

PAGES

MISSING

The Educational Review.

Devoted to Advanced Methods of Education and General Culture.

PUBLISHED MONTHLY.

ST. JOHN, N. B., APRIL, 1892.

\$1.00 PER YEAR

G. U. HAY, Ph. B.,
Editor for New Brunswick.

A. McKAY, Supervisor Halifax Schools,
Editor for Nova Scotia.

If you want something nice in Dress Materials, either Silk, Wool or Cotton, write to us for samples—We pay expressage on all parcels over \$5.00 in value.

DANIEL & ROBERTSON,
London House Retail,
St. John, N. B.

Cor. Charlotte and Union Sts.

THE EDUCATIONAL REVIEW.

SUBSCRIPTION PRICE:

Twelve Numbers, \$1.00
Single Copies, 10 cents

Subscriptions payable in advance. Send money by money order, or by bank bill in a registered letter. All remittances acknowledged by postal card.

The REVIEW is issued from the office of Barnes & Co., St. John, to whom subscriptions may be paid if convenient.

G. U. HAY, St. John, Managing Editor
W. T. KENNEDY, Academy, Halifax, Business Mgr. for N. B. and Nfld

CONTENTS:

EDITORIAL—	229-231
SCIENCE SFRIES—	232-235
Nature Lessons—Astronomical Notes—Practical Chemistry.	
CONTRIBUTED ARTICLES—	235-240
Tonic Sol-fa Notation—Manual Training—Effects of Hand Work—My First Day as a Teacher—Psychology for Teachers.	
ARBOR DAY PROGRAMME—	240-241
Talks with Teachers—School Inspector's Reports—Of Educational Interest—School and College—	241-244
Book Reviews—Current Periodicals—	244-245

Subscribers should promptly notify the REVIEW of change of addresses. Communications from New Brunswick and Prince Edward Island should be addressed EDUCATIONAL REVIEW, St. John; from Nova Scotia and Newfoundland to W. T. Kennedy, Halifax.

To Every Teacher

Who will, during this month only, send us the names and post office addresses of 20 families (likely to appreciate a sample copy of PROGRESS and to subscribe for the same) and \$1.35 in cash, we will send PROGRESS for six months and the 10 following books,

EAST LYNNE,
By Mrs. Henry Wood.

JANE EYRE,
By Charlotte Bronte.

VANITY FAIR,
By W. M. Thackeray.

ADAM BEDE,
By George Eliot

THE WOMAN IN WHITE, PUT YOURSELF IN HIS PLACE
By Wilkie Collins.

LADY AUDLEY'S SECRET,
By Miss M. E. Braddon.

JOHN HALIFAX, GENTLEMAN
By Miss Mulock,

THE LAST DAYS OF POMPEII,
By Sir E. Bulwer Lytton.

THE THREE GUARDSMEN
By Alexander Dumas.

By Charles Reade.

NAMES AND CASH

are what we want, one is as important as the other. This is the greatest offer we have ever made. The books are handsomely bound in paper and you cannot get them from any book store for less than 25 or 30 cents each. We make the offer in order to get the names of people who would probably like to take PROGRESS. We place faith in your judgment and rely upon you to choose the names with care, avoiding all those who get the paper now. We are also anxious to test the value of an advertisement in this journal.

EDWARD S. CARTER, Publisher.

N. B. If you want the book sent by mail send 14 cents in stamps or make your post office order \$1.95. By the way, we still have that great bargain, Allen's reprint of Webster's Dictionary, for \$1.95, or rather with PROGRESS for one year for \$3.95,—the paper must go with the book.

In another column will be found suggestions for an Arbor Day programme. Last year the REVIEW published a special Arbor Day number (April). This, with the hints in the present number, and the experience of past years, will aid those who have determined to observe the day.

No day has been appointed yet except for the City of Halifax—the 29th inst. The day should not be too late as it has been in several instances in New Brunswick. According to present appearances it should not be later than the second week in May.

Let there be a determination to observe the day in a fitting manner, that is by carrying out a programme in which WORK largely enters: Plant only a few trees but do the work well, with careful preparation beforehand. Clear up and beautify the school premises. Let the exercises for the day be on plants. Do not make the mistake of supposing that everything is done when Arbor Day is over.

Students of medicine will be interested in the advertisement in another column of books offered for sale.

WE regret to chronicle the death of Prof. Jas. Starr Trueman, Professor of Classics in Alleghany College, Meadville, Penn. Mr. Trueman was a graduate of Dalhousie University, and afterwards took a post-graduate course in Johns Hopkins University. He was a brilliant classical student, and a young man of much promise. His death resulted from bronchial catarrh at Meadville, and his remains were interred at Amherst, N. S., March 26th.

WE hope many teachers are planning to attend the Summer School of Science in St. John in June next. Additional information to that furnished in the S. S. Calendar will be given in the REVIEW for May and June.

MR. KERR, Principal of the St. John Business College and Shorthand Institute, has associated with him as partner, Mr. Pringle, a gentleman well acquainted with the principles and practice of a business education, and a skilful penman. Mr. Kerr's Institute has deserved well of the people of these provinces for the excellent and practical methods employed in it, and the constant disposition to keep up with the requirements of the times.

INSPECTOR LAY of District No. 10 (Colchester), has resigned to take the principalship of the Amherst Academy, at an increased salary. Mr. Lay will be very much missed by the teachers of this district. He did exceptionally good work during his term of office. By constant visiting, teaching in the school rooms where such help was needed, and by a well-conducted series of Institutes he inspired his teachers in an eminent degree. He made the teaching of natural history a specialty, and succeeded in having the prescribed course of study pretty fully carried out in every school. The REVIEW owes its very large circulation in Cumberland and West Colchester to the intelligent use which Mr. Lay made of it in carrying out his work. He is likely to be succeeded by a first-class man—Mr. J. C. Craig, long and favorably known as principal of the Parrsboro High School.

THE pupils of the Halifax School for the Blind have been giving a series of entertainments in St. John, Fredericton and other cities and towns in New Brunswick, to secure sufficient funds to pay off the debt on that worthy institution. We hope the entertainments have been a financial success. Crowded houses greeted them everywhere and the result of the wonderful training of the students by Principal Fraser and his assistants have been a revelation to those who are not acquainted with the appliances and methods that enter into the education of the blind. The New Brunswick legislature has passed a bill making per-

manent the grant for each pupil from this province. It also provides for drawing a certain allowance from the county school fund, thus placing the education of the blind on the same footing, in a measure, as the education of other children.

THE St. John teachers have decided to hold a conversazione in connection with the Educational Institute which meets in this city in June next. An active committee of ladies and gentlemen have the matter in charge, and their names are a sufficient guarantee that it will be successfully carried out.

HAVE some definite plan for self-improvement. If you have not a first-class certificate, strive to obtain one as soon as practicable. Scholarship will suffer more from disuse than from any other cause. Do not then give over study as soon as you have left the Normal School. Do not be discouraged if you cannot get any one to assist and direct your studies. Some of our best teachers have obtained first-class unaided. Scholastic attainments are a great factor in good teaching, no matter what may be the class of school taught.

ARBOR DAY IN NOVA SCOTIA.

It is now about seven years since "Arbor Day" was first talked up in Nova Scotia. But we fear it is still more widely honoured in talk than in the observance. In a few of the progressive educational centres of the province it has been duly celebrated, and in such a manner as to be useful in decorating the school grounds, in cultivating the æsthetic faculty, and in popularizing and spreading some elementary principles of forestry, the lack of the knowledge of which will soon be brought perhaps too emphatically to our attention—when our useful forests are changed into useless barrens. The Council of Public Instruction have given the necessary stimulus in a regulation that permits the setting apart of a day for tree-planting and appropriate exercises connected therewith. We shall carefully watch the inspectors' notes in future, and the country and authorities shall know how "things are."

THE ADMISSION OF NEW PUPILS.

With the return of spring come the complaints of the teachers of Grade I regarding the admission of new pupils, which begins in March and often does not end until the term expires. Some cities and towns of New Brunswick, in fact the majority of them, do not permit this practice. It is needless to say that those towns making the highest average attendance do not permit new pupils to enter except for a month or so at the beginning of the terms. At present there is no

provincial regulation bearing upon the matter, and whatever prevention has been accomplished has been the result of the action of the local boards. In all cases where this has been tried, it has worked most satisfactorily, after a little friction at the beginning, caused largely by a want of apprehension of the disadvantages all would labor under by admission at inconvenient seasons.

In addition to the difficulties Grade I teachers have to contend against by the admission of new pupils they have also to keep up to their work many pupils who attend during the warm weather, remain at home during January and February, and return to school again perhaps in March. This difficulty is recognized and grappled with by the trustees of many cities in the United States, who regard a pupil who has been absent from school a week as not belonging to the school. But this is only one side of the case—the teachers. What of the pupil? If parents could only have the matter explained to them, or they would stop and consider the disadvantages their children are under by attending schools where teachers have too much to do to give them attention, they would not insist upon their entrance until August.

One of our best primary teachers remarked a few days ago, "I like to begin with all new pupils. Those children who have been attending a few days or a few weeks before the beginning of the term, and have received such attention as the teacher has had time to give them are usually very listless and inattentive. They have contracted idle habits, and in consequence, perhaps, a distaste for school. They know a little more than the new ones in some branches. This begets inattention in those subjects and the habit once formed all the work is carelessly done. Oh yes! Give me new pupils to begin with."

This is the whole case. Let the primary teachers continue to press for the discontinuance of this custom wherever it exists. A regulation on the part of the Board of Education bearing on the matter would have a beneficial effect.

PENSIONS FOR TEACHERS.

We received from the writer of the letter on this subject—an abstract of which appeared in our last issue—another letter calling attention to the importance of continuing the agitation in favor of a retiring allowance to teachers worn out from long service. It was further pointed out that those taking part in the discussion should carefully avoid any political complication—this being a subject in which all are equally interested irrespective of party politics. It would be to the point if some one versed in the theory of life insurance would draw up some feasible scheme approx-

imately fixing the amounts of pensions, and showing how the same could be equitably taxed on the members of the profession, or otherwise raised.

Teaching the Tonic Sol-fa.

The following letter received by the Rev. James Anderson, Tonic Sol-fa instructor, from a teacher who availed herself of a short course in that system, may serve as an encouragement to others who have begun this important branch in their schools:

"I give my little pupils a singing lesson every morning, for about ten minutes (after roll-call). I think they are doing very well indeed, but I am going on very slowly, and, I think, carefully. We are at the first step yet, and will be for some time, as I do not wish to hurry them. I wish them to understand thoroughly what they are doing. I have found out the truth of your statement, that 'the only way to learn is to teach,'—especially this subject. I have the first step printed on the board, and I make my pupils sing the notes from that every day. I put a new exercise also on every morning, and explain the time and accent, and get them to sing it. I always finish up my lesson with an ear exercise, and the little ones are really beginning to distinguish the sounds of the different notes, and tell which one I have selected for them to find out in phrases to sing *fa*. I felt very awkward at first when I began to give these lessons, and was continually at a loss to know what to do next, but every day I seem to gain more confidence, and hope before long to be able to give a very satisfactory lesson."

Last summer vacation, two of our school principals, viz, C. H. Cowperthwaite, B. A., of the Bathurst grammar school, and Jas. McIntosh of the superior school, Bathurst Village, undertook and successfully accomplished a canoe trip that challenges the admiration of the whole fraternity. They set out from Bathurst, paddled to Campbellton, then poled up the Restigouche to the mouth of the Upsalquitch, up the latter about eighty miles to a lake, thence across a three mile portage to Meadow Brook, thence down the latter to the Nepisiguit and down the Nepisiguit to Bathurst, making a canoe trip of over two hundred and fifty miles, and most of it over the roughest water in New Brunswick. They had no assistance whatever, no guide and no previous knowledge of the route. They had to make several portages varying in length from a half mile to three miles, when canoe and tenting outfit had to be carried, sometimes up the side of a mountain that might well dishearten the bravest. All honour to the men who at such a cost of ease and comfort thus brave dangers and endure hardships to benefit their pupils! And thou, pedagogic attenuation, whose listless manner and haggard look attest the strain to which thou hast been subject during the long First Term, go thou and do likewise—as far as thou art able.—COM.

For the REVIEW.]

NATURE LESSONS.

No. IV. BIRDS AND MAMMALS.

First let us compare their limbs. No person should be so non-observant as not to study the anatomy of a leg or wing of a chicken, goose or turkey, when he gets it on his plate, if not he cannot be said to have devoured his morsel of bird muscle more intelligently than the hawk or the fox. A great deal of comparative anatomy can be very pleasantly studied on the dinner plate, without any philistine's knowledge of your extra absorption of intellectual as well as of animal food.

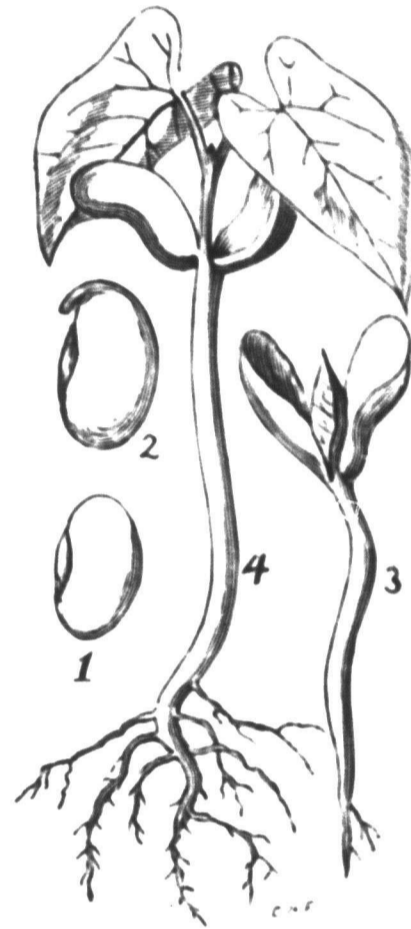
We can notice that the first bone of the wing is single like the *humerus* of the mammal. The shoulder joint is much larger, as we would expect it to be, for the bird is able to lift itself up in the air by the leverage exerted through the muscles connecting this bone with the body. Then the next bone of the wing is double, as are the *ulna* and *radius* in man and the mammals. The bones have the same names as the similar ones in human anatomy. The eight human wrist or *carpal* bones are in the bird reduced to two. The palm bones or *metacarpals* are reduced to two or three bones which are so connected as to be really one. While the fingers are reduced to three, one of them only being long, and having more than one bone. The wing then is seen to have three great joints, the shoulder bone, the fore arm bones (*ulna* and *radius*), and the hand and finger bones. The great quill feathers growing on this last joint are called the *primaries*, those on the middle joint, the *secondaries*, and those on the shoulder bone or *humerus*, the *tertiaries*.

In the foot we find the *femur* or thigh bone articulating with the pelvis as in mammals. Then comes the leg bones made up of the *tibia* and *fibula* or small splint bone. Then follows what is generally called the leg, but what is really the foot bones consolidated into a single leg-like bone. That it is not a *leg* can be seen by observing the backward bending of the joint above it, which proves it to be a heel joint. The knee joint always bends forward; the heel joint backward. The bird, then, walks on its toes, with its heels high up in the air. The toes are from two to four in number, the latter being characteristic of a great number of birds; most of which have one toe (the *hallux*) behind, and some of which have two behind, and still some of which all four are in front. These toes have joints as in mammals, and in most four-toed birds we find two, three, four and five phalanges in the respective toes.

PLANT LIFE.

No. II.—GROWTH FROM THE SEED.

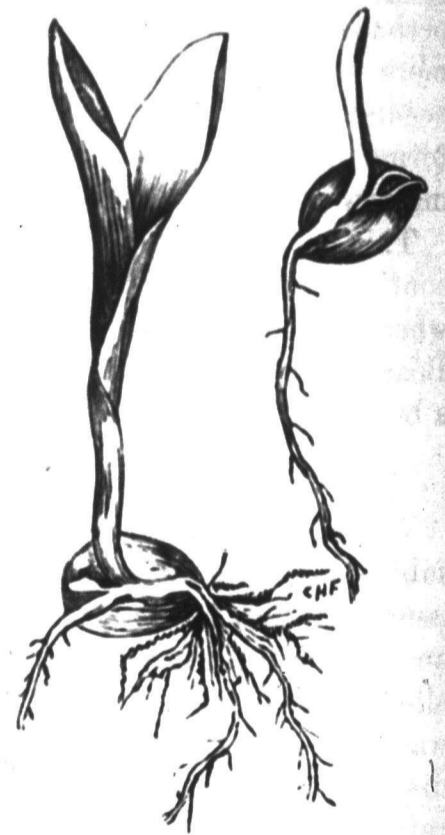
In the last REVIEW it was shown how much may be learned from a naked twig or branch in the winter time. Not less interesting and even more wonderful



is it to watch the awakening of life in the seed. This begins under ground where we cannot see it. But we may imitate nature. Some beans and corn should be planted and tended by the pupils, each one having his own "garden;" and they should be planted in sufficient abundance so that daily examinations may be made and the rate of growth noted. Drawings should be made of the seed and plants that form the subject of the lessons. For the first lesson some beans

soaked in warm water over night may be before the class. Removing the seed coats a tiny plantlet

will be found between the two thick leaves that make up the greater part of the bean. This tiny plantlet has a short axis (from which grows the radicle), two leaves, with a bud between (the plumule). From the radicle will grow the rootlets, and the plumule will produce the stem with pairs of opposite leaves. The successive stages of growth will form material for lessons, as shown in the first diagram.



Seed corn may be planted at the same time as the beans, and the growth of each compared. For the first lesson the corn should be soaked for

several days before required for class use. Unlike the bean, it does not split open. But growing from one side of the seed will be observed an axis, one end of which will produce rootlets and the other leaves. The second diagram will serve to illustrate this growth.

After studying the growth of both plants for a series of short lessons, the following facts may be tabulated:

DICOTYLEDONOUS PLANTS

1. Have two seed leaves, usually stored with nourishment.
2. Have netted veined leaves.
3. Have flowers usually in fives.
4. Exogenous stems with usually separate bark.

MONOCOTYLEDONOUS PLANTS

1. Have one seed leaf.
2. Have usually parallel veined leaves sheathing the stem.
3. Have the parts of the flower usually in threes—never fives.
4. Have endogenous stems with inseparable bark.

For the REVIEW.]

Astronomical Notes.

The anonymous Scotsman who discovered the new star in Auriga turns out to be an amateur astronomer by the name of Anderson. The star had already three names before the discovery of its discoverer, now it will pass into history with four. It is Nova 1892 because of when it appeared, it is Nova Aurigæ because of where it appeared, it is Anderson's Nova because of whom it appeared to first, and it is Copeland's Nova because its appearance was first publicly announced by Dr. Ralph Copeland, the Astronomer Royal for Scotland.

But it is no longer, unless it still exists as a mere telescopic object. The last glimpse of it that was got here was on March 10th, and it was then far beyond the reach of the naked eye. It still exists, however, as a fertile subject for discussion and speculation. Lockyer has an article on it in the March *Nineteenth Century*,—not on it specially, but on "New Stars" generally. He notices some of the principal of these that have appeared, especially those of 1572, 1604, 1866, 1876 and 1885. He mentions the changes in brightness and color that have been recorded of them and the spectroscopic indications given by the later ones. He considers all the known facts in connection with all of them to be well accounted for by his own meteoritic hypothesis. According to this hypothesis the 1892 Nova was caused by a collision between two swarms of meteors—one very dense and moving with great velocity towards our solar system, the other less dense and moving less swiftly away from us. The displacement of the lines in the spectrum of the star showed that the two swarms were drawing apart with a velocity of 500 miles a second. We think fifty miles an hour pretty fast, and so it is. If two trains, each rushing towards the other

at this rate, should try to pass on the same track, there would be a grand smash and a splendid display of sparks; but the combined velocity would be only 100 miles an hour. Multiply this by 18,000 and you have the speed with which those meteor swarms crashed together out in the Milky Way.

* * * * *

Jupiter has gone from the evening sky. He was last seen—so far as I have heard—on March 7th, thirteen days before conjunction. At that time he seemed good for four or five days still, but the following evenings were cloudy and nothing more was seen of him. He is now on the west side of the sun, but much too near that luminary to be seen just yet. If we lived as far south of the equator as we do north of it, our morning-star-gazers might expect to catch a glimpse of him as early as April 1st, or even earlier; but, as things are, they will have to wait until after the middle of the month. Last year the managing editor was the first of our readers to pick him up in the morning; who will be first this year?

Mars will be there for you to look at while waiting for Jupiter to rise. Between mid-April and mid-May the ruddy planet will double his brightness, and on the latter date will be nearly as bright as he is at some oppositions, though only one-fifth as bright as he will be at opposition this year in August. But in that month, when he is brightest to us, we will be invisible to him, for the earth will then be between him and the sun, and will turn its dark side towards him. It is during the months of April, May and June that we will look best to the Martians; the earth will then be the fairest of their evening stars—just as Venus is to us now and as she will continue to be during the same three months. If anything is to be done this year in the way of making signals to our cousins in Mars, we ought to set about it now, and then in July, August and September we might, perhaps, be spelling out the meaning of their answering beacon-fires.

You may see Mars at night, if sitting up late agrees better with you than rising early. In mid-April he will be in sight long before two, in mid-May an hour earlier.

The other morning-star is Mercury, but it will be after the middle of May before he is at his best. Of course every one has been admiring him during the last days of March and the first of April as he hung below Venus in the evening sky. It was difficult here to catch him early on account of cloudy skies, these being the rule in the west, from March 7th to March 21st. Date of first glimpse, March 13th, with field-glass; March 17th, with eye; on both occasions he was nabbed while dodging between two clouds. Date of latest glimpse, April —, not known yet, but later than the 10th, I hope.

* * * * *

Our evening stars are Venus, Saturn, Uranus and Neptune.

Neptune will be the first of them to go. He sets in mid-April at ten, in mid-May at eight. Sometime between these two dates you will see the last of him in the evening until next autumn. He is still quite easy to find if you use a field-glass and consult the map in the January REVIEW.

Uranus was most interesting during the half-dozen days around March 18th, but most of the evenings then were stormy and cloudy. About eleven on the 17th he and

Lambda Virginis were only 2' apart, that is about two-thirds of the distance between the components of Epsilon Lyra. It *did* happen to be clear that night, and a very pretty pair the two made. Next night there was only 1' between them, but of course that night was cloudy. They were not well seen again until the 21st; and then they were as far apart as the pair that form Alpha Capricorni, that is about half as far apart as Mizar and Alcor, the Horse and its Rider. This was the second conjunction between the two this year. There will be a third in October, but nobody can see that, and besides it won't be as close as this one was. The earlier you seek Uranus the easier it will be to find him, because of his nearness to Lambda. He is north and west of the star, and is the brightest of the small dots that your glass shows there—brighter than any other in the field except Lambda herself. When on or near the meridian, and in a clear, moonless sky, no glass is needed to see Uranus.

Saturn is in the other end of Virgo, near Beta. He is moving to the right among the stars as Uranus is doing. If you can get hold of a telescope—even a small one—point it at Saturn and enjoy a sight of the thin slivers of light sticking out on each side of the disc. That is about all that can be seen at present of the ring.

Venus is —, but what need is there to say anything about *her* as she is now? None but the stone-blind can fail to gaze their fill at her and to steep their eyes and their hearts in the splendor of her beauty. Look at her by day as well as by night, you can do so at any hour from eight in the morning till eleven at night. It is a charming sight to see the tiny white disc smiling down at you from out the sunlit blue of a noon sky. It requires no keen eyesight to see her thus, but unless you know nearly where to look for her you had better not risk hurting your eyes by making a random search. On April 29th she will be a little to the left of the moon, on the following day a little to the right

* * * * *

An eclipse of the sun—a total one—occurs on April 26th, but it is only for the benefit of the South Pacific. The next one—which won't be total, however—will be for our benefit.

A twenty-six hour old New Moon may be seen half-an-hour after sunset on April 27th. When this moon is full on May 11th she will be eclipsed, and the latter half of the performance will be visible here, W. P. A. CAMERON.
Yarmouth, N. S., March 27th, 1892.

For the REVIEW.]

Practical Chemistry.

J. BRITAIN, NORMAL SCHOOL, FREDERICTON.

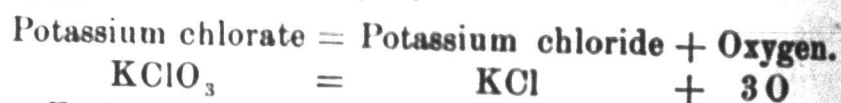
LESSON VIII.

Fill the tube into which you put the mixture of KClO_3 and MnO_2 nearly full of water. As soon as the hard mass remaining in the bottom of the tube has been loosened by the water, empty it into a cup half full of water. Filter the mixture in the cup through a piece of porous paper fitted into a small funnel until the water remains clear. The black material which remains in the filter will be found, when dry, to be in no way distinguishable from the

MnO_2 which you mixed with KClO_3 , and, indeed, it is the same. The clear water will have a saline taste, and if you place a little of it in a glass dish with a wide, flat bottom, and set in a warm, dry place until the water evaporates, a crystalline substance will be found in the bottom. This substance has been found, by chemical analysis, to consist entirely of potassium and chlorine. Its name, then, is potassium chloride, and its formula KCl .

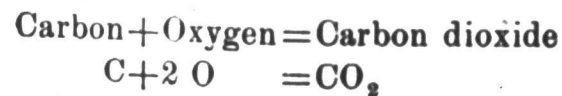
Before it was heated, the mixture consisted of KClO_3 and MnO_2 ; but after the gas was driven off it consisted of KCl and MnO_2 . You will at once conclude that the gas must have been oxygen, and that it all came out of the KClO_3 . The heat broke up the molecules of KClO_3 ; the three oxygen atoms escaped, and the two remaining atoms, K and Cl, united to form a molecule of KCl .

The reaction which took place may be expressed thus:



Each molecule, then, of chlorate of potash, contributed three atoms towards the whole amount of oxygen which was collected. Although the MnO_2 contains oxygen, it did not yield any, as its molecules were not broken up. It was mixed with the KClO_3 in order that the latter might break up at a lower temperature than it otherwise would have done.

Let us now consider what took place when the piece of charcoal was burnt in the bottle of oxygen. Pure charcoal is the element carbon (C). When the combustion began, there was in the bottle carbon and oxygen. When the burning was over, there was in their stead a gas which had the property of turning lime-water *milky*. We conclude, therefore, that this gas must consist of the carbon and oxygen combined. When the carbon was burning then it was uniting with the oxygen in which it was immersed. Each molecule of the resulting gas has been found to consist of one atom of C and two of O; it is an *oxide* of carbon; and because its molecule contains two carbon atoms, it is called carbon dioxide gas (CO_2). The re-action was:



The graphic formula for carbon dioxide is written thus: $\text{O}=\text{C}=\text{O}$

The carbon atom has four bonds, each two of which are satisfied by the two bonds of each oxygen atom. Since a carbon atom has four bonds, the valence of carbon is four, and carbon is called a *quadrivalent* element. (L. *quatuor*, four; *valeo*, I am strong.)

When the iron wire was burnt, it also united with the oxygen. The black globules which fell to the

bottom of the bottle are not iron, but a compound of iron and oxygen, known as black oxide of iron, (Fe_3O_4). (*Fe*, from Latin *ferrum*, iron, is the chemical symbol for iron.)

The reaction was: $3\text{Fe} + 4\text{O} = \text{Fe}_3\text{O}_4$

Because oxygen gas will permit other substances to burn in it, it is called a *supporter of combustion*. You will notice that in both cases the substance burnt united with the supporter of combustion. When an element burns in oxygen, the product is an *oxide*, and the substance burnt is said to undergo *oxidation*. Split up the end of a dry stick rather finely, so that it will burn readily, and char it by partly burning it. The black substance revealed by the partial combustion, will be at once recognized as carbon. Take a small wide-mouthed bottle full of air. Pour a little lime-water into it, place your hand over the mouth of the bottle, and shake the lime-water up with the air. The lime-water remains clear. Now re-light the charred end of the stick and hold it as far down in the bottle as it will burn without smoking. In a minute, take it out, quickly pour in some lime-water, close the bottle with your hand, and shake as before. The lime-water becomes *milky*. You will infer at once that the same gas is formed when carbon is burned in air as when it is burned in oxygen, that is carbon dioxide gas. Hence the air must contain oxygen, or the carbon could not get it out of the air to unite with. But since the air is not as good a supporter of combustion as oxygen, (for instance it will not relight a stick with a red tip), it cannot consist *entirely* of oxygen.

For the REVIEW.]

Notes for Teaching Music by the Tonic Sol-fa Notation.

NINETEENTH PAPER.

The crowning point of the Tonic Sol-fa Jubilee celebrations was a service, 18th February, in Lawrence Church, Norwich, a memorial to Miss Glover, joint foundress of the Tonic Sol-fa system, conducted by the Archdeacon of Norwich, Ven. T. T. Perowne, B. D., and four assisting clergymen. On unveiling the bronze tablet the Archdeacon said, "It was not the first time Miss Glover's name had been inscribed on a lasting memorial, for when the Tonic Sol-fa college was built, a memorial stone was placed there. The founder of the college, her friend and co-worker, then said, 'It matters nothing to Miss Glover that we should write her name in stone, or in brass, or in bronze. She worked for her Master and is now receiving the reward she sought. But it is *much to us* that we have done this thing.' * * * It was his great privilege to know her long years ago, and to get good from her.

* * She had great culture, great ability, and great power of teaching, but she felt that these gifts were given her for the benefit of others. * * * A worshiper in that church, she thought she would help the congregation to sing the praises of God in a more intelligent and more musical way than they were in the habit of doing. Therefore she laboured among the children there, and in the national schools: she taught the teachers in other schools who came to her; and also congregations, and so her work grew and expanded. She taught him some hymn-tunes when he was merely a boy, and thoughts of her now rose before him—what a real help to him she was! Of such they could say of her as of her co-worker:—

'Life so lived and work so done,
Lives and lasts and knows no end.
Still though dead they speak on earth,
To a vast increasing throng:
Faith, and love, and guileless mirth,
Teaching still to speak in song.'

[Memorial Ode to John Curwen.]

* * "Both Miss Glover—as the first to find out, discover and invent this particular form of musical development and education—and he who took up her work, enlarged and developed it by the aid of great original faculties and powers alike had hand and heart consecrated and devoted to the Master. * * Gathering all into a sentence he might apply to them the words of Christ to His apostles; 'I have chosen you that ye should go and bring forth fruit, and that your fruit may remain.'" The tablet bears this inscription:

TO THE GLORY OF GOD

AND TO COMMEMORATE THE LOVING LABOURS HERE AND IN THIS

CITY OF

SARAH ANNA GLOVER,

DAUGHTER OF THE REV. EDWARD GLOVER,
FORMERLY RECTOR OF THIS PARISH.

SHE WAS THE AUTHOR OF THE NORWICH SOL-FA
SYSTEM, FROM WHICH THE TONIC SOL-FA
SYSTEM SPRANG.

BORN NOVEMBER 13, 1786. DIED OCTOBER 30, 1867.

W. D | M F) - R | D - M | S' - L' | S' -
Sweet is the work, my God, my King,
S' | D' - T' | L' - S' | S' F) - M | M. B)
To praise Thy name, give thanks and sing.

ERECTED A. D. 1891.

On the lower part of the tablet is inscribed the first two lines of Miss Glover's favorite hymn and tune, preserving a specimen of her notation.

The letter *W* indicates the key F, from lettered columns on harmonica used. The octave marks begin with *s*. The slurs are indicated by parentheses marks.

Let the teacher under each step, master with the children the difficult intervals of that step, and then only, the new difficulties will remain to be conquered. Teach these by pattern and often referring to the character of the note to which the leap is to be made. The difficult intervals of the first and second steps have already been given. In the first step the leap *d' m* generally causes most trouble. Let the teacher remember it is difficult. He can contrast the effect of the *me* and *soh* in a number of good ways. The class may sing *me* after the teacher has sung *d m s d'*; or the class may sing these tones, and one pupil sing *me*.

For young pupils the best keys for the range *d* to *d'* are key C and D. The keys F and G will give the range *s*₁ to *s*. Then the keys B \flat , A and G will give the range *m* to *m'*. Be careful not to strain young voices. Require the children to sing their high tones softly. As formerly stated some of the leaps under the second step are very beautiful, and when intelligently taught will not give much trouble. Introduce appropriate songs as soon as possible, and remember exercises are only a means to an end. The teacher should try to get all the help from the singing possible. Be sure that the children understand the words sung, and that they enunciate and pronounce correctly.

TONIC SOL-FA FOR STRINGED INSTRUMENTS.

On the 20th of February, at the meeting of the Tonic Sol-fa Association, London, Mr. Josiah Stansfield, teacher of the violin—once strongly opposed to Sol-fa and all its works—in a paper much appreciated set forth its instrumental advantages. He said that tonality, the feeling and knowledge of all the tones in a key to the tonic, was of as great importance to a violinist as to a singer, and the player's ear must decide the exact place for the tones. The easiest way to learn was to take each string in turn as the key note, and not from an uncertain note given by the beginner's third finger. He showed the advantages in Transition and in Tuning. The violin family being essentially ear instruments, called for good ear training, and here the Tonic Sol-fa method, the needs of the voice and the violin coincided. Every violinist ought to be a singer. The Sol-falist sees the place of the semitones and could accentuate their characteristic leaning tendencies. The ear would tolerate *a t* too sharp or *a f* too flat rather than the opposite. Sol-fa awakened the intelligence of the learner, and made clear much that was obscure in the staff.

Hampton, N. B.

JAMES ANDERSON.

For the REVIEW.]

Manual Training.

LEE RUSSELL.

In a former number of the REVIEW a brief account of the work done at Halifax was given. Enough was said to give an idea of the sort of work and its general aim. At the introduction of a new branch of study into an already overburdened course, good reasons for its adoption must be shown. Some plan ought also to be set forth for grafting the new branch on the original tree. Educational men wisely look with distrust on "fads." So many have arisen and made a considerable stir in the world, only to be proved mischievous, that this distrust is in danger of becoming a Chinese wall of prejudice.

Manual training has borne successfully for some years a careful, and in some cases a bitter criticism. In Sweden, where it has been longest in use, its success has been greatest, and though of comparatively recent introduction into the United States, where also it has met with considerable opposition, it is considered to be established on a firm basis.

The reasons for its success there seems to me to apply equally well in Canada, and particularly in Nova Scotia.

Within forty years two agencies have been at work, which bear directly on this question, *i. e.*, the trend of population toward cities and towns, and the invention of labor-saving machinery. More people come every year to cities where the fine division of labor makes it impossible that many shall use their hands. The farmer now finds it cheaper to buy many things which formerly he and his boys made.

The system of education which was well adapted to a time when every man had to use his hands more or less, needs, under the new order of things, some amending. Unless we wish our fingers to become as helpless as our toes, we must devise some substitute for the former training.

It is an acknowledged fault of modern education that it leaves the body undeveloped. Under the old conditions the body received all the development it needed. Now we try by gymnastics and calisthenics to make good the loss. Partly for the very reason that these exercises are for an avowed purpose, they succeed indifferently well. Manual training, on the contrary, aims at something far different, but if it succeeds in its primary object of giving the pupil manual dexterity, it must also give him considerable muscular exercise. In addition to this, if rightly taught, it gives him what complicated and specialized systems of gymnastics fail in giving—a rested mind. To this end work in manual training should be of

simple, carefully graded exercises, which in some degree may be performed mechanically.

Psychologically, manual training is as firmly established as it is from other standpoints. It broadens the experience of the child in the directions least touched at present; it prevents too long concentration of the mind in one direction, and helps to correct the tendency of modern education toward instruction in abstract ideas. It is believed that pupils instructed in manual training take hold of their other school work better, and are better able thereafter to take up scientific studies.

Manual training gives a pupil a certain independence, an ability to take care of himself, which is valuable. One outcome of this is that his way through life is much more free from the petty annoyances which often make a clumsy man miserable. He learns that behind every inconvenience is a cause, which is often easily removable. If a window refuses to shut, he does not sit in the draught and hope a carpenter will be sent to his relief. He discovers that the sash is swelled, or that the cords stick, and easily prevails over the "total depravity of inanimate things."

It is often urged that manual training implants in the minds of the pupils a respect for "Labor." While I do not believe that "Labor" in the abstract, even if spelt with a capital L, is more worthy of respect than any other form of work, it seems to me that there is apt to arise in the process of ordinary education, a certain contempt for any but purely mental excellence. Manual training does make the pupil respect and even honor *skill* of any kind, and in so doing gives him a juster view of many of his fellowmen.

In his last excellent annual report, Supervisor McKay, of Halifax, recommends the dropping of some of the more obsolete branches from the course of instruction, and the substituting therefor of more modern work in the line of manual training. Similar views are held by enlightened men elsewhere, notably by President Francis A. Walker, of the Massachusetts Institute of Technology, and by President Elliot, of Harvard.

In a country like Nova Scotia, rich in natural resources, as yet but partially developed, it is important that its children should have some small notion at least of the mechanic arts. These rich mineral deposits are surely to be opened, and the children of to-day may be called upon later to take part in the industrial activity which accompanies such a development. There are undoubtedly lost every year to this country good engineers and mechanics, who become poor salesmen, clerks and bank officers. The only

way to discover such men is to give them the chance as children to find out for what they are fitted.

The best way yet devised to help these children is by a course in manual training. I do not mean by this that manual training is only for embryo engineers. I trust that enough has been said in this paper to show its value to all. But one great need in Nova Scotia to-day is, I think, some means for supplying skilled laborers, the need of which is some day sure to be felt even more than it is at present.

Halifax, N. S.

For the Review.]

Effects of Hand Work.

It is sometimes asked, of what use is hand work in the kindergarten? Some people have the erroneous idea that it is simply an agreeable way of passing the time. There are many important reasons why hand work should be given, the following are some of them:

In the first place, the hand is one of the most important members we have. By it we construct everything we need from the needle to the engine. A child begins to use its hands long before its mental powers develop, and it is by its hand it acquires its first knowledge of objects. All children and uneducated persons want instinctively to handle a thing in order to know it and learn its qualities. All the industrial arts and mechanics depend on the skill of the hand. There is no department in life in which it does not play an important part. Where would be the artist, the man of letters, the mechanic, without this one little member? If then the hand is so important should we not endeavor to develop it to its utmost capacity?

The handling of an object gives a more thorough knowledge of it than can be gained in any other way. Such qualities as hardness, weight and, are impressed clearly and forcibly on the mind. Thus hand work leads to clear, precise and lasting knowledge. Then this mental knowledge is again given out through the manual work. This reproduction is one great test in education.

Many of these manual exercises are done from dictation. If a desired result is to be attained, all directions must be faithfully carried out. Here, will is exercised through the necessity of obedience and precision. The ability to obey instructions implicitly is of unquestioned importance. If the hand work accomplished nothing but the giving this ability its claim for attention would be vindicated. But improvement of one faculty means improvement of many.

Another result we look for is the appreciation of labor. At the present time mechanical work is looked down on by many people. And yet surely a

man who can make a beautiful piece of furniture is the equal of one who measures cloth. The man who can perfect a delicate piece of machinery is certainly not inferior to the man who keeps accounts. And yet manual labor is despised. Can kindergarteners do anything to alter these false ideas? I think so, and hand work is a step in the right direction.

We next find manual work affords grand scope for originality, design, creation. In cutting, folding, drawing, especially these qualities are exercised. Closely connected with these is the sense of beauty. The relations of lines and curves are learned, and the possibilities of combining them in various ways reveal themselves. Thus the æsthetic side of a child's mind is developed.

The kindergarten exercises will often indicate the work a child is best suited for in after life. A bias is given in the right direction and unsuspected powers come to light. Man's happiness depends on congenial occupation. How many lives have been spoiled by a wrong choice of work. If we can prevent mistakes of this kind our work has not been in vain.

If kindergarten work leads to such results as the above, surely its value can hardly be overestimated. I do not think I am claiming too much when I say these results are the natural outcome of our work.

L. K. F.

For the REVIEW]

My First Day as a Teacher.

A teacher undertaking the charge of a new school should arrive at the school house before the pupils begin to gather, in order to familiarize herself with her new surroundings, and receive the pupils as they arrive.

At the appointed opening hour a touch of the bell brings the pupils to their seats, and having been previously welcomed by the teacher as she met them at the door, both parties feel less embarrassed. After devoting a few minutes to devotional exercises, the teacher and pupils have a friendly talk, relating to their respective duties and work of the ensuing term. The teacher does not speak in an overbearing masterly tone, neither does she threaten, being conscious that such is an indication of weakness, but she appeals to the nobler nature of her pupils, and seeks their co-operation in the work. A few simple rules are laid down, with which she requires their compliance. If the teacher is aware that there are pupils present who have previously been known to act improperly, she should not make any reference to the fact, but take all the pupils to be honorable, and if she finds out at a later period that some of them are unworthy of her confidence, she can express her disappointment

in such a way that the offending pupil will be sorry for having proved himself or herself unworthy of the teacher's confidence.

The teacher next proceeds with the classification of pupils, if they are not already classified. Wishing to classify them according to their several abilities the teacher will have occasion to test them by written or oral examination. However, where this testing involves much work it is not expedient on the first day, as it is not well to work the pupils too hard that day. After registration and assignment of some interesting work for the following day, school is dismissed, and the pupils carry home their first impressions of the teacher, which are generally lasting.

As the teacher leaves the school room she entertains the hope mingled with a prayer that the seed sown in human weakness may be watered by "Heaven's bright rain."

For the REVIEW.]

Psychology for Teachers.

PROF. SETH, DALHOUSIE UNIVERSITY, HALIFAX.

LECTURE III.

Consciousness is a general characteristic of the mental life. We cannot give a definition of consciousness. To understand it we must experience it, but even then we cannot explain or define it to others.

Consciousness may be defined as the mind's awareness of its own states.

Hamilton defines it as the recognition by the knowing subject of its own acts and affections. Such a consciousness is the universal characteristic of our mental life. Its intensity varies; but to feel, to know, etc., I must be conscious.

The roots of mental life, however, lie deeper than this consciousness—below the threshold, as it were. We must learn of processes which are *latent*—which produce *active* results or effects. This mental life which is going on below actual active consciousness is not unconsciousness, but rather sub-consciousness.

There are various cases of these sub-conscious phenomena.

1st. Regarding *attention*.—I am sitting writing and a clock in the room is ticking. I do not seem to be aware of the fact, but the instant I think of it I hear it distinctly; my not hearing it being merely a want of attention, not a cessation of consciousness. Were the clock to stop I would probably notice it at once, as the following fact will show: "I was awakened suddenly one night, but on awakening everything was quiet. My first thought was of the time, and I at once noticed that the clock was not ticking. On comparing it with my watch there was no perceptible difference in the two timepieces, showing that it was the sudden cessation of the sound that awakened me, although it had not seemed to be forming a part of my mental state. Thus even in sleep there is not total unconsciousness."

2nd. In mental association we have another case of sub-consciousness. One idea suggests another, but the two ideas are often so distinct that something must have connected them with one another. Hamilton says that whenever he thinks of

Ben Lomond immediately the idea of Prussian education suggests itself. Tracing back his ideas to a cause he remembered that he had once ascended that mountain in company with a German professor and that their conversation had turned on Prussian school-systems. The connecting link, viz.: the German professor, had dropped below the threshold of consciousness.

In the accompanying diagram, let the points A and C be the two ideas in the present mental state of consciousness, C having been suggested by A. They are really connected by B, which is an unconscious mental modification and has dropped below the surface, leaving the two ideas in the mind as apparently independent of any other factor. It is difficult to say how far below B is. The threshold is always shifting and the difficulty is to distinguish between consciousness and unconsciousness.

Association of ideas is a most important factor in education. Associate dry facts in history and geography with pleasing pictures and anecdotes and the one will suggest the other.

3rd. In habitual actions we see various stages of consciousness that seem to merge into unconsciousness. A young child learns the alphabet and gradually combines the letters into words, and words into sentences. When his mind is developed and he reads, is he conscious of the letters? Is he even conscious of every word? A business man, for instance, scans a column of the newspaper to learn some important facts, and he seems totally unconscious that a mental process of combining elements is going on in his brain. These details have become habitual, but how intimately these seemingly unconscious mental operations are connected with the conscious.

A fourth case of the kind is that when we have worked for a long time at a baffling problem and we rest for a time, on returning to it we not only are reinforced by fresh vigor, but we have advanced perceptibly towards the solution of the question at issue. This is almost inexplicable, but it may be that the mental activity having been excited to such an intensity, cannot at once cease to act, but carries on mental operations below the threshold of consciousness, which unconscious operations result in a solution of our difficulty when their effect is felt above, or in the region of absolute consciousness. The mind may be compared to a lake. Our conscious, mental operations are like the stirring of the surface-water. Below the surface of the lake go on motions which make themselves felt above, and so it is with mental facts. Those below the threshold of consciousness affect those above, more or less, according to their depth, until ultimately we reach the zero, which is unconsciousness.

ATTENTION OR CONCENTRATION OF CONSCIOUSNESS.

Attention is concentrated as distinguished from diffuse consciousness. The intension of consciousness is in the inverse ratio of its extension. We have only a limited fund of conscious energy, therefore the more we concentrate on one thing the less we have left for others.

The characteristic of mental life is variety. Attention is the opposite tendency, viz., to *fixity* and *unity*. It is the reduction of the natural variety or change of consciousness to stability. There is also a physical aspect of attention, viz., its prevention of movements. As we have only a certain amount of mental energy at our disposal, so we have only a limited amount of physical energy, and as attention in the former case means a withdrawal from some things to concentrate our consciousness on others, so the latter means the same.

Take any child at school; you must control his muscles if you will control his mind. His physical activity interferes with his mental operations, therefore his physical attention must first be gathered up and then his mental attention can be secured.

There are two kinds, or degrees, of attention. The first is defined as spontaneous, non-voluntary, automatic, reflex. This is also called effortless as there is no play of the will.

Reflex attention is the result of an action which attracts our attention.

Automatic or mechanical attention is opposed to voluntary. These sorts of attention are merely the re-action of the mind in response to stimuli, and we cannot help this re-action.

There are two sets of conditions which determine our spontaneous consciousness as to its intensity, viz: the character of the *stimulus*, and the character of the *person* who receives it; in other words the character of the *object*, and that of the *subject*.

As regards the character of the *object*.

1st. The *quantity* of the stimulus determines the amount of attention it excites.

2nd. The *quality*, namely: whether it be disagreeable or the reverse.

3rd. Contrast between the present stimulus and the past, e. g.: noise in stillness.

4th. The novelty of the stimulus, which is closely connected with contrast.

5th. Familiarity. Anything entirely novel is, to the majority of individuals, not interesting. There must be at least some relation to familiar objects.

6th. Association or connection of the present stimulus with past stimuli.

The character of the subject stimulated is as important as that of the object. By noting what stimuli affect a man, and in what manner, we can determine his character. Individual minds are affected differently by the same stimuli.

Imagine three men, a botanist, an artist and a farmer, walking along the same country road. How differently the objects met with will appear to their individual minds. Each tiny blade of grass and every minute blossom which the others would trample in the dust, will arouse the mental activity of the botanist. The artist notes the glowing tints of the sky and the picturesque grouping of the objects in the landscape, while the minor details escape his notice. If the farmer, too, gaze at the firmament it will probably be to read there the weather signs, that will promise him an abundant harvest, or the contrary; or if he survey meadows and groves, it will be not to admire their beauty but to conjecture their practical value. Thus each mind can in its individuality follow out the designs of the great Creator of the universe.

The second form of attention is voluntary or artificial attention as distinguished from natural attention. The main difference between this and the former is that the one is non-voluntary or accidental, while the other is voluntary or intentional. We attend for a purpose, for some end. The main source of the first kind of attention is from without, the second from within. Here we find that the all-important thing is the subject.

Formal attention depends on two things: 1. The amount of mental energy available. 2. The presence of an object fitted to call forth this energy.

Voluntary attention has great effect on the mental life even by physical means. For instance, a soldier who receives a wound in battle is often unconscious of it for some time. In

a lesser degree we experience this ourselves. How often we discover a slight wound on our hand caused perhaps by the prick of a pin, and we wonder where and how we got that wound. The sensation must have been there when the wound was made, but our attention was so absorbed that we did not perceive it. The amount of attention exercised also regulates our memory.

Voluntary attention is not primary, but secondary. It cannot be created, but must be evolved, developed or engrafted. We lead the attention of a child to secondary things by means of primary. The whole kindergarten system of education depends on this. The children are taught the useful by means of the beautiful, the uninteresting by the interesting, and the perfection of the Fröbel education consists in engrafting the artificial on the natural in such a manner that no apparent space intervenes, and it cannot be distinguished where play ends and work begins.

Attention is essential to work of any kind. Work is concrete attention.

Attention contains the secret of formation of character. The unformed school-boy has no interest. Once he attains some all-absorbing interest, his character begins to grow. It is the work of the teacher in the first place to excite in the pupil a noble interest, then to develop that, preventing it from becoming too exclusive, employing for this all the means which experience in teaching will suggest.

We must not force interesting things on the mind of the child, but graft them on things in which he is already interested. For example we are teaching drawing to a class. One boy in the class cannot learn to draw. We study him and find out his absorbing interest. Perhaps it is machinery, perhaps it is a love of the sea. What shall we do to teach him drawing? Put a picture of some piece of machinery on the board, or of a ship if he have nautical tendencies and you will see him make an effort to copy it, and by-and-bye he may find that this branch of education will be of use to his special interest and he will do his best to acquire it. I have seen girls who could not be interested enough in drawing to make an effort to draw a straight line, when there was a question of making a design for a set of china or for a wall paper have suddenly developed an interest for the art and become fair pupils in design. So with all the other branches of education. Study your pupils, find out the interests of each by your everyday contact with them, and then be prepared to present to their views all sides of the subject you are teaching, that it may have a beneficial effect on each individual mind.

In developing the mind of a child, however, the teacher must give the intellect time to develop, for such is the order of nature. Our physical development is imperceptible, our daily growth is so slight that the most acute eye cannot perceive it, but if you lose sight of a child for a year you are surprised at his great increase of stature. So with the mental growth. We must expect the immature student to proceed slowly, but still to proceed and at the end of a school year the careful, earnest teacher who has followed the workings of nature and developed each individual mind slowly and surely, will behold the mental stature wonderfully enlarged. But, as the physical stature grows in proportion, so the mental must grow, not only in intellectuality but also in its æsthetic and moral phases. In the intellectual studies, which form the basis of school education, the teacher must look for opportunities of stimulating the pupils to follow that which is noble and good, and avoid the base and mean, to see the beauties of art and nature as well as their practicalities, and thus a mental being will be harmoniously developed.

Arbor Day Programme.

MOTTOES FOR THE BLACKBOARDS.

"He who plants a tree, plants a hope."—*Lucy Larcom*,

"He who plants a tree, loves others besides himself."

"O for a seat in some poetic nook

Just hid with trees, and sparkling with a brook."—*Leigh Hunt*.

"Give fools their gold and knaves their power;

Let fortune's bubbles rise and fall;

Who sows a field, or trains a flower,

Or plants a tree, is more than all."—*Whittier*.

"Who does his duty is a question

Too complex to be solved by me;

But he, I venture the suggestion,

Does part of his that plants a tree."

With drawings of plants, flowers, etc., on the blackboard.

SONG..... My Own Canadian Home.

READING—Psalm I., with appropriate Scripture texts.

PRAYER.

ESSAYS—(Subjects proposed). The Beauty of Trees, Usefulness of Trees, The Growth of Trees, Trees in their Winter State.

RECITATION..... The Naming of Trees.

"Let us hope also that Arbor Day will teach the children, under the wise guidance of experts, that trees are to be planted with intelligence and care, if they are to become both vigorous and beautiful. A sapling is not to be cut into a bean-pole, but carefully trimmed in accordance with its form. A tree which has lost its head will never recover it again, and will survive only as a monument of the ignorance and folly of its tormentor. Indeed, one of the happiest results of the new holiday will be the increase of knowledge which springs from personal interest in trees.

"This will be greatly promoted by naming those which are planted on Arbor Day. The interest of children in pet animals, in dogs, squirrels, rabbits, cats and ponies, springs largely from their life and their dependence upon human care. When the young tree also is regarded as living and equally dependent upon intelligent attention, when it is named by vote of the scholars, and planted by them with music and pretty ceremony, it will also become a pet, and a human relation will be established. If it be named for a living man or woman, it is a living memorial and a perpetual admonition to him whose name it bears not to suffer his namesake tree to outstrip him, and to remember that a man, like a tree, is known by his fruits."—*George William Curtis*.

RECITATION..... The Influence of Trees.

"There is a serene and settled majesty in woodland scenery that enters into the soul, and delights and elevates it, and fills it with noble inclinations. As the leaves of the trees are said to absorb all noxious qualities of the air and to breathe forth a purer atmosphere, so it seems to me as if they drew from us all sordid and angry passions and breathe forth peace and philanthropy. There is something nobly, simple and pure in a taste for the cultivation of forest trees. It argues, I think, a sweet and generous nature to have this strong relish for the beauties of vegetation, and this friendship for the hardy and glorious sons of the forest. There is a grandeur of thought connected with this part of rural economy. It is, if I may be allowed the figure, the heroic line of husbandry. It is worthy of liberal and free-born and aspiring men. He who plants an oak looks forward to future ages, and plants for posterity. Nothing can be less selfish than this."—*Washington Irving*.

RECITATION..... Talking in Their Sleep.

"You think I am dead,"

The apple tree said,

"Because I have never a leaf to show—

Because I stoop,

And my branches droop,

And the dull mosses over me grow!

But I'm all alive in trunk and shoot;

The buds of next May

I fold away—

But I pity the withered grass at my root."

" You think I am dead,"
The quick grass said,
" Because I have started with stem and blade!
But under the ground
I am safe and sound,
With the snow's thick blanket over me laid.
I'm all alive and ready to shoot,
Should the spring of the year
Come dancing here—
But I pity the flowers, without branch or root."

" You think I am dead,"
A soft voice said,
" Because not a branch or root I own!
I never have died,
But close I hide,
In a plummy seed that the wind has sown.
Patient I wait through the long winter hours;
You will see me again—
I shall laugh at you then,
Out of the eyes of a hundred flowers."

—Edith M. Thomas in *St. Nicholas*.

RECITATION The Aged Tree-Planter.

Hadrian, the Emperor,
Travelled once in Palestine,
Where the palm and cedar grew,
And the hills were clad in vine.

The e he saw an aged man
Plant a sapling by the way;
Wondering, the monarch bade
That the royal train delay:

" Friend, how many are thy years?"
And the aged man replied:
" For a hundred years, O Sire,
Doth thy servant here abide."

" And thou plantest," said the king,
" With thy feeble hands a tree?
Canst thou hope that of the figs
One will ever nourish thee?"

" Sire, if not for me the fruit,
Let it be for later men;
As I ate of others' toil,
I would render back again."

Like the planter of the east,
May we on this Arbor Day
Plant, our debt of gratitude
To the human race to pay.

—Ida A. Ahlborn.

SONG " Scatter Seeds of Kindness."

A general talk on How Arbor Day may be made
Interesting, Profitable and Useful to both school and
district.

Vote on the naming of each tree.

SINGING God Save the Queen.

When the exercises in the school have closed, the
teachers and scholars, with the visitors, will march to
the grounds where the planting of trees and flowers
will begin.

It is suggested that the older pupils select (under
the direction of their teacher or parents) suitable
trees, and the younger scholars flowers, for planting.

Closing song to be sung on the grounds: Work,
for the Night is Coming.

TALKS WITH TEACHERS.

Observe Arbor Day, not as a holiday, but in some
substantial way that will be of permanent benefit to
the district. Improve the grounds or the appearance
of the school-room. Be in earnest yourself and your
example will infect your pupils, who, in their turn,
will interest the parents. Get all to take an interest,
and in proportion as you do this will the benefit to
the school be apparent.

If your grounds are not fenced, make an effort to
have the work done. If you cannot succeed in this
the present year, the effort will make it easier for
you or some other teacher to have it done another
year. If the premises are not suitable to have any
work done outside, see what can be done inside.
Above all, by means of a programme or lessons
specially prepared, strive to impress upon your pupils
the importance of the work and the day. " Be in
earnest and you will succeed."

As the spring advances direct the special attention
of your pupils to plant life. Observe yourself and
lead them to observe. Attend the Summer School
of Science if you can.

Some teachers are in doubt as to what to do in the
case of pupils suspected to have contracted contagious
diseases. A doubt often arises and the safest course
to pursue in such cases is to temporarily suspend
such pupil, pending a report to the trustees, after
which the teacher's responsibility ceases, except as to
following the directions of the board. The teacher
should, in such case of suspension, deal gently with
the pupil and not give greater publicity to the matter
than is needful until the doubt is removed. The
teacher should not re-admit a pupil who has been
exposed to contagion without a doctor's certificate.

CANADIAN NEWSPAPER DIRECTORY.—A. McKim & Co.,
of Montreal, have just published a newspaper directory of the
Dominion. It gives a brief but excellent account of the rise
and progress of the leading papers of our country. One is
surprised at the number and variety of dailies, weeklies and
other periodicals issued in such a new country. There are
26 devoted to agriculture, 34 to societies, 10 to law, 15 to
medicine, 15 to temperance, 32 to literature, 5 to education,
29 to colleges and 43 to trade, besides many others. Nova
Scotia has 80; New Brunswick, 48; Ontario, 573; Quebec, 209.

Hech mon! Hae ye no read the Epistles o' Airlie? Whaur
hae ye been leevin' gin ye hae na heard tell o' Hugh Airlie?
Ma conscience, but its a gran' buik—no that lairge ye ken, for
it's no but 25 cents, but fu' o' hamely cracks an' pawky screeds
about ane thing an' anither in guid braid Scotch. Mon, whan
I got thon buik I jist lauched till I thocht a' wad dee.
It fairly dings them a'. It tells a' about the adventures o' a
chiel nae tae the ways o' the kintra an' mony a ane wha has
been in the varra same predeecament will ken hoo tae sympa-
theeze wi the puir birkie. Dinna fall tae speer at yer buik
seller for the " Epistles o' Airlie," an' gin he has na got it sen'
25 cents tae the GRIP PRINTING & PUBLISHING Co., Toronto.

Gleaned from the New Brunswick Inspectors' Reports.

There is a strong feeling in these three counties (Northumberland, Gloucester, and Restigouche) that the summer vacation should be changed or extended so as to include the first two weeks in August. The people will not send their children to school during this time, and the teachers are compelled by the present regulations to be at their posts. A two weeks' extension of the summer vacation would meet the case.—*Inspector Mersereau.*

I have long held the opinion and still think that the evil of irregular attendance might be at least mitigated by the teacher. A friendly call on the parents of the children who do not attend regularly and a few words judiciously spoken will often be the means of securing the attendance of these pupils and will generally result in the establishing of a more friendly relation between parent and teacher, thus securing the co-operation of the parent which amply repays the teacher for all the trouble she has taken.—*Inspector Smith.*

A large number of schools have been furnished with fairly good libraries, and a good many more have signified their intention of doing so. It would seem necessary that lists of suitable books should be furnished those districts which intend purchasing libraries, as occasionally one meets with books that are hardly suited for the purpose for which they were purchased.—*Inspector Bridges.*

Some difficulty has been experienced in obtaining trained teachers for the poorer schools in remote districts. Our people are not able to pay salaries that will induce the cleverer and more ambitious of our young people to remain in the school service, consequently many enter other professions more satisfying to their ambition or more congenial to their tastes. During the year my inspectorate lost many promising teachers, who took up other work or emigrated to other countries where the remuneration promised to be more satisfactory.—*Inspector Mersereau.*

I am able to report, this year, a marked improvement in many of the districts. Buildings have been repaired and painted; new furniture of an improved type has been introduced, and needed apparatus has been procured. I have been much pleased with the prompt attention given by many districts to the carrying out of my recommendations in these particulars.—*Acting Inspector Whelpley.*

There are, of course, some *working* teachers, who perform the work of arbor day honestly, and the evidence of their faithfulness may be seen in the neat yards, flower beds and growing shrubs and trees around the school-houses.—*Inspector O'Brien.*

St. John having all its schools graded, and paying the highest salaries in the province to its teachers, should be fairly expected to secure the best teaching talent obtainable. I doubt whether all the appointments made are in the best interests of the service. There are too many young teachers holding second class licenses, and having had little or no experience, being added to the staff. Some of these teachers do fairly well while others are failures. They would all be the better of a little more experience acquired in the less difficult country schools. * * * * A first class license means one of two things—either two years experience in teaching or superior teaching ability. No amount of experience will entitle a teacher to undergo examination for first class unless she is certified to as having the necessary skill. It may not follow certainly that a first class teacher will always do better work than a second, or even a third class teacher, but the probability is in favor of the first class teacher, and the results justify it.—*Inspector Carter.*

With regard to high school work and results, we are of opinion that whilst there is much in the course to commend it to general favor, some modifications and additions looking to a more practical outcome, would greatly improve the character of the work in our schools. In a commercial centre like St. John, it is important that branches of study should include such subjects as will fit the graduates of our high schools for a practical business life. The widening of commercial lines of work by the introduction of type-writing and stenography would serve a valuable purpose in this connection.—*Chairman H. J. Thorne, St. John.*

OF EDUCATIONAL INTEREST.

For a long time a "crying need" in school work has been a series of wall maps for school use that should include the latest geographical discoveries and political changes and yet sell at a price so low that the ordinary public schools, graded or ungraded, can be supplied at slight expense. Such a series is now being put on the market. It consists of seven maps for public schools,—Hemispheres, North America, South America, Europe, Asia, Africa, and United States, and two maps for Bible study and Sunday school use, Canaan and Palestine. The maps are mounted in a variety of styles to suit purchasers. Published by D. C. Heath & Co., Boston.

Kentville is moving in the matter of compulsory education.

In the English schools the government gives sixpence for each pupil receiving instruction in rote singing and one shilling per pupil for note singing.

California is in a bad way over her school text books. The state has undertaken to issue them all. The teachers are up in arms and allege that the books are the worst in use in any state in the union.

The political machine has removed Supt. Draper, one of the most efficient school officers in America. Both political parties in New York state petitioned to retain him, but Mr. David B. Hill was inexorable and to him attaches the odium.

The proceedings of the N. E. A. meeting at Toronto are now out. It seems that the enrolment was 4,788, less by 212 than at St. Paul. The west and south did nobly, the east was shamefully deficient. The following are the states showing largest membership: Illinois 666; Ohio 355; Missouri 320; Kansas 283; Iowa 278; Michigan 259; Wisconsin 222; Nebraska 220; Tennessee 124; Colorado 114; Minnesota 118. Of the foreign countries Ontario had 611; Manitoba 74; Nova Scotia and New Brunswick 22 each; Quebec 21; scattering 15.

Mrs. Hunt, the World's Superintendent of Scientific Temperance Instruction addressed the Legislatures of New Brunswick and Nova Scotia on behalf of more temperance teaching in the Public Schools. The addresses produced a strong sentiment in favour of her opinions. Bills have been introduced requiring all schools receiving public moneys to give systematic instruction from graded text books, on the effects of alcoholic and narcotic stimulants.

Said Jules Ferry, Prime Minister of France, "What is the first part of a true national policy? Education, What the second? Education. What the third? Again, education."

Mrs. Harriman, Director of the Halifax Kindergarten Training School, has been invited to read a paper before the Dominion Educational Association, and has consented to do so.

In the cities and incorporated towns of N. B. the highest attendance made for the term ending June 1891, was that of St. Stephen (80.91). For the term ending December 1891, Woodstock leads (83.78), closely followed by St. Stephen (83.00).

St. John County had the largest attendance at the County Institute last year, 161. This is high water mark. Charlotte comes second with 95 also high water mark. York 79 also the highest. Westmorland 79. Carleton 73. Northumberland 64.

The following is the programme of the N. B. Provincial Teacher's Institute for 1892:—"The Rights and Duties of Citizenship—how can they best be taught in the Public Schools?" Eldon Mullin, M. A. "The Text-Book as a Factor in Education," Berton C. Foster, M. A. Discussion to be opened by S. C. Wilbur, B. A. "Suggestions how best to carry out a Course of Natural Science, from the Primary to the High School," G. U. Hay, Ph. B., and John Brittain. "Supplementary Reading adapted to the Needs and Acquirements of Pupils from Grade I to VIII," Edward Manning, M. A. "Does the present Course of Study in the Lower Grades meet the Requirements as regards the Practical Education of the Majority of the Children?" W. M. McLean, B. A. "The Question of Grading Pupils," Wm. Brodie, B. A. "Examinations—For entrance to Normal School; for entering and leaving High Schools; for Provincial License of the Grammar School Class and other Classes," Mary K. Tibbitts, B. A., Jas. M. Palmer, M. A., Jas. Vroom, and Wm. H. Parlee.

The Halifax School Board has appointed Friday, the 29th of this month, Arbor Day. The Chairman of the Board is to make arrangements for the proper celebration.

The salary of the Chief Superintendent of Education of New Brunswick has been increased \$400. The salary of the Principal of the Normal School has been increased \$200. It is to be hoped that these increases will extend downwards.

The number of districts observing Arbor Day in N. B. last year was 540, the largest number since the observation was inaugurated.

SCHOOL AND COLLEGE.

Inspector Whelpley, of Hampton, N. B. who was laid up with a severe cold during a part of the month of March, is now able to attend to his duties.

PICTOU ACADEMY. This grand institution is still true to its records in the past. A few notes will be of interest to our readers. There are enrolled this term 219 regular students besides 21 special students—in all 240; a better attendance than for several previous terms. Belonging to the fourth year there are 29; third year 61; second year 72; first year 57. Nearly all the fourth year class are doing the usual work for matriculation into Dalhousie and other colleges. Probably half of the whole number will write for matriculation at the beginning of the next college term. Six pupils are doing extra work in special afternoon classes. About 20 students of the third year class will probably be candidates for B licenses at the ensuing teachers' examination, and 15 of the second year for grade C. Six students of the third year are at present engaged in writing for matriculation into McGill Medical College. Twenty-four students, partly from the 4th year and partly from the 3rd, take practical chemistry. The class is divided into three groups of eight each, who occupy the laboratory by turns in the afternoons. Afternoon classes are also conducted in all the more important subjects embraced in the syllabus for teacher's examinations, for the benefit of intending candidates and others who choose to avail themselves of them. During the present winter a superior new piano has been purchased for the musical department. About \$25 00 has been expended by the Academy Scientific Association in the purchase and mounting of specimens for the Natural History department, to which several valuable additions have been made.

The Queens County Grammar School, of which Miss Mary Kingsley Tibbitts is the principal, has been presented with a set of mineral specimens (109 in all) from the geological department at Ottawa. The school is now in possession of a library of some thirty volumes, the proceeds of a very successful school concert held recently.

Mr. Keirstead, teacher at Newton, Kings Co., has by means of a school entertainment raised enough money to repair and greatly improve his school room.

Mr. J. S. Clark, teacher at Beaconsfield, St. John Co., has resigned to take a position in the Civil Service. He has been succeeded by Mr. Chas. J. Morrison, formerly teacher in No. 3 Lancaster.

Mr. J. B. Sutherland, A. B., and the teachers of the intermediate department of St. Andrews, have raised by means of a school concert nearly \$100, which is to be devoted to the purchase of a school library and some needful apparatus.

Inspector Carter has been invited to read a paper at the Dominion Teachers' Association which meets in Montreal in July.

Miss Alice Moore, of St. Stephen, has been forced by illness temporarily to give up her school. Miss Lucy McKenzie is supplying for her.

Miss Mary Dibble has gone on a trip to California.

Supt. F. H. Hayes, of St. John, who has been so seriously ill is slowly improving.

Through the efforts of Miss Maggie Montgomery, teacher at Westfield, Kings Co., aided by her pupils, a sufficient sum has been raised to provide handsome blinds and otherwise improve the interior of the house. No. 6 has now both externally and internally one of the handsomest houses in the Parish.

The new school library has been procured for Round Hill, No. 3 Greenwich, Kings County.

A very handsome oak book-case has been presented by the trustees of Little River, St. John Co., to the teacher, Miss Higgins, to accommodate the library which she is about to procure.

Inspector Carter expects to visit the graded schools of Charlotte Co. earlier than usual this year—probably during the latter part of April.

Mr. James A. Smith—a teacher in Halifax and other parts of Nova Scotia for over forty years—was stricken with paralysis on his way to school on the 14th ult. He died on the 16th. He always took an active part in Teachers' Associations, and when at his best was reckoned a good teacher. His life was insured for \$8,000.

The many friends of Miss Anna G. McIntosh, of Chatham Head, will be pleased to learn that her health has been so far restored by her six months rest as to enable her to resume her duties as principal of the Nelson Schools, on the 1st inst.

Miss Annie E. Millar, who for the past three years has given excellent satisfaction in the Doaktown School, has resigned her position to accompany a most estimable young man to the west as a life partner in his business. She carries with her to her new home the love of her pupils, and best wishes of a large circle of friends.

Miss E. Maude Fisher, of Marysville, takes the Doaktown school till the end of the term.

Jas. Windsor, Esq., merchant, of New Mills, Restigouche County, shows his interest in the progress of education by giving, this term, sixty dollars worth of prizes to be competed for by the pupils in the following schools, viz.: Heron

Island, Black Land, Black Point, New Mills and River Charlo. The prizes are to be awarded on the report of Rev. Thomas Nicholson, of River Charlo.

Ernest Hutchinson, Esq., of Douglstown, has offered the old Manor House and grounds to the school trustees of that place. The house can be easily changed into four good school rooms by taking down the large old fashioned chimneys and putting in two windows in each end. Mr. H. agrees to put in furnaces, remove chimneys, etc.,—in short to make the rooms ready for pupils and teachers at his own expense.

The grounds will form the best play-grounds in the Province, consisting of between two and three acres, well laid off with gravelled walks, summer house, shrubbies, etc.

QUESTION DEPARTMENT.

TRUSTEE.—In the June number of the REVIEW I beg to call your attention to a question asked by B. O'G., as follows: How many pounds of gold are actually as heavy as twelve pounds of iron?

The inquirer is told to work out the following proportion: As the specific gravity of gold 19.2 is to the specific gravity of lead (iron) 7.8, so is 12 pounds of lead (iron) to the required weight of gold.

I need not work it out as the result is too far astray to answer the conditions of the problem, but instead would recommend B. O'G. to work out the following:

$$\frac{175 \times 12}{144} = 14\frac{7}{8} \text{ pounds.}$$

Reason: 144 pounds avoirdupois = 75 pounds troy, therefore 12 pounds avoirdupois = 14 $\frac{7}{8}$ pounds troy.

BOOK REVIEWS.

THE GATE TO CÆSAR, by William C. Collar, A. M. Published by Ginn & Co., Boston. Pages 141. Size 6 $\frac{1}{2}$ x 4 $\frac{1}{2}$. Price 45cts. In order to prepare the mind of the student to take up Cæsar with pleasure, the author of this little volume has selected the second book of the Gallic War, and has re-written it, eliminating all difficulties which might seriously embarrass the beginner. This is done very successfully without detracting from the interest of the story or the style of the author. In connection with each simplified chapter, and illustrating the grammatical principles involved in it, are English sentences to be turned into Latin. By the adoption of this method the student acquires an insight into the peculiarities of the Latin tongue much more surely and readily than by the use of the ordinary anglicized Latin of most introductory textbooks on that subject. The full text of the original is also given for use and comparison at a more advanced stage. Mr. Collar has scarcely an equal in the preparation of elementary Latin books founded on the soundest pedagogical principles.

COLLEGE REQUIREMENTS IN ALGEBRA, by G. P. Tibbets A. M. Publishers, Ginn & Co., Boston. Pages 45. Size 7 $\frac{1}{2}$ x 5. Price 55cts. A good selection of about 400 exercises selected mainly from the examination papers of some leading American colleges. Answers not given.

PROGRESSIVE MATHEMATICAL EXERCISES FOR HOME WORK. First series, by A. T. Richardson, M. A. Publishers MacMillan & Co., London. Pages 231; size 7x4½; price 2s 6d. This is a collection of over 2,000 problems, beginning with the simple rules of arithmetic and algebra and carrying the learner on to cube roots, compound interest and quadratics. The exercises are well selected. They will be a great help to teachers getting up examination papers or ordinary drill, the only draw-back being that pounds, shillings and pence are used instead of dollars and cents.

STAR-LAND, by Sir Robert Stowell Ball, F. R. S., Royal Astronomer of Ireland. Publishers, Ginn & Co. Pages 384. Size 7½x5. Price \$1.00. Here we have six lectures delivered to a juvenile audience at the Royal Institution, Dublin, I. the Sun; II. the Moon; III. the Inner Planets; IV. the Giant Planets; V. Comets and Shooting Stars; VI. Stars, with a concluding chapter: How to name the stars. The most important facts in the science of astronomy are so presented in this book that they cannot fail to fascinate and instruct the ordinary reader without technical knowledge. We would like to see a copy on every teacher's desk, in all school libraries, and in the hands of many, if not all, pupils of grade VIII and the high school. We feel assured that it will help more than any other book we have seen to popularize astronomy, the grandest, and, next to literature, the most soul-enobling study of the schools.

MACMILLAN'S HISTORY READERS. Stories and tales from early English History. A reading book for standard III. We can recommend this as an admirable supplementary reader suited for grades IV. and V. of our schools. In 188 pages it brings the pupils from our Aryan forefathers to the Norman Conquest. The print, illustrations and notes are superior. Price only one shilling. A second reader, containing stories and biographies from English History, 1066-1485, is at hand. Price 1s 3d. This also is an admirable book for supplementary reading in schools, and for school libraries.

TEMPERANCE SECOND READER, for families and schools, by Julia McNair Wright. Paper. Ten cents. Published by the National Temperance Society, 58 Reade Street, New York. The name of the author is a sufficient guarantee that the book is interesting as well as excellent.

BILDERBUCH OHNE BILDER, by Hans Christian Andersen; with English notes, and a German-English vocabulary. Paper. Price 35 cents. Publishers, D. C. Heath & Co., Boston, a capital book for students beginning German.

Current Periodicals.

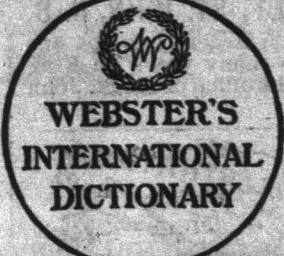
The Popular Science Monthly maintains its usual standard of excellence in the April issue. Prof. David Starr Jordan makes the inspiring influence of a great teacher of science strongly felt in his pen-portrait of Agassiz at Penikese, with which the number is opened. Dr. Andrew D. White, in his article on Astronomy. Mr. Larrabee on Variations in Climate, and Mr. Wager on Bad Air and Bad Health, write very instructively. Mr. William Henry Bishop begins his series of papers on "An American at Home in Europe" in the April number of the *Atlantic Monthly*. His first chapter is on "House-Hunting and House-Keeping in Brittany, Paris, and the suburbs of Paris." The paper is most interesting, written in a

lively style, and with all the thousand "points" which a person who lives abroad can give to those who do not live there but who wish to do so. "Our Common Roads" by Isaac B. Potter, is the subject of the opening illustrated article in the *April Century*. Nothing could more vividly depict the wrong way to do it than some of the striking illustrations of this paper, while the right way is also fully pictured and described. This number of *The Century* closes the forty-third half yearly volume. In the May number, which will be a particularly brilliant one, several new serials will be begun. In April *St. Nicholas*, those of a studious turn of mind may devote a little careful reading to Rev. George McArthur's clever paper "Seven Years without a Birthday," an explanation of the whys and wherefores of leap year, with side remarks upon Pope Gregory, Julius Caesar, Augustus, and such calendar tinkers. The initial article in the *New England Magazine* for April is on "Surpliced Boy Choirs in America," by S. B. Whitney, the organist and choir master of the famous Church of the Advent of Boston. The article deals with the growth of fine choral music in American churches, and is beautifully illustrated. Miss Helen Leah Reed contributes an interesting article on "Women's Work at the Harvard Observatory," which is fully illustrated by photographs taken at the Observatory. Miss Reed, who is a bright and clever writer, is a niece of Dr. John Berryman, St. John. The Easter number of *Wide Awake* makes the April number quite as acceptable a remembrance as the conventional card or booklet. *Littell's Living Age* gives the cream of the magazine articles, and coming once a week it is indispensable to those who would read continuously the best magazine literature. Published by Littell & Co., Boston. *Garden and Forest*, by its weekly visits, does much to extend a taste for the useful and beautiful among intelligent owners of gardens, farms, and woodlands.

EVERY Family Student School Library

Every Person who Reads or Writes SHOULD OWN

THE NEW WEBSTER



WEBSTER'S INTERNATIONAL DICTIONARY

A NEW BOOK FROM COVER TO COVER, Successor of the "UNABRIDGED," Fully Abreast of the Times.

Ten years spent in revising, 100 editors employed, over \$300,000 expended.

Sold by all Booksellers.

G. & C. MERRIAM & CO., Publishers, Springfield, Mass., U. S. A.

Do not buy reprints of obsolete editions. Send for free pamphlet containing specimen pages, testimonials, and full particulars.

GINN & COMPANY

— INVITE ATTENTION TO —

ALLEN & GREENOUGH'S LATIN SERIES.

Grammar; Cæsar, Cicero, Virgil, and Ovid, with full introductions, notes, vocabularies, maps and illustrations; Collar & Daniell's Beginner's Latin Book; Collar's Practical Composition, etc.

"There is no work of its size and scope which seems to me so complete" [as the A. & G. Grammar]. Professor Tyrrell, Trinity College, Dublin.

"This Grammar is *facile princeps* among its rivals." Professor D. Y. Comstock, Phillips Andover Academy, Mass.

"The Beginner's Latin Book appears to me admirably suited for introducing young students to that difficult language." Oscar Browning, King's College, Cambridge.

GOODWIN & WHITE'S GREEK SERIES.

Grammar, Lessons, Beginner's Greek Book, (on the plan of Collar & Daniell's Beginner's Latin Book), Anabasis with vocabulary, and Seymour's Iliad with illustrated vocabulary.

"I know of no Greek grammar for English-speaking students that combines so many merits in so attractive a form." Professor D'Ooge, University of Michigan.

The special Canadian edition of the Beginner's Latin Book and Allen & Greenough's Latin Grammar is ready; retail prices, respectively, \$1.00 and \$1.20. T. C. Allen & Company of Halifax are agents for this and other books in the Maritime Provinces, and carry a stock constantly.

WENTWORTH'S MATHEMATICAL SERIES.

"The most popular books of the past decade." Arithmetics, Algebra, Geometry, Trigonometry, etc.

In the United States there are not less than 200 colleges and 3,000 schools which use the Algebra, Geometry, Trigonometry or all of these; and the books may be found in leading institutions in Great Britain, Turkey, India, China, Japan and the Hawaiian Islands.

GAGE & WILLIAMS' NATURAL SCIENCE.

Elements of Physics (Gage), Introduction to Physical Science (Gage), Introduction to Chemical Science (Williams), Laboratory Manual of General Chemistry, (Williams).

"I have not only examined but studied the Physical Science, and consider it superior as a text book to any other I have seen." Principal DeBoer, High School, Montpelier, Vt.

"I cordially recommend the adoption of Williams' Chemical Science in secondary schools." A. Ogilvie, Gordon's College, Aberdeen, Scotland.

Also many other valuable text books described in our full Catalogue, which is sent free on application.

GINN & COMPANY, Boston, New York, Chicago and London.

The Conversation Method in German,

By PROFESSOR LOTHAR ROBER and ALEX. MCKAY, Supervisor Halifax Schools.

Price \$1.00. Send for further particulars to T. C. ALLEN & Co., Halifax, N. S.

PHYSICAL DRILL, FOR USE IN PUBLIC SCHOOLS.

In four parts. With illustrations systematized and arranged in eight grades to suit all classes, by SERGT.-MAJOR D. BAILEY, Military Gymnastic Instructor, with a preface by ALEX. MCKAY, Supervisor of Halifax Schools.

PRICE 50 CENTS.

Dr. John Stewart, of Pictou, who has a thorough scientific knowledge of the benefits of physical development, and who has done so much to encourage many sports in the Maritime Provinces, writes about Sergt.-Major Bailey's book as follows:—"As to the general plan of the book, and the way this has been carried out, I am very much pleased. I have compared the book with other manuals of physical drill, and in my judgment it is superior in simplicity of directions and in variety of exercises. I am glad to see the dumb-bell made so much of."

AGENTS FOR WINSOR & NEWTON'S ARTISTS' MATERIALS.

The trade and schools supplied at Lowest Wholesale Prices.

MATHEMATICAL INSTRUMENTS, ENGINEERS' and DRAUGHTMENS' SUPPLIES OF EVERY KIND. MAPS, GLOBES, CHARTS, SCHOOL and COLLEGE TEXT BOOKS and REQUISITES.

A large stock of above kept in stock. Correspondence for further information or for prices and discounts solicited.

T. C. ALLEN & CO.,

Publishers, Booksellers and Manufacturing Stationers.

124 Granville Street, HALIFAX, N. S.

T. O'BRIEN & CO., BOOKSELLERS, STATIONERS AND NEWSDEALERS.

82 GERMAIN STREET, ST. JOHN, N. B.

Our New Store is much larger than the one occupied by us for so many years on King Street, and is opposite the office of the St. John School Trustees.



MAGIC LANTERN FOR SALE

One of McAllister's make. Fine lenses, can be adjusted to show a picture from 3 to 30 feet in diameter. Supplied with improved Argand burner for oil. Also about fifty fine views for illustrating lectures on Astronomy, including a set of 10 magnificent "rackwork" views which alone cost \$40. Also a number of miscellaneous views, large screen and everything complete. Will be sold low. Address for particulars, Mr. S., Box 523, Yarmouth, N. S.

Keep Dry

Do not sit in wet clothing. We supply

Waterproof Clothing of all kinds.

ESTEY & CO.,

Prince William Street, St John, N. B.

TO STUDENTS.

The following text-books prescribed for students of medicine, will be sold at a bargain:

Dictionary, (Dunglison).
Anatomy, (Gray).
Human Physiology, (Flint).
Materia Medica, (Bartholow).
Chemistry, (Fownes).

Also "Appleton's American Cyclopedia" 23 volumes, cost five dollars per volume, nearly as good as new. A library in itself. Will be sold on easy terms.

Correspond with
SURPLUS, P. O. BOX 11,
HAMPTON, K. C.

"The Klip has the Grip."



It binds Magazines & Pamphlets, News, papers, Bills & Letters. Put on or off in a second. With pair of opening Keys \$1 per doz., \$5 per 100. Four sizes, Covers to order. For sale by all stationers. Agents wanted.

H. H. BALLARD, Pittsfield, Mass.

THE EDUCATIONAL REVIEW

IS THE

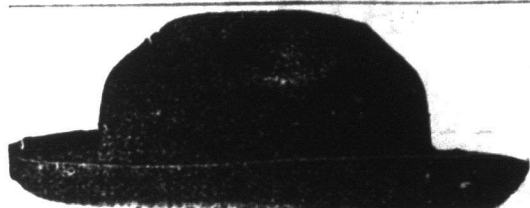
Only Educational Paper published in the Atlantic Provinces.

Subscription \$1.00 for 12 Numbers

IF YOU WANT TO SAVE MONEY
WRITE FOR SAMPLES AND PRICES
OF
ENVELOPES, NOTE PAPER AND FOOLSCAP,
TO
ALFRED MORRISEY, - - 104 KING STREET.



SINGER SAFETY BICYCLES,
With Cushions and Pneumatic Tires.
All sizes for Ladies, Gentlemen, Youths
and Boys.
TRICYCLES, CYCLE SUNDRIES.
Send for Catalogue,
C. E. BURNHAM & SON, SOLE AGENTS,
ST. JOHN, N. B.



THORNE BROS., Hatters and Furriers, 93 King
Street, St. John, N. B.

The Kindergarten Magazine gives to
primary teachers practical helps: "Typical Pri-
mary Lessons," Sarah E. Griswold, Cook Co.,
Normal; "Color and Form" Josephine C. Locke;
"Science Lessons," Edw. G. Howe; and other
articles by best writers, adapting kindergarten
methods to primary work. One year, \$1.50;
3 months' trial, 30 cents.
Kindergarten Pub. Co., 277 Madison St., Chicago.

HOME STUDY. LATIN and GREEK
at sight, use the "INTERLINEAR
CLASSICS." Sample pages and Catalogue of
School Books, free. C. DeSILVER & SONS,
Pubs., Phila., Pa. Address all orders, wholesale
or retail, to The BAKER & TAYLOR Co.,
740 Broadway, N. Y.

Royal Hotel,
T. F. RAYMOND,
PROPRIETOR.
KING STREET, - - - ST. JOHN, N. B.

ONTARIO BUSINESS COLLEGE

BELLEVILLE, ONT.

TWENTY-THIRD YEAR.

W. B. ROBINSON,
J. W. JOHNSON, F. C. A. {Principals.

THIS Institution is the most widely attended
Business College in America.

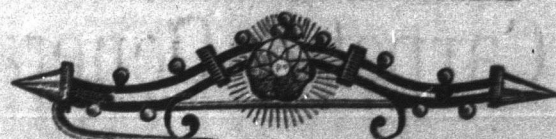
TEACHERS who are graduates of
the College are con-
stantly in demand in Canadian and American
Colleges; and in offices they soon become
the managers.

For circulars, address

ROBINSON & JOHNSON,
Belleville, Ont

All the Maritime Provinces are constantly
represented in the attendance.

\$65 to \$250 A MONTH,
Can be made working for
World's Columbian Exposition Illustrated
Only authentic and official organ of the
great fair. Can work at home or travel.
Enclose stamp for sample copy and full par-
ticulars.
JAMES B. CAMPBELL, Editor,
218 La Salle St., Chicago, Ill.



Always to the front in the latest styles
OF
Jewelry, Watches, Clocks & Platedware,
A. & J. HAY, ST. JOHN, N. B.

FRANCIS & VAUGHAN,
WHOLESALE & RETAIL.

Boot & Shoe Manufacturers,
19 King Street, North Side,
SAINT JOHN, N. B.
FINE BOOTS & SHOES A SPECIALTY.

CHEMICAL APPARATUS

AND
RE-AGENTS

Supplied to Teachers and Schools on favor-
able terms, by

BROWN & WEBB,

Halifax

Physical and other Apparatus imported to Order.

FLAGS FOR SCHOOL BUILDINGS.

Dominion, British and Saint George
Ensigns

AND
UNION and FORT JACKS.

Flags with Special Designs Made to Order

A. W. ADAMS,

North Market Wharf, - St. John, N. B.

SCHOOL Books, Slates, Pencils, Station-
ery, and School Requisites at
Low Prices. Best Discounts on all goods to
teachers. Fancy Goods, Toys, Dolls in great
variety. Room Paper from 5c. a roll up. Gem
Bank, the great money saver. Bibles, Prayer
Books and Religious Books. All goods at low-
est possible prices. Call or send to WATSON
& CO., corner Charlotte and Union Streets
St. John, N. B.

MCGILL UNIVERSITY,
MONTREAL.

The Calendar for the Session of 1891-2 contains information respecting conditions of Entrance, Course of Study
Degrees, etc., in the several Faculties and Departments of the University, as follows:—

- FACULTY OF ARTS—(Opening September 14th, 1891.)
- DONALDA SPECIAL COURSE FOR WOMEN—(September 14th.)
- FACULTY OF APPLIED SCIENCE—Civil Engineering, Mechanical Engineering,
Mining Engineering, Electrical Engineering and Practical Chemistry—(September 15).
- FACULTY OF MEDICINE—(October 1st).
- FACULTY OF LAW—(September 7th).
- FACULTY OF COMPARATIVE MEDICINE AND VETERINARY SCIENCE—
(October 1st).
- MCGILL NORMAL SCHOOL—(September 1st).

COPIES OF THE CALENDAR MAY BE OBTAINED ON APPLICATION TO THE UNDERSIGNED.

(Address McGill College.)

J. W. BRAKENRIDGE, B.C.L., Act'g Secretary.

Carpet & General House Furnishing Department.

We call the attention of all to our very large and well assorted stock of the above Goods at

ALL SEASONS OF THE YEAR.

Our large warerooms and the exceptional facilities we have for buying and selling immense quantities, enable us always to offer

A Very Large Selection

in any of the following lines:

Brussels, Wool, Tapestry and Hemp Carpets, Stair Carpets and Stair Linens, Linen Squares, Wool Squares, Kensington Squares, Stair Oil Cloths, Floor Oil Cloths, Linoleums, Stair Rods. Cornice Poles, Curtain Fasteners of all kinds, Curtains in Lace, Wool, Rep. Silk. Furniture Coverings in Cretonne, Plush, Damask, Rep. Silk. Blankets, Counterpanes, Comfortables, Eider Down Quilts. Table Covers, Piano Covers. Table Napery, Napkins, D'Oyleys. Tray Cloths, Table Covers, Towels, &c., &c.--everything, in fact, comprised in the words General House Furnishings as applied to Dry Goods.

MANCHESTER, ROBERTSON & ALLISON.

27 & 29 KING STREET, - - SAINT JOHN, N. B.

WANTED Old Books, Maps or Manuscripts, relating to New Brunswick, its history and geography, the older the better; or old pictures showing any place in N. B. any person having such, and willing to dispose of them, will hear of something to his advantage by sending a description of them to W. F. G., care Educational Review, St. John, N. B.

JAMES S. MAY.

W. ROBERT MAY

**JAMES S. MAY & SON,
MERCHANT TAILORS**

58 Prince Wm. St.

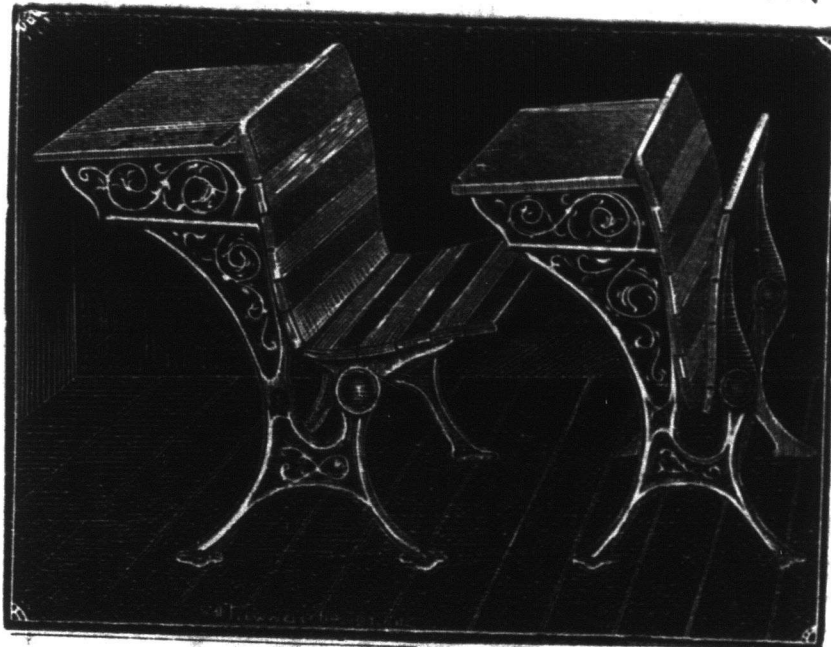
P. O. BOX 305.

ST. JOHN, - - N. B.

Masury's Artist's Tubes, have been proved to be of EXCELLENT QUALITY. They may be purchased at

**EDWARD A. EVERETT'S,
90 KING STREET, ST. JOHN, N. B.**

In comparing the size of the tubes with other good makes they will be found to be the cheapest reliable Oil Colours in the market.



PARAGON SCHOOL DESK

WITH FOLDING SEAT

MANUFACTURED BY

RHODES, CURRY & CO.,

AMHERST, N. S.

Scientific American Agency for

PATENTS

CAVEATS,
TRADE MARKS,
DESIGN PATENTS
COPYRIGHTS, etc.

For information and free Handbook write to
MUNN & CO., 361 BROADWAY, NEW YORK.
Oldest bureau for securing patents in America.
Every patent taken out by us is brought before
the public by a notice given free of charge in the

Scientific American

Largest circulation of any scientific paper in the world. Splendidly illustrated. No intelligent man should be without it. Weekly, \$3.00 a year; \$1.50 six months. Address MUNN & CO., PUBLISHERS, 361 Broadway, New York.

EDUCATIONAL INSTITUTIONS AT WOLFVILLE, N. S.

Acadia College.

REV. A. W. SAWYER, D.D., PRESIDENT.

A four years' course, leading to the B. A. degree. Options are permitted between Greek and French and German; also between the higher mathematics and laboratory work in practical chemistry. First-class accommodations for boarding. A gymnasium for the students. Charges of all kinds moderate.

Next Term opens September 25.

Apply to the President.

Horton Collegiate Academy.

I. B. OAKES, M.A., PRINCIPAL.

In this school there are two courses—the Matriculation, to prepare students for college; and the General, to prepare young men for the Class B Examinations and for business life. The new boarding-house accommodates about fifty boarders, who will be under the immediate care of the Principal. Necessary expenses for the year, about \$150.

Next Term opens September 3.

Winter Term January 7, 1891.

Apply to the Principal.

Acadia Seminary.

MISS M. E. GRAVES, PRINCIPAL.

This Seminary aims to provide, at a moderate expense, excellent advantages for young ladies. There are three courses of study—the Classical; the Literary; and the Musical. The course in music, Instrumental or Vocal, is thorough. In Drawing and Painting, attention is given to the study of models, casts and still life. Instruction in Elocution and Gymnastics. Charges moderate.

Next Term opens September 3.

Winter Term, January 7, 1891.

Apply to the Principal.