS.

N. E. Journal of Education: The weight of what Mr. Kipling has aptly called "The White Man's Burden" is beginning to be felt, not only in the Philippines, but, in a different way, in Cuba and Porto Rico. In Cuba there is a good deal of petty friction between the Cubans and the American authorities at Havana; a discouraging disposition is manifested to rely on government rations rather than honest toil. . . . In Porto Rico the insular cabinet has resigned in a spasm of indignation because it cannot have autonomy and all the offices at once.

On the 16th February, M. Felix Faure, sixth president of the French Republic, died suddenly, and on the following day M. Emile Loubet was chosen to fill his place. The term for which a president holds office in France is seven years. Since the foundation of the republic in 1870, following the battle of Sedan, only one has served the full term. The president of France is chosen by a majority of the Senate and Chamber of Deputies (the National Assembly). The election in this instance proceeded quietly without any serious popular outbreak. M. Loubet, like his predecessor, is a man of humble birth, and distinguished like him for courage, ability and tact.

The confederation of the five Australian Colonies, New South Wales, Victoria, South Australia, West Australia and Tasmania, so long talked of, is now on the eve of consummation, the premiers of the colonies having agreed upon a basis of union, which will be presented to the different legislatures for their adoption. The terms of confederation, on which our antipodes have virtually agreed, are much the same as of our own Dominion. There will be a governor-general who will represent the Queen, and two houses of parliament which will regulate affairs common to all the colonies.

The Anglo-American High Commission in session at Washington since the first of the year, has adjourned to meet in Quebec in August. This Commission began its work in Quebec on August 23rd and continued until October, when it adjourned to meet at Washington. The somewhat abrupt adjournment may not mean the abandonment of the task with which the Commission was appointed to deal—the arrangement of such differences as reciprocity, the coast fisheries, the sealing question and the Alaskan boundary, but there is a feeling that these questions are not likely to be immediately settled, especially the Alaskan boundary. It is to be hoped that a reasonable solution may be arrived at and this should not be difficult if the American Commissioners will consent to a little more of the give and less of the take policy.

The death of Baron Farrer Herschell, Lord High Chancellor of England, the chief of the Commission, which occurred at Washington, shortly after the adjournment of the Commission, is a great loss to the English speaking world, on account of his distinguished judicial abilities. His remains were conveyed to England in H. M. S. "Talbot" from New York.

The serious illness of Rudyard Kipling, in New York, has been watched with no small anxiety throughout the English world; and his convalescence has brought a great feeling of relief.

The death of Archibald Lampman, of Ottawa, removed at the early age of 37 years one of the brightest and most promising of Canada's poets. A complete edition of his works will shortly be issued.

'ROUND TABLE TALKS.

J. L. T.—In the December issue of the REVIEW there is a solution of the following problem from Hamblin Smith's Arithmetic: "A offers $8,000 for a farm; B offers $9,500, to be paid at the end of four years. Which is *now* the better offer, and by how much, allowing 5 per cent. compound interest?" The published solution shows the difference between the amounts of the two offers four years hence, while it seems to me one should find the difference between their present worth, as implied by the word *now* in the question.

I beg leave to submit the following solution:

Amount of $1 for 4 years $= (\$1.05)^4$

Present worth of $(\$1.05)^4 = \$1$

" " $\$9{,}500 = \frac{9500}{(1.5)^4} = \$7815.67$

Difference in favor of A's offer *now* $= \$8000 - 7815.67 = \$184.33$.

If this solution is wrong, please show me my error in the next issue of the REVIEW.

[This exercise has caused much trouble on account of its bad English. As worded, it seems to imply that if A's is the better offer now, B's might be better four years hence. To prevent ambiguity and lead to the meaning probably intended by the author, read thus: Which is the better offer, and by how much, present value, allowing 5 per cent compound interest? Then the solution given by our correspondent would be correct.—MATHEMATICAL EDITOR.]

D.—The REVIEW is just to hand with its cordial invitation for notes. It has occurred to me before that our experience in book buying might be of some help to others.

Our first selection was the number one Canadian History Leaflet issued by the REVIEW. Then came the five and ten cent classics. In these we got fairy tales, natural science, two chapters of Parkman's History of Canada, and selections from a number of the great English and American poets. After using these for several months, we decided that good paper binding was more durable than poor cloth. Our five cent classics are manilla paper throughout.

The members of class three read "The Story of the Norsemen" and Macmillan's English History Stories. The next term they were delighted to take up history lessons, and quite ready to welcome "Little Arthur's England." This history is not so sensational as Dickens'. Its topics are well selected, the illustrations good. It is a fine book for beginners.

Series of books referred to: Canadian History Leaflets, Nos. I—IV, published by the EDUCATIONAL REVIEW, St. John. "Five Cent Classics," Educational Publishing Co., 50 Bromfield St., Boston. "Maynard's English Classic Series," Maynard, Murrill & Co., 29, 31 and 33 East Nineteenth St., New York. "Riverside Literature Series," Houghton, Mifflin & Co., 4 Park St., Boston. *Canadian Agent*, The Copp, Clark Co., Toronto.

ONE WHO IS PERPLEXED.—In the next issue of the REVIEW will you kindly answer the following questions:

(1) To what extent do the trustees or parents have control over the punishment (by the teacher) of a child who comes to school day after day without knowing his lessons?

(2) In a school of half a dozen pupils, when the work for the day is done and the children get restless before four o'clock, would it be unreasonable or against the law to dismiss school earlier?

(3) If a teacher wishes to close school one-half hour, or a whole hour early, will he have to make up that time lost?

(1) This is a matter to be settled by the teacher alone or by the teacher and parents of the pupil, unless he adds to neglect of lessons, wilful disobedience and insubordination. Even in this case it would be better for the teacher to try every other means before appealing to the trustees. To make such an appeal is a confession of weakness, or at least shows a lack of governing

power and those resources which every teacher should possess.

(2) It would be against the law for the teacher to do so on his own responsibility. If the children are very young and the hours of confinement too long, the trustees have the power to restrict them. If the children become restless change the occupation for a few minutes, admit fresh air into the room, give physical exercises, brighten them up with a story, or read to them from a book. Let them sing. Have a repertory in which to gather from your reading and thinking plans to amuse and instruct the children when they get "restless." In this way "the work for the day" will not be "done" so soon, and teacher and children will not grow listless while waiting for the hour of closing.

(3) Yes. He must testify in his returns that he has taught a certain number of hours each day.

A.—In Meiklejohn's English Language, p. 112, an example is given of the contraction of compound sentences in the predicate for the purpose of avoiding the repetition of the verb. The example given is, "Either a knave or a fool has done this." Could not this and similar sentences be analyzed as one clause, in this case taking "Either a knave or a fool" as the subject?

How could we consider it as the question suggests? A certain person "has done this." We cannot designate that one person as "either a knave or a fool." There is doubt as to whether one person (a knave) or another person (a fool) has done it. H. C. C.

B.—In the February number of the EDUCATIONAL REVIEW the sentence, "When he received pieces of poetry which he thought had worth in them he rewarded the writer," is analyzed, ('Round Table Talks, p. 195. G. J.). Will you kindly examine the analysis which I send you, which to me, at least, seems more satisfactory. As we frequently find the relative equivalent to a *co-ordinating* conjunction and a personal pronoun, why is it not as legitimate sometimes to consider it equivalent to a *subordinating* conjunction and a personal pronoun? If this be allowable, and I cannot see what objection can be made to it, why not consider "which" equivalent to "that they," and make "he thought" a subordinate clause, co-ordinate with the adverbial at the beginning of the sentence. The sentence then reads, "When he received pieces of poetry, and (when he) thought *that they* had worth in them, he rewarded the writer." The general analysis is now quite apparent without leaving out any clause.

Does not your analysis take too much liberty with sense, by making a purely attributive or adjective clause do duty as an adverbial? The clause beginning with "which" refers to "pieces of poetry," and to that only, as may be seen by turning it into an equivalent adjective, *thought-bearing* or *thought-worthy*. The sentence then may read thus: When he received thought-worthy (in his estimation) pieces of poetry he rewarded the writer.

R.—I desire to express my thanks to you for so promptly answering my questions through the columns of the REVIEW. In the outlines of British History Dacia is mentioned. I would like to know something about this province.

Dacia was a former country of Europe, comprising the eastern part of Hungary, Transylvania, Moldavia and Wallachia. It was bounded on the north by the Carpathian Mountains, and on the south by the Danube. The Dacians were a warlike people, and resisted for a long time the Roman armies sent to subdue them. The country was finally reduced to a Roman province in the reign of Hadrian, 106 A. D.

D.—What "fate" is referred to in Mr. Browning's line, "The news which alone could save Aix from her fate."

Concerning the poem containing this line, Mr. Browning's own word, published in the Boston *Literary World*, 1881, reads as follows: "*There is no sort of historical foundation* about 'Good News from Aix.' I wrote it under the bulwark of a vessel, off the African coast, when I had been long enough at sea to appreciate even the fancy of a gallop on the back of a certain good horse, 'York,' then in my stable at home."

Notwithstanding this assertion, Mr. Rolfe suggests that the "Good News" may well stand for the "Pacification of Ghent," 1576, proclamation of which was received with frantic joy, not only in the Netherlands, but by all frontier towns (Aix is but ninety-five miles from Ghent), and that the "fate" may have been a determination of the citizens to destroy Aix at some appointed hour, rather than yield to impending Spanish tyranny; said destruction being prevented by the well-sped "Good News from Ghent." [See Motley's Dutch Republic, vol. iii, page 127.] M. E. K.

D.—Has Parkman written anything of note outside of the Canadian History? Please give a short account of his life.

His first work was *The Oregon Trail*, descriptive of his travels in the far West, in 1846. His first historical work was *The Conspiracy of Pontiac* (1851), followed in 1856 by a novel, *Vassall Morton*. The historical work to which you refer, by which he is best known is *France and England in North America*, consisting of the following parts: *Pioneers of France in the New World* (1865); *The Jesuits of North America in the Seventeenth Century* (1867); *La Salle and the Discovery of the Great West* (1869); *The Old Regime in Upper Canada* (1874); *Count Frontenac and New France under Louis XIV* (1877); *Montcalm and Wolfe* (1884); and *A Half Century of Conflict* (1892). The whole work is one of immense research, perfect candour and rare ability. Parkman was born at Boston, September 16th, 1823 and died there November 8th, 1893.

A. D.—Parse the words *in italics* in the following sentence:

The way *to get rid* of folly, is *to get rid* of vain expectations and with thoughts that do not agree with the nature of things.

"*To get rid.*" Here "get" is an intransitive verb, equivalent to "become," and "rid" is the past participle (or "indefinite participle"), passive voice, of the verb "to rid," going with the noun or pronoun denoting the person who gets rid.

W. C. S.—In the following question in Hamblin Smith's Arithmetic p. 262, Ex. 7, I get a different answer from that in the book. Will any of the readers of the REVIEW verify my work or point out where I am wrong? The following is the question with my solution:

A lake, whose area is 45 acres, is covered with ice 3 inches thick. Find the weight of the ice in tons, if a cubic foot of ice weigh 920 oz. avoirdupois.

$$\frac{45}{1}\overset{ac.}{\times}\frac{4}{1}\times\frac{40}{1}\times\frac{121}{4}\times\frac{9}{1}\times\frac{144}{1}\overset{sq.\ in.}{=}282268800$$

282268800 sq. in. × 3 in = 846806400 cub. in.

$$846806400 \text{ cub. in.} \overset{c.\ in.}{\div} 1728 = 490050 \text{ cub. ft.}$$

490050 cub. ft. × 920 oz. = 450846000 oz.

$$450846000 \text{ oz. avoir.} \overset{oz.}{\div} 32000 \overset{avoir.}{=} 14088\tfrac{5}{16} \text{ tons.}$$

The answer in H. S. is 16335 tons.

S. R.—(1) In how ways can six persons form a ring?

(2) Find the number of ways in which 4 gentlemen and 4 ladies can sit at a round table so that no two gentlemen sit together.

(1) As they are to be arranged in a circle, one may be considered as fixed, and the number of positions will depend upon the combinations of the other five. Five may be arranged in 120 ways.

(2) Here also one lady may be seated in one place and the other ladies may be arranged in six ways, and the gentlemen in relation to each other in twenty-four ways. Combining these we have 144 combinations.

A. D. J.—Will you kindly solve the following for me:

1. Hall & Knight's Algebra, page 207, No. 32.—Divide (by factoring) $(x^2-yz)^3+8y^3z^3$ by x^2+yz.

2. Page 225, No. 36.—If ax^2-bx+c, and dx^3-bx+c have a common factor, then $a^3-abd+cd^2=0$.

3. Page 261, No. 22.—Prove that the ratio $la+mc+ne : lb+md+nf$ will be equal to each of the ratios $a:b$, $c:d$, $e:f$, if these be all equal; and that it will be intermediate in value between the greatest and least of these ratios if they be not all equal.

4. Page 267, No. 24.—If a, b, c, d are all in continued proportion, prove that $a:d=a^3+b^3+c^3 : b^3+c^3+d^3$.

5. Page 271, No. 18.—If $a+b$ varies as $a-b$, prove that a^2+b^2 varies as ab; and if a varies as b, prove that a^2-b^2 varies as ab.

1. The dividend can be factored (by ¶ 136, p. 117) into

$$\{(x^2-yz)^2-2yz(x^2-yz)+(2yz)^2\}(x^2-yz+2yz)$$
$$=\{(x^2-yz)-2yz(x^2-yz)+4y^2z^2\}\quad(x^2+yz)$$

The division cancels the last factor and leaves the first as the quotient.

2. Their difference is equal to dx^3-ax^2. This must contain the common factor

$$dx^3-ax^2=\left(x-\frac{a}{d}\right)dx^2.$$

x cannot be the common factor, therefore $x-\frac{a}{d}$ must be the common factor. Divide ax^2-bx+c by $x-\frac{a}{d}$ and the remainder will be $a\left(\frac{a}{d}\right)^2-b\left(\frac{a}{d}\right)+c=0$

$$a^3-abd+cd^2=0$$

3. The first statement is proved in article 294. If the ratios are not equal arrange them in the order of descending magnitude $\frac{a}{b}$, $\frac{c}{d}$, $\frac{e}{f}$.

Let $\frac{a}{b}=k$, then $\frac{c}{d}$ is less than k and $\frac{e}{f}$ is less than k

$a=bk$, c less than dk, e less than fk;

therefore $la=lbk$, mc less than mdk, ne less than nfk;

Therefore by addition

$la+mc+ne$ is less than $k(lb+md+nf)$;

that is $\frac{la+mc+ne}{lb+md+nf}$ is less than k, less than $\frac{a}{b}$

In the same way it can be shown that the given ratio is greater than $\frac{e}{f}$.

4. Let $\frac{a}{b}=\frac{b}{c}=\frac{c}{d}=k$, then $\frac{a}{b}\times\frac{b}{c}\times\frac{c}{d}=\frac{a}{d}=k^3$

$$\frac{a^3+b^3+c^3}{b^3+c^3+d^3}=\frac{k\ b^3+k\ c^3+k^3d^3}{b^3+c^3+d^3}=k^3=\frac{a}{d}$$

Therefore $a:d=a^3+b^3+c^3 : b^3+c^3+d^3$.

5. (*a*) Let $(a+b)=m(a-b)$ where m is constant

Then $a^2+2ab+b^2=m^2(a^2-2ab+b^2)$

or $2ab-2abm^2=m^2(a^2+b^2)-(a^2+b^2)$

therefore $a^2+b^2=\frac{2(1+m^2)}{m^2-1}ab$;

therefore a^2+b^2 varies as ab since $\frac{2(1+m^2)}{m^2-1}$ is constant.

(*b*) Let $a=mb$ where m is constant.

Then $a^2-b^2=(1-m^2)b^2=\frac{(1-m^2)}{m}ab$

Therefore $a-b$ varies as ab since $\frac{1-m^2}{m}$ is constant.

D.—Where was Wolfe buried? The Canadian history says Westminster Abbey, and the Fifth Reader says near his old home.

Wolfe was buried at Greenwich, near London. A monument was erected to him in Westminster Abbey.

S. A. M.—Should *the* be pronounced *thee* before words beginning with a vowel?

The is pronounced with the *e* long (*i. e.*, as *thee*) before *i*, *o* and *a*, but before *e* and *u* ($u = e + oo$) one *e* only is sounded as: Th' eternal fitness of things. Th' union of thought and voice.

The pronunciation of *the* always depends upon the sense of the passage containing the word.—I. S. B.

G. L. M.—(1) What is the price of eggs per dozen when two more in a shilling's worth lowers the price a penny per dozen?

(2) Please explain what is meant by the *Day-Line* as given in our Mathematical Geography?

1. Let x pence = cost of 12 eggs

1 penny = " $\frac{12}{x}$ "

12 pence = " $\frac{144}{x}$ "

Then at the lower price

$\left\{\frac{144}{x}+2\right\}$ eggs cost 12 pence

12 " " $\frac{144}{144+2x}$ pence

Then $x = \frac{144x}{144+2x} + 1$

$x = 9$ pence.

2. You should state more definitely where the expression occurs, giving the book, page and paragraph. —[MATH. ED.]

W. M. G.—How many cubic feet in a mow of hay are calculated to make a ton?

Multiply the length in yards by the height in yards and that by the width in yards and divide the product by 15. The quotient will be the number of tons. This is only a rough approximation, for hay varies greatly in weight according to the way in which it was put in, its dryness at that time, and the length of time it has been lying, etc.—*Farmer's Hand-book.*

S. A. M.— Will some of your readers indicate where can be found the poem, some lines of which are: "In the bright October morning, Savoy's duke had left his bride," and "From her mullioned chamber casement smiles the duchess Marguerite."

SCHOOL AND COLLEGE.

A young Haligonian, who is probably destined to make his mark in the world, is Raymond C. Archibald, well-known in Charlottetown, and only child of the late Abram N. Archibald, a teacher in the Halifax city schools. R. C. Archibald took the degree of B. A., with mathematical honors, at the Mount Allison university in 1894, and in 1895 received an artist's diploma for violin from Mount Allison conservatory; in 1898 he graduated at Harvard, Mass., having taken both the B. A. and M. A. degrees, besides several scholarships, and he is yet only twenty-three years of age. He is now in Germany, where he is pursuing his mathematical and violin studies at Berlin. His teachers there speak of him as a rare pupil, of cultivated intellect, and being relentlessly thorough in all he undertakes. Mr. Archibald also possesses literary ability of no small order.—*P. E. I. Patriot.*

The many friends and acquaintances of Mr. Thos. O'Reilly, late principal of St. Patrick's School, St. John, learned with deep regret of his sudden death a few days ago. Mr. O'Reilly practically had spent his life in teaching, and commanded the esteem and respect of all among whom he labored.

There seems to be, if not an actual scarcity, at least an inadequate supply of teachers in some parts of New Brunswick, and a few schools have experienced difficulty in securing teachers of the first and second classes. The supply of third class teachers is more than equal to the demand.

Miss Cassie Johnston, teacher at Little Beach, St. John Co., has been able to secure for her school an excellent supply of slate blackboard surface.

Miss Estella Flower, teacher at Greenwich Hill, Kings Co., by means of a school entertainment, has raised enough money to provide her school with a dictionary and other apparatus.

The trustees of Little Ridgeton, Charlotte County, not to be behind the times, have ordered slate blackboard surface.

Miss Evelyn Boone, former teacher at Orr, Charlotte Co., assisted by pupils and parents, provided the school with a very fine flag and pole.

The present winter has been a hard one upon school attendance. In some parts of New Brunswick few teachers and pupils have escaped grip, measles and other contagious diseases.

The pupils of the Campbellton Grammar School are publishing a monthly school paper, *The Aurora Borealis.* It is conducted wholly by the students and presents a very creditable appearance.

Principal Lewis of the Grammar School, Campbellton, is conducting a class in Tennyson every Thursday afternoon, which is quite largely attended by the teachers and others of the townspeople.

Sackville has taken the initiative in the formation of a natural history society in which the teachers and students of the schools are especially interested. At the first meeting Principal Dixon gave an instructive address on Our Winter Birds, which was illustrated by handsome mounted specimens.

RECENT BOOKS.

Book No. XI of Virgil's Æneid[1] contains a valuable introduction which gives a vivid sketch of the life of the poet and a judicious estimate of his work. The volume is published in the Macmillan Elementary Classics series and the notes and vocabulary are valuable aids to the student.

[1] VIRGIL'S ÆNEID, Book XI, edited for the use of schools, by T. E. Page, M. A., with vocabulary by Rev. G. H. Nall, M. A. Cloth; pages 152; price 1s. 6d. Macmillan & Co., publishers, London and New York.

BOOKS RECEIVED.

To be noticed hereafter as time and space may permit.

VOR DEM STURM, A Romance of the Winter of 1812–13, by Theodore Fontane. Macmillan & Co., London.

Wildenbruch's DER LETZTE and *Baumbach's* WALDNOVELLEN in Heath's Modern Language Series. D. C. Heath & Co., publishers, Boston.

FRENCH LANGUAGE AND GRAMMAR, by a Topical System, according to the newest French and German Methods, by J. M. Lanos, Gradué de l'Université de France, Instructor in Modern Languages, Halifax Academy, Publishers A. & W. MacKinlay & Co., Halifax.

AUTHORS' BIRTHDAYS, Second Series, by C. W. Bardeen, Publisher, C. W. Bardeen, Syracuse, New York.

A DICTIONARY OF UNIVERSITY DEGREES, by Flavel S. Thomas, M. D., LL. D. C. W. Bardeen, publisher, Syracuse, N. Y.

PAPERS AND PAMPHLETS RECEIVED.

The Queen's University *Quarterly* contains an article on How Plants use Animals, by the Rev. Prof. Fowler.

Heath's Monthly Bulletin of New and Forthcoming Books is valuable to teachers of all grades, enabling them to keep in touch with what is new and good in their work. D. C. Heath & Co., publishers, Boston.

The pamphlet issued by the Buffalo Forge Company on American Schools of Mechanical Technology, illustrates the advance made in manual training as well as in the engraver's art.

W. F. Ganong, Ph. D., Professor of Botany, Smith's College, Northampton, Mass., has published his second contribution on the Morphology and Ecology of the Cactaceæ, illustrating the Comparative Morphology of the Embryos and Seedlings.

The descriptive and illustrated pamphlet on the Birds of Ontario in Relation to Agriculture, by Chas. W. Nash, Toronto, published by the Ontario Agricultural Department, is a valuable work for Canadian teachers.

How the Trees Look in Winter, and Hints on Rural School-Grounds, by Prof. L. H. Bailey, published at the Cornell University Agricultural Experiment Station, Ithaca, N. Y., are two pamphlets full of suggestions for teachers in nature-study.

Popular Education in England, 1897–98, by George Hodgins, M. A., LL. D. Published by the Education Department, Toronto.

Course of Study for the Common Schools of Illinois, Revised in 1897 by a committee of the State Teachers' Association, Publisher, C. M. Parker, Taylorville, Ill.

MARCH MAGAZINES.

The *Atlantic Monthly* is becoming more and more a leader in education as it has long been in literature. In the March number Prof. James continues his valuable papers on Psychology for teachers, and discusses the question of what is the nature of a child's character, and the ruling impulses; and how they should best be approached and taken advantage of for educational purposes. Pres. Hyde, of Bowdoin College, discusses the wonderful educational career of Pres. Eliot, of Harvard. Miss M. H. Coster has a sprightly and intelligent paper on Kindergarten Methods, and John Burroughs discourses on The Vital Touch in Literature....Nothing in the March *Century* is better worth the careful consideration of its readers than British Experience in the Government of Colonies, by the Right Hon. James Bryce, M. P....A varied table of contents is that of *St. Nicholas* for March. An engraving of Monsieur Ferrier's painting of Little Red Riding-Hood is the frontispiece; and the opening article is a story, In the Toy Country, by Mrs. Burton Harrison ...In each month's issue of the *Ladies' Home Journal*, beginning with March, will be pictured, classified and described the wild flowers then in bloom. The descriptions, with the aid of the photographs, will give every one an intimate acquaintanceship with the summer waifs of wood and field, and a pleasant, useful knowledge that will make their identification very easy whenever met with.... That neither patriotism nor good sense is yet extinct among Spanish writers on public affairs is clearly proved by the article on True National Greatness, which *The Living Age* publishes in its number for March. The paper entitled Impressions of American Universities, which this magazine reprints from *The Nineteenth Century*, shows how American institutions strike the English....The *Chautauquan* for March contains much for the student and general reader. It has many articles on subjects of general interest and current topics....Sir Archibald Geikie, whose reputation as a geologist is world-wide, is the author of an important essay in the *Popular Science Monthly*, on Science in Education. While showing the great importance of science study, he points out the desirability and, in fact, necessity, for other studies, if a well-equipped mind is to be the result, and calls attention to the narrowness and insularity which a too close adherence to "pure" science usually produces. A thoughtful article, full of practical suggestions, is contributed by Mrs. George Elmore Ide, under the title, Shall we Teach our Daughters the Value of Money?....The *Canadian Magazine* for March has a portrait and sketch of the Marquis of Salisbury, by A. H. V. Colquhoun, a story of Kitchener, by Chas. Louis Shaw, who was one of the Canadian Voyageurs under Lord Wolseley in the Egyptian campaign, 1884–85, St. John as a Winter Port, by A. M. Belding of the Daily *Sun*, a finely illustrated and interesting article, with other valuable contributions, making a fine number.

N. B. Education Department.—Official Notices.

I. DEPARTMENTAL EXAMINATIONS.

(*a*) *Closing Examinations for License*—The Closing Examinations for License, and for Advance of Class, will be held at the Normal School, Fredericton, and at the Grammar School buildings in St. John and Chatham, beginning on Tuesday the 8th day of June, 1899.

The English Literature required for First Class Candidates is Shakespeare's Richard II., and Selections from Keats, Shelly and Byron as found in Select Poems, published by the W. J. Gage Co. 1896.

(*b*) *Normal School Entrance Examinations and Preliminary Examinations for Advance of Class.*—These examinations will be held at the usual stations throughout the Province, beginning on Tuesday, July 4th, 1899, at 9 o'clock a. m.

Candidates are required to give notice to the Inspector within whose inspectoral district they wish to be examined not later than the 24th day of May. A fee of one dollar must be sent to the Inspector with the application.

(*c*) *Junior Leaving Examinations.*—Held at the same time and stations as the Entrance examinations.

The Junior Leaving Examinations are based upon the requirements of the course of study for Grammar and High Schools as given in the syllabus for Grades IX and X, and will include the following subjects: English Grammar and Analysis; English Composition and Literature; Arithmetic and Book-keeping; Algebra and Geometry; History and Geography; Botany; Physiology and Hygiene; and any *two* of the following: Latin, Greek, French, Chemistry, Physics. [Nine papers in all].

The pupils of any school in the province are eligible for admission to this examination. Diplomas are granted to successful candidates.

Fee of Two Dollars to be sent with application to Inspector, not later than the 24th of May.

The English Literature for the Junior Leaving Examinations will be Select Poems of Goldsmith, Wordsworth and Scott, as found in col'ection published by W. J. Gage Co., 1896.

(Continued on page 228.)

[d] *University Matriculation Examinations.* Held at the same time and stations as Entrance examinations. Application to be made to Inspector, with fee of two dollars, not later than May 24th.

The Junior Matriculation Examinations are based on the requirements for matriculation in the University of New Brunswick, as laid down in the University calendar. (Candidates will receive a calendar upon application to the Chancellor of the University, or to the Education Office.)

The English Literature subjects are Shakespeare, Richard II., Rolfe Edition, and Selections from Keats, Shelly and Byron, as found in Select Poems, published by the W. J. Gage Co., Toronto, 1896.

The examination paper in French will be based on Macmillan's Progressive French Course and Macmillan's French Reader (2nd year), or, as an alternative, Pujol's French Class Book to page 262. (See University Calendar.)

☞ The Department will supply the necessary stationery to the candidates at the July examinations, and all answers must be written upon the paper supplied by the Supervising Examiners.

In the June examinations the candidates will supply their own stationery.

☞ Examinations for Superior School License will be held both at the June and July examination. The First Book of Cæsar's Gallic War will be required in both cases.

Forms of application for the July examinations will be sent to candidates upon application to the Inspectors, or to the Education office.

(e) *High School Entrance Examinations.*—These examinations will be held at the several Grammar and other High Schools, beginning on Monday, June 19th, at 9 o'clock a. m. Under the provisions of the Regulation passed by the Board of Education in April, 1896, question papers will be provided by the department. The Principals of the Grammar and High Schools are requested to notify the Chief Superintendent not later than June 1st, as to the probable number of candidates.

II. Teaching Days and School Holidays, 1899.

Summer Holidays. Six weeks, beginning July 1st. In cities, incorporated towns, and Grammar and Superior School Districts in which a majority of the ratepayers present at the annual school meeting voted for extension of vacation, eight weeks beginning July 1st

Christmas Holidays. Two weeks, beginning on December 23rd.

Other Holidays. Good Friday, the Queen's Birthday, and Thanksgiving Day; also, in the City of St. John, Loyalist Day. *The Monday and Tuesday following Easter Sunday, and Labor Day, are not hereafter to be reckoned as Public School Holidays.*

No. of Teaching Days, First Term, 123; in cities, etc., 113.
No. of Teaching Days, Second Term, 94; in cities, etc., 84.

J. R. INCH,
Chief Supt. of Education.

Education Office,
February 8th, 1899.