

**PAGES**

**MISSING**

# The Educational Review.

Devoted to Advanced Methods of Education and General Culture.

PUBLISHED MONTHLY.

ST. JOHN, N. B., OCTOBER, 1890.

\$1.00 PER YEAR

A. H. MacKAY, B. A., B. Sc.,  
Editor for Nova Scotia.

ALEX. ANDERSON, LL.D.,  
Editor for P. E. Island.

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

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.

## CONTENTS:

EDITORIAL NOTES—	69-70
EDITORIAL	70-73
The Educational Exhibit N. B. Teachers' Institutes— Next Term N. S. Educational Association—Aspidium Fragrans Webster's Dictionary Geography.	
CONTRIBUTED ARTICLES	73-81
Astronomical Notes—Practical Chemistry Teaching Music Canadian History The Teacher's Work Kinder- garten Methods Convention of Instructors of the Deaf— Meteoric.	
SELECTED ARTICLES	81-84
Commendation—Directions for Maps—The School Teacher in Germany—Requisites for a Real Education—Order.	
Book Reviews—Exchanges—Special Notice.	84-90

The Educational Review is published about the 15th of each month. Any subscriber failing to receive it by the 25th should notify us of the fact. Subscribers wishing a change of address should give the former as well as the new address.

In future all correspondence and business communications (including payment of subscriptions) from Nova Scotia and Newfoundland should be addressed to Editor EDUCATIONAL REVIEW, Halifax, N. S. All other communications, including subscriptions, should be addressed Editor EDUCATIONAL REVIEW, St. John, N. B.

## EDITORIAL NOTES.

THE attention of subscribers is directed to the special notice in another column.

TEACHERS who change their address at this time of the year should promptly notify us of the fact; as it may save the annoyance of papers going astray and the consequent correspondence.

THE visit of the Governor-General and Lady Stanley to these Provinces has called forth an enthusiasm which springs from loyalty and attachment to our Sovereign; but to the kindness and frank cordiality of the distinguished guests themselves not a little of their popularity is due.

IN another column there is an outline lesson on Canadian History. The teacher begins by getting the pupils interested in local affairs. That is a move in the right direction. In developing ideas of geography we begin with the school-room and move outward. Why not so in Canadian History? The live teacher, instead of giving a page to be memorized

gets his pupils interested in the subject and afterwards refers them to the printed page for fuller information. But he first gets the pupils interested. Will not others who find Canadian history an unsatisfactory subject to teach, examine their methods, and keep their eyes and ears alert as does "Teacher," and bring the subject home? And when you hit upon a plan that works satisfactorily send it to the REVIEW. The live teacher is not satisfied with waking his pupils up. He goes to work and wakes other people up. When the district finds it has a live teacher it invites him or her to accept an increase of salary. If it does not, so much the worse for the district.

A GENTLEMAN who has been a clear observer of all phases of our educational work, writes as follows:—  
"What is needed among you as much as anything is an increase of the teachers' salaries. Probably this is not news to you, and doubtless the teachers would welcome most heartily a feasible plan for securing the advance they deserve. The only way to bring it about, so far as I know, is in every way to increase public interest in education, and introduce new things from time to time. If teachers permit the inertia of the public to dominate the policy of the school departments, the results will be deplorable, but there are many signs and many things to indicate that your teachers do not propose to err in this way. Your EDUCATIONAL REVIEW is the principal one, I should say, and the Nova Scotia School of Science the next."

THE progress of the science of sanitation is well illustrated by the prompt manner in which a threatening outbreak of diphtheria in Halifax was suppressed last month, and the disease nearly exterminated quite within a couple of months after the health officers were aroused to put sanitation principles into vigorous effect.

THE University of New Brunswick had an unusually brilliant opening in the first week in October. Prof. Duff delivered the inaugural address in presence of His Excellency the Governor-General and Lady Stanley, Lt.-Governor and Lady Tilley, members of

the Provincial Cabinet, and a large assembly of ladies and gentlemen. The matriculating class numbers 26, the largest, we believe, in the history of the university.

The *University Monthly* which has just come to hand is a special number that has been produced with excellent care and taste, and is a credit, not only to its editors, but to the university.

WE have received an admirable pamphlet of some 19 pages, bearing the title, "Notes on the German School by J. B. Hall, Ph. D., Normal School, Truro, Nova Scotia." Dr. Hall has evidently been studying the German school system during his year on the continent with deep interest, in order to produce so striking and inspiring a view of the whole in so short a space. From the clear glimpse given by our enthusiastic author, it is abundantly evident that as a whole the Germans have gone far ahead of us, even in the common school department. Dr. Hall's German studies, we expect, will give a fresh impulse to the good work carried on by the Nova Scotia Normal School.

It is with much pleasure we observe a notice of another work of Dr. Hall's as being ready for the press, viz: "Outlines of Pedagogical Psychology, Logic, and History of Pedagogics." Such a treatise will be a valuable addition to our educational publications.

#### THE EDUCATIONAL EXHIBIT.

The recent display at the Saint John Exhibition of work done in the New Brunswick Schools, has called forth most favorable comment. It shows what a carefully prepared and wisely administered system of public school education is capable of accomplishing in the hands of intelligent teachers with progressive methods. Men and women who seldom see the interior of a school-room gazed with astonishment at the specimens of manual work done by children of tender years, and contrasted the practical methods of school work to-day with those that obtained but a few years ago.

In completeness this exhibit left little to be desired. There was every grade of work shown, and the Province, as a whole, was well represented. But the great bulk of the work exhibited was from the schools in cities and towns. A few villages were represented, but the country schools sent but a meagre display. But visitors were anxious to know: What are the country schools doing and how are they doing it? The excellent display of manual work from the normal school was creditable to the Province. The work,

continued in this line under the skilful guidance of Mr. Brittain, should, at every succeeding exhibition, show better results in steadily progressive improvement of the country schools in manual work. The majority of graduates from the normal school are engaged to teach in country districts. It will be a test, then, of the efficiency of the manual work done in the normal school, if, from year to year, these schools shall show improvement in this respect. They are, perhaps, doing good work already, but through lack of a little enterprise they were not adequately represented. But let the country schools come to the front in future exhibitions.

We would like to see, also, how far the successful example of Miss Orr, of the Victoria School, St. John, in incorporating Kindergarten methods with primary school work is being followed in other sections of the province. The display of the St. John schools in primary work was very creditable.

If there is a lesson to be learned from the educational exhibit it is that schools generally should be represented, and that the *every day* work of pupils should be shown to form an adequate idea of what the pupils are doing, and what progress is being made in our educational development.

#### N. B. TEACHERS' INSTITUTES.

The second annual meeting of the Victoria and Madawaska Teachers' Institute, will be held at Edmundston, October 23rd and 24th. Inspector O'Brien is president, and with an energetic executive committee has made an excellent programme. A public meeting will be held at which Chief Superintendent Crockett is expected to be present. There will be specimens of manual work executed by pupils. Papers will be read by H. Henderson, A. B., D. W. Ross, E. M. Brundage, Miss Maggie McGill, with illustrative lessons by Misses Sarah Truswell and Gerlie Henderson. All the teachers in Victoria and Madawaska should make it a point to attend and help to build up the institute which was so successfully inaugurated last year.

The Northumberland County Institute will be held October 15th and 16th.

St. John and Kings County Institutes will be held on Thursday and Friday, Oct. 30th and 31st. The programme of the former has been already published in these columns, from which it will be seen that a very interesting session is promised.

The Restigouche Co. Institute met at Campbellton, on the 25th and 26th September.

So great an interest was taken in the proceedings

that nearly all the teachers in the county were present, besides many others interested in education. Inspector Mersereau called the meeting to order, and made a very suitable address, in which he particularly referred to the history of the Teachers' Institute of Restigouche.

Chief Superintendent Crocket delivered a very happy address at the public meeting on the evening of the 25th, in which he referred to a little chapter in his own history. Thirty-four years ago he had come from Scotland to take charge of the school in Campbellton. He was disappointed in the "box," where he was expected to teach, but Campbellton had made ample amends—first, in giving him one of its fairest daughters for a wife, and second, in providing the fine educational equipments which the town now boasts of.

Papers and addresses were given by Mr. Edgett, Misses M. Miller, M. Barnes, Devereaux, Galt, E. McKinnon, C. Thompson, D. Turvey, and were well received by the Institute.

The Charlotte County Teachers' Institute was held at St. Andrews on the 18th and 19th of September. Over sixty teachers were present and the Institute was a very interesting and profitable one. The Chief Superintendent, Inspector Carter and Mr. W. F. Ganong were present, and took an active part in the proceedings. Papers were read by Miss Agnes Boyd, Mr. W. T. Kerr, Mr. J. B. Sutherland, Mr. G. M. Johnson and Miss Annie Gilmour.

#### NEXT TERM.

At the end of this month a great number of our teachers in Nova Scotia must pick up their gripsacks and walk into another section. We are sorry that there should be so much of this, both for the teacher's sake, and for that of the section. True, we must always expect promotions. While these may be good for the teacher, they do no good to the section. But there should not be so many occasions for promotions. Were the salaries in one section as good as in another there would be none. But every annual meeting brings in a number of trustees whose policy is that of trying how far they can cut down the school expenses and still keep a school running. If the school has made progress during the preceding years they are successful in turning it back, and fancy they have done a praiseworthy act because they have saved a few dollars to the district. Law can hardly be called to meet this evil directly. The "one year" system of teachers' engagements would tend to improve matters, we would expect; but the most work can be done by a teacher who makes himself a power-

ful factor not only in the school room, but in all the public works and movements in the section. The teacher should be more or less a public man, heard and *felt* by all men.

#### N. S. EDUCATIONAL ASSOCIATION.

This convention, which is to meet in the provincial metropolis during the Christmas holidays, is likely to be one of the most important, if subjects now engaging the attention of our educationists are to be discussed. At last we are within measurable distance of having two incompatible courses of study replaced by one. Two courses of study; the one recommended to be followed as an harmonious scheme of general education; the other not recommended, but made compulsory by an absolute fiat fixing the syllabus of examination for teachers prepared in the schools. Then, how are the various subjects to be balanced in the new course? We suppose when the final compromise is made there will not be a single teacher in the province who will approve of it as a whole. And if it did suit one perfectly the balance of feeling against it would preponderate more than in the former case. Such a thought must make us feel the necessity of meeting with our minds made up to be very considerate to views which are not our own; because we may feel sure that no one with an opinion of his own can exactly coincide with us.

A general course of study must, of course, be behind the leading thought of the age. The progressive must be handcuffed to the non-progressive. The latter may be dragged on faster; but the former must step slower. On the whole, however, the common consensus of humanity seems to favor the phalanx as the most effective fighting formation.

#### ASPIDIUM FRAGRANS.

One of our exchanges seemed to think the use in our last issue of the botanical names, *Aspidium fragrans*, etc., discovered in the Cobequids near Parrsboro, was funny. This fern has no common name because it is not a common plant. Very few Nova Scotians or New Brunswickers have ever seen it or will ever see it. Secondly, the scientific name is known in every school in the land in which a copy of "How Plants Grow" is used, we mean MacKinlay's last edition, lately published, which contains a description of all the ferns in the northern half of the continent.

Why is it that this arctic and most exquisite of the shield fern tribe, grows in dwarf but fragrant clusters in solitary stateliness, from the ledge of some

nearly inaccessible cliff, over a water-fall which gouges its wild way into Pirate's Cove on the Strait of Canso; and over the Niagara of Nova Scotia, where the tawny flood of the Moose river leaps from the Cobequid Range to the lands beneath; and over the crystal Minnehaha, where the falling white foam forms a portiere in perhaps the most picturesque sylvan cave scene of these provinces? How could this delicate little plant, this fragrant arctic member of a coarse and common family, plant itself in so few and at so distant points? It never could. It never did. It tells a pathetic tale. Long ere Glooscap and his people played their pranks in the virgin forests of Nova Scotia, when the glacial winter of ages was slowly retreating northward, and the arctic sting was even in the summer breath, then *Aspidium fragrans* probably flourished in every ravine and along every stream. Possibly the increase of temperature made the habitat less favorable, and the fern is slowly but surely dying out, remaining yet only in the most favored spots where deep gorges and the vapor from the water-falls combine to keep it cool. It is a most interesting relic of a past age; older than the red-man's skull, or the treasures of the stone age.

#### WEBSTER'S INTERNATIONAL DICTIONARY.

This great work has just been published by G. & C. Merriam & Co., Springfield, Conn. It marks another era in the history of the famous dictionaries that bear the name of Webster, and is the legitimate successor of the great Unabridged Dictionary, published in 1864. The International Dictionary is the "Unabridged" thoroughly re-edited by Dr. Noah Porter, of Yale University, with a staff of co-laborers; the work extending over ten years, costing in editing, illustrating, etc., over three hundred thousand dollars. A glance through its pages shows its completeness as a work of reference, as well as its marvellous typographical excellence. In an introduction of 100 pages it includes a comprehensive history of the English language. The body of the work comprises nearly 1,700 pages, with over 114,000 words, with pronunciation and definitions, accompanied by nearly 4,000 illustrations. In an appendix of over 300 pages we find a Dictionary of Noted Names of Fiction; a Geographical Dictionary; a pronouncing Biographical Dictionary, etc., with a selection of pictorial illustrations — the whole work of over 2,000 pages forming a library in itself. The work is for sale by Messrs J. & A. McMillan, St. John; price \$10.

The school trustees who would invest in Webster's International and place it in the school room would confer an inestimable boon on the rising generation.

#### GEOGRAPHY.

The text book, with its regular order of procedure—area, population, coast line, mountains, rivers, products, etc., is a capital arrangement for the review of geographical study or for a geographical book of reference. But it is, in the first place, monotonous to the young scholar; and secondly, the associations by which the facts are linked in memory are so artificial and removed from the practical applications of geography, as to be but of little use in life afterwards if the facts even should be remembered in their original mechanical fashion. We would recommend a thorough oral course of geography in the common schools, using no apparatus except maps, and a teacher who knows geography—a phenomenon that is very rare, and will be until teaching becomes a profession.

Geography is of use to us on account of the dealings between peoples of different countries. The first and yet the most important are commercial dealings. In every home numerous articles are used, which, when traced backward in the line of their transit to the point of production, will carry us through the most important parts of the world, leaving a picture on the mind which cannot readily be effaced, and arranging the knowledge in a form which is always ready for utilization, and in fact prone to suggest original developments of trade.

Take tea. It is carried from the village store in a wagon on the high road. It came to this village from a town or city in large cases with strange letterings, and was carried on a railway train. It came into the city from a large vessel, which hoisted from out of its hold many hundreds of cases. Trace the high road on the map of the village. Trace the railway to the city. The high road passes through a wood, over a brook, around a mountain, through a marsh. We know the people and how they earn their livings. We next have a picture of the life of the city, the number of people in it. How they earn their livings. The ships came in with merchandize of all kinds, but we follow now the tea ship far across the ocean to China. Suppose we are in that distant country. We see a tea farm which is pictured. The Chinaman is pictured at work. What he does to the tea is shown. How much tea does he prepare in a year? What does he get for it? How does he live on it? What is his house like? His family like? Describe them at their meals and the articles which they eat. Then follow the tea down to the great warehouses at the shipping towns. How many Chinamen are doing as the one we just saw? How many pounds of tea are brought

down from the country to the shore? How many tons would this make? If it was all piled up in a cubical mass, how large would the pile be? This is carried to various parts of the world, and the Chinese get money for it, with which they buy articles from other countries not produced at home. What articles do the Chinese take from other countries? Our vessel is loaded, and starts out of the harbor. Describe the appearance of the city, its architecture as seen from the water. Describe the appearance of the land; whether rocky, forest covered, covered with farms or villages, and give an idea of the population. What are most of the people doing? Have they a Sunday, and do they go to churches? What do the great majority of them believe in? Then the ship passes point after point of the coast, passing through straits, now out of sight of land, next under the influence of a monsoon, then in a calm or in a typhoon. India is passed. Ceylon may be sighted and described. The Red Sea is entered, under a tropical sun. The coast of Arabia is seen on one side, and in the distance the mountains of the Sinai range, or the low, brown coast of lower Egypt. The Suez Canal is passed through. The great work and great traffic is described. Then the Mediterranean is entered, and on the right and left are pointed out with a few words of living description the most notable features of this historic coast; and so on until the vessel arrives at its port. Then how much tea is taken into our country? How many pounds per individual? etc.

Were a teacher able to give a lesson of this kind geographically and correctly, the lesson could be made second in value to actual travel; and all geographical facts would be studied in their natural relationship, and would make the pupil so far a man of the world. But where is the teacher who can give from day to day lessons of this kind? If we could find him he would be more valuable than the average clergyman, lawyer or doctor. He would require as much special study, and even more tact.

What an amount of useful never-to-be-forgotten knowledge could be acquired by lessons of this kind on cotton, silk, linen, leather, gold, silver, copper, iron, lead, tin, pottery, paper, starch, sago, sugar, etc.

The tea of the world is worth \$82,000,000 per year, at 20 cents per pound; the coffee \$210,000,000 at 25 cents per pound.

Great Britain is the great tea drinking section of English people; the United States the great coffee drinking section.

#### Astronomical Notes.

##### VENUS.

According to the almanac, Venus will be at her greatest brilliancy on October 29th. It is at this stage of her career as evening star that she should be easiest to see in the afternoons, and should look her best in the evenings. But such is not always the case, and it will not be so this time. When last she was at her greatest brilliancy as evening star—in March, 1889—she was 66 degrees above our horizon in the middle of the afternoon, when on the meridian, and in the evening she remained above our horizon for nearly four hours after sunset. But at greatest brilliancy this year her meridian altitude will be only a fourth of what it was then, and in the evening she will remain above our horizon only one hour and a quarter after sunset. So it will not be nearly so easy this time as it was last to pick her out in daylight, and one will not be so apt to mistake her for an electric light after dark.

When Mars was at his greatest brilliancy last May, he was highest up in the sky at midnight, and so afforded us a first-rate opportunity of appreciating to the full his extraordinary brightness. If we could only have Venus on the meridian at midnight, when at her greatest brilliancy, what a glorious sight it would be. But we can't have that. Mars is an *exterior* planet, revolving in an orbit outside that of the earth, and so we can have him at any angular distance from the sun from 0° up to 180°. But the orbit of Venus lies *inside* that of the earth, and so far inside that we can never see her at a greater angular distance from the sun than about 45°. This angular distance from the sun is called her *elongation*, and when this is greatest she is at what the almanacs call her "greatest elongation." It happened this year on September 23rd, and her elongation then was 46½°.

This matter of elongation—and one or two other matters as well—may be studied to advantage by means of a bit of construction: Take a sheet of paper and describe a circle on it; call the centre S and let it represent the sun. Let the circumference represent the path of Venus around the sun. Take a point anywhere on the circumference as the position of Venus at a given time, and call the point V. Take another point outside the circle to represent the earth, and call it E. Join V S, and E S, and E V. The angle at E is the "elongation" of Venus for her given position. When V is in the same straight line with S and E, and beyond S, as seen from E, this angle is 0°. In this position Venus is said to be "in superior conjunction." When V is in line with S and

E, and between them, the angle at E is again 0, and then Venus is "in inferior conjunction." If you move V round the circle, from superior conjunction to inferior conjunction, in the direction opposite to that in which the hands of a watch move, you will have a representation of her motion relative to the earth and sun during her career as evening star.

At the beginning of one of these evening star seasons she is at superior conjunction, on the farther side of the sun. Here her elongation is 0, and she sets with the sun. As she moves round to the left the angle S E V opens out, and in a month or so we can see her above the western horizon after sunset. As she moves farther round, the angle at E grows larger and larger, until the line E V becomes a tangent to the circle. Then her elongation is greatest. How great this greatest elongation of hers is you can find out by solving a simple problem in plane trigonometry. The angle at V is a right angle, because E V is a tangent. (See Euclid III.) The sides S E and S V are the distances of the Earth and Venus from the sun. The relative values of these distances are all you need, and any astronomy book will give you them. With these data, find the angle S E V, and you will have Venus' greatest elongation. Your value will only be the *mean* value, but it will not differ much from the exact value given in the almanac for any given greatest elongation.

As V moves round past the point of greatest elongation, the angle S E V begins to decrease, and continues so until it closes up altogether again at inferior conjunction. Then Venus sets with the sun again, and her career as evening star is over for that season.

So much for elongation. But that same diagram will help you to understand some other things about Venus. You all know what is meant by the *phases* of the moon—the new moon phase, the half-moon phase, the full moon phase, and so on. To the naked eye Venus seems always full. But not so to the telescope. As seen through this instrument she passes through all the phases of the moon from new to full. This is because she is an *inferior* planet, and your diagram will help you to understand it. Put her at superior conjunction, in line with E and S, and beyond S. There she shows to E the same face which she shows to S, and, as the face which she shows to S is always fully illuminated, she is then "full" as seen from E. Of course, if she were really in the plane of your diagram, she could not then be seen from E at all, and, as a matter of fact, she never can be seen there by the naked eye. But, as a general rule, she can then be seen through a good telescope, because, as a general rule, when she is in superior conjunction she is not in the same plane as E and S, but is either

above that plane or below it. But the chief point to notice at present is, that supposing we could see her at superior conjunction, we would see her *full*. Now move her round into inferior conjunction. There her illuminated side, the side that is turned towards S, is the side that is turned away from E, and the side that is turned towards E is wholly illuminated. In this position she turns her dark side towards us, and is in the "new moon" phase. When she happens at the same time to be in the same plane as E and S, and so comes directly between us and the sun, we see her as a *dark* spot moving across the sun's face. And then we have a transit of Venus, as we had in December 1882, and in December 1874, and as we shall nearly have in December, 1890, but shall not really have in December again until the year 2117.

And so, at inferior conjunction—at the end of her career as evening star—we have Venus in the "new moon" phase, and at superior conjunction—the beginning of her career as evening star—we have her in the "full moon" phase. Study the case for all the positions on your diagram intermediate between these, and you will see that she must pass through all the intermediate phases. In any position, you will find with the help of a little geometry, that her phase depends on the size of the angle at V. The "half-moon" phase falls when V is a right angle, that is, at the time of greatest elongation.

The brightness of Venus at any given time depends partly on her phase at that time and partly on her distance from the earth. It depends also on several other things, but these are the most important factors. As she moves round from superior to inferior conjunction, she is coming nearer and nearer to the earth, and the apparent size of her disc is therefore becoming greater and greater. At the time of greatest elongation she shows us a disc six times as large as at superior conjunction. But, as we have already seen, only half of this enlarged disc is illuminated; and so, at greatest elongation, her brightness is only three times—not six times—what it was at superior conjunction. After greatest elongation her brightness continues to increase until it rises to four times what it was at superior conjunction. Then the rate of decrease due to phase overtakes the rate of increase due to nearer approach, and from this stage—the stage of greatest brilliancy—until inferior conjunction, the brightness decreases.

During October and November Venus will be a beautiful sight in a telescope. The afternoon or early evening will be the best time for observation. On October 17th she will be very close to Antares (see map in May REVIEW).

A. CAMERON.

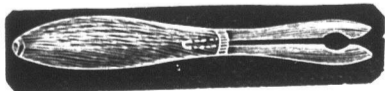
For the Review.]

**PRACTICAL CHEMISTRY.**

J. BRITTAIN, NORMAL SCHOOL, FREDERICTON.

The following apparatus should be obtained as a pre-requisite for the successful prosecution of this study:

- 2 Wide mouth, 6 oz. Quinine prescription bottles of clear glass. It is important that the calibre of the neck should get gradually but slightly narrower as it descends, in order that the cork will become tighter as it is driven in farther.—20c.
- 1 Wide mouth, 2 oz. Prescription bottle.—6c.
- 1 Soda or Pop bottle.
- 1 Doz. good corks which will fit the 6 oz. bottles tightly and still leave one fourth of the depth of the cork projecting above the neck of the bottle.—10c.
- 4 Pieces of window glass about 3 in. square. A mechanic will cut them out of a broken pane of glass for you.
- 1 Pair Steel Forceps.—10c.
- 1 Triangular File.—10c.
- 1 Round File.—12c.
- 6 Test Tubes, each 5 in. long.—30c.
- 4 Ignition Tubes, each 7 in. long.—40c.
- 2 Doz. corks to fit the Ignition Tubes.—6c.
- 2 Doz. corks to fit the Test Tubes.—20c.
- 1½ Feet Rubber Tubing,  $\frac{3}{8}$  in. inside diameter.—20c.
- 6 Pieces Soft Glass Tubing,  $\frac{3}{8}$  in. outside diameter, each piece about 18 in. long.
- 1 Piece Glass Tubing,  $\frac{1}{2}$  in. outside diameter, 18 in. long.—10c.
- 1 Glass Stirring Rod.—5c.
- 1 Large Iron Spoon.
- 1 Small Iron Spoon.
- 1 Yard Copper Wire about the size of broom wire.
- 1 Square Earthen Dish about 5 in. wide.
- 1 Square Earthen Dish about 3 in. wide.
- 1 Square Glass Dish about 5 in. wide.
- 1 Spirit Lamp with suitable wick and glass cap.—25c.
- 4 Reagent Bottles,  $\frac{1}{4}$  pint. One each for sulphuric acid, hydrochloric acid, nitric acid, and ammonium hydrate. Bottles with ground glass labels should be preferred.—60c. to \$1.
- 1 Cork Borer,  $\frac{1}{2}$  in.—40c.
- 1 Wooden Test Tube Holder (Fig 1.) This may be made of cedar, or other soft, elastic wood, by the teacher or one of the larger pupils.



- 1 Pneumatic Trough. A rectangular tin vessel 12 in. long, 6 in. wide, 5 in. deep, will answer well. The shelf of the trough should be made of a piece of tin 3 in. wide (with a hole  $\frac{1}{4}$  in. in diameter in the middle) bent so that it will slide upon and be supported by the longer edges of the trough. When the shelf is placed in the trough the hole should be 2 in. below the rim. A tinsmith will make the trough.—40c.
- 1 Wooden Tray, about 24 in. long, 15 in. wide, 3 in. deep, for holding and carrying the apparatus in use.—50c.

**CHEMICALS.**

1 Pint Alcohol (Proof),	55c.
2 Oz. Ammonium Chloride,	5c.
$\frac{1}{4}$ lb. Ammonium Hydrate (Strong),	12c. (in bottle).
2 Oz. Bleaching Powder,	3c.
1 Oz. Bromine,	40c. (in bottle).
2 lbs. Hydrochloric Acid,	30c. (in bottle).
$\frac{1}{2}$ Oz. Iodine,	20c. (in bottle).
$\frac{1}{2}$ Oz. Litmus (Powder),	10c.
2 Books Litmus Paper,	10c.
Magnesium Ribbon,	25c.
$\frac{1}{2}$ lb. Manganese Dioxide,	5c.
$\frac{1}{2}$ lb. Nitric Acid (Chemically Pure),	30c. (in bottle).
1 Oz. Oxalic Acid,	5c.
2 Oz. Phosphorus,	25c. (in bottle).
$\frac{1}{3}$ Oz. Metallic Potassium,	60c. (in bottle).
$\frac{1}{2}$ lb. Potassium Chlorate,	20c.
2 Oz. Potassium Hydrate,	15c. (in bottle).
1 Oz. Metallic Sodium,	85c. (in bottle).
2 Oz. Sodium Hydrate,	55c. (in bottle).
2 Oz. Sodium Silicate,	20c.
$\frac{1}{4}$ lb. Sulphur,	5c.
$\frac{1}{2}$ lb. Granulated Zinc,	35c.
Metallic Antimony,	10c.
2 lbs. Sulphuric Acid,	40c. (in bottle).
$\frac{1}{4}$ lb. Mercury,	35c. (in bottle).
$\frac{1}{2}$ Oz. Aluminum Wire.	
$\frac{1}{4}$ Oz. Silicon.	
1 Small Piece Platinum Foil.	

The prices given will show that both apparatus and chemicals can be bought for about \$11, without including the aluminum, silicon, and platinum. These prices will also serve sometimes in guiding or correcting the judgment of the druggist from whom you are purchasing. The price of the bottle, properly stoppered, is usually included. Small bottles can easily be got, without cost, for the other chemicals. As phosphorus must be kept in water, the bottle containing it should be enclosed in a small tin can, to guard against breakage by frost or otherwise. The bottles containing the sodium and potassium should also be so enclosed.

As several of the chemicals are poisonous, a small, cheap cabinet should be obtained for the whole, which should be kept locked.

The apparatus will last for years, and the quantities of chemicals given will, in most cases, be found sufficient for repeating the course several times. While a course in experimental chemistry at a high school, or at the normal school, would be of advantage, no teacher who has not had such preparation need be afraid of failure. Full directions, with all necessary cautions, will be given for the performance of each experiment.

In order to insure success, the teacher should perform each experiment himself shortly before it is to be done in school. There, one or more of the pupils should be allowed to assist (in turn) in the experi-

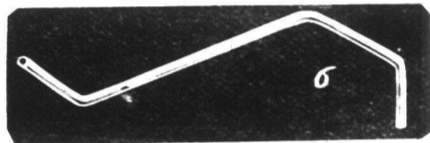


ments, and sometimes to perform them under the teacher's direction.

Our apparatus being ready, we will have some practice in manipulation:

Put some alcohol into the spirit lamp, and insert a good wick. Make a scratch directly across a piece of glass tubing with the edge of a triangular file. Hold the tube with the thumbs opposite the scratch, and with the fingers on the same side of the tube as the scratch; use force as if you intended to bend the tube backward at the scratch. The tube should break squarely off. Round the sharp edges of the glass by holding them in the flame of the spirit lamp until red hot.

Take a piece of  $\frac{3}{8}$  in. glass tubing, about 18 in. long. Hold it in the upper part of the flame, turning it so



as to heat an inch or more uniformly. When the glass begins to soften, slowly bend it to the required angle, and allow to cool gradually. Make two other bends in the same plane, giving the tube the form shown in Fig. 2.

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

NINTH PAPER.

First, note at the end of this paper a few corrections on the last, which may have caused some difficulty.

We have looked at transition into the right hand column on the modulator, *i. e.*, into the first sharp key, Key G, where *s* becomes *d*, and the fourth note of the scale *f* is sharpened to give the seventh note, the *t* of the new scale. If we go into the second column to the right, again the *s* becomes *d*, the *f* is sharpened and becomes *t*, and all the other notes take the corresponding places and have the character of these respective notes of the scale. Look now at the *d* in the central column and the *d* in the second column to the right. We see that it has been raised one octave and one tone. Disregard the octave and think of two removes as raising the pitch of the *d* one tone. We may then say

- 2 removes or 2 sharps give us Key D
- 4 " " 4 " " " Key E
- 6 " " 6 " " " Key F (sharp)
- Again 1 " " 1 " " " Key G
- 3 " " 3 " " " Key A
- 5 " " 5 " " " Key B.

We shall now look to the first left hand column. On looking at the modulator we see that *f* becomes *d*.

So the lower tetrachord *d r m f* becomes the upper tetrachord *s l t d* of the new key. All the other notes fall into their proper places, except *t*. Its flat, which we call *ta*, becomes *f* of the new scale. This is just the same change that is made in returning from the key of G into the central column of the modulator, which is understood to represent the key of C.

The transition into the first column to the left comes next after that into the right in teaching. Where *s* becomes *d* is the easiest transition, and where *f* becomes *d* is next. In whatever key we are singing the first remove to the right is the easiest, and the next easiest is one remove to the left.

Let the teacher point on the modulator such an exercise as the following:

No. 1

d	s	m	f	s	d	t	l	s	f	t
---	---	---	---	---	---	---	---	---	---	---

No. 2

d	s	f	m	r	d	d	t	l	s	f
---	---	---	---	---	---	---	---	---	---	---

Draw attention to the weeping l. Then point No. 2.

Let the teacher now point and sing No. 2, but to the syllable *te*: sing the flat note *td* and ask the class what the notes *d t l s* sound like—*s f m r d*. Note how *te* has lost its brighter and assumed a duller character, and how the *lah* now resembles *doh*. The class will feel that while the syllable *te* was sung it was not the note *t*, but a sound a little lower. Give the pupils the name for this note *ta*. Ask the class to sing No. 2 to the teacher's pointing on modulator, only pointing not *te* but *ta*, after the teacher has sung it over to them. Next point the exercise on the modulator at *d*, passing into the side column *s f m r d*. Hold the bridge note *well* to the syllable *soh*, in order to establish in the pupil's mind that the note has got a new character; not the strong, firm, restful character, but the grand, bright effect of *soh*.

This changing of the mental effects of sound may be suggested to the pupils thus: Picture Farmer Jones working in the field, and then introduce to them Captain Jones of the volunteers. In his uniform, at the head of his men, he seems quite a different person. Next introduce him in his boat as a fisherman. The difference of dress and position seem to give him a different character. After the children have got familiar with one note of the scale taking the character of another in changing key, the pupils may be got to make any change of key if the teacher be careful. This may be done either on the modulator or with the manual signs. Let him stop at any note of the scale. Tell them now to think of any other note of the scale; sing that syllable sufficiently long to impress the new character, pointing to the

corresponding note on the modulator, or making the manual sign. When this new character is firmly established in the mind, go on making other signs, or pointing on the modulator, and the children will make any change without feeling the difficulty, and enjoying the exchanges in the character of the notes. This must not be tried until the class get a few lessons in transition. Let the teacher point the following on the modulator, passing into the left hand column at the bridge note, sustaining the sound on the new syllable thus : fah d—

No. 3.—Key C.                      Key F.

{	d	r	m	f	d	—	r	m	f	m	r	d	

Key C.

{	t <sub>1</sub>	d	r	m	f	—	m	r	d	t <sub>1</sub>	d	—	
---	----------------	---	---	---	---	---	---	---	---	----------------	---	---	--

After this has been done with ease on the modulator, it may be written on the blackboard, and sung from the notes.

Let the teacher try to get the class to discover that this change into the column on the left, the flat keys where the distinguishing note is changed into the flat fah, which is a duller note, takes some of the brightness out of the music.

No. 4.—Key D.                      Key G.

{	d	m	—	m	f	d	r	m	f	s	—	—	

Key D.

{	d <sup>1</sup>	t	l	s	s	f	m	m	r	d	—	—	
---	----------------	---	---	---	---	---	---	---	---	---	---	---	--

The teacher may multiply examples. Be careful to hold the bridge note with its new name.

Music for schools should not be written in four parts, but two part harmony, with an *ad lib.* bass. The easiest way in which children can be got to sing in parts is probably on the modulator, following two pointers. First one part may sing d, and the other the notes of the DOH chord up and down. Then change parts. Then this may be varied, still using only the notes of the DOH chord. Then such an exercise as the following may be pointed the two parts at the same time, the left hand pointing the lower part and the right hand the upper. Then change parts.

No. 5.—Key C.

{	d	r	m	f	s	l	t	d <sup>1</sup>	d <sup>1</sup>	l	s	f	m	r	d
{	d	t <sub>1</sub>	d	r	m	f	s	l	l	s	f	m	r	d	t <sub>1</sub>

Other simple exercises may be pointed, using the interval of a third, varied by a fifth and an octave. Rounds are also very useful for introducing part singing, because they are generally simple, interesting, and chiefly because each part is always singing the melody. This point indicates that if children are to sing in parts there should be melody in the alto as well as in the treble, and the intervals comparatively simple.

CORRECTIONS.—p. 51, first column, 10th line, read “between r m”; middle of column read “m r d t<sub>1</sub> d”. 6 lines down read “then in the first key”. Second column, 2nd line, read “F (sharp)”. 23rd line read “taatai.” 24th line read “half pulse”. Near the foot of column read

	d	:	d	.	d		d	,	d	,	d	:	d		m	:	m	.	m		m	,	m	,	m	:	m
	s	:	s	.	s		s	,	s	,	s	:	s		d <sup>1</sup>	:	d <sup>1</sup>	.	d <sup>1</sup>		d <sup>1</sup>	,	d <sup>1</sup>	.	d <sup>1</sup>	:	d <sup>1</sup>

For the REVIEW].  
**Canadian History, in Standard IV. Ungraded Schools.**

At the earnest request of Inspector Mersereau, I send you a report of a lesson given to the 4th grade in my school. I hope this will lead to an interchange of ideas on this subject through the medium of the REVIEW, as my own method seems to me to be far from satisfactory, though the Inspector is good enough to be pleased with the results.

The class before me has drawn a map of the county, and knows why the county is divided into parishes. It has also drawn a map of the Province, and has a pretty clear idea of its divisions and why they were made. This they did in the 3rd standard, and at the same time we picked up scraps of local history, such as incidents in life of early settlers, etc., from some of the oldest inhabitants.

Before the school opened the boys were talking very earnestly together, and I heard the word “election” frequently used; so, when the class was before me I proceeded as follows:

TEACHER. What were you talking about so earnestly this morning before the bell rang?

PUPILS. We were talking about the election of councillors.

T. How many councillors are elected?

P. Two for each parish.

T. What two are going to be elected for this parish?

P. There are four candidates, and the two that get the most votes will be elected.

T. Each voter can vote for how many candidates?

P. Two.

T. Whom is your father going to vote for, John?

JOHN. Mr. B. and Mr. J.

T. And whom does your mother intend to vote for?

All boys—(laughing). Women don't have votes.

T. No? Why not?

Pupils, puzzled, hazard various answers.

T. Whom does your brother Charles vote for, James?

JAMES. He does not vote yet.

T. Why?

J. Because he is not 21 years old yet.

T. Whom does you brother, Aleck, vote for, Thomas?

THOMAS. He does not vote because he is not taxed on any property.

T. Then, who are the voters of a parish?

PUPILS. Men over 21 years of age who own property and pay taxes on it.

Here follows a short talk to illustrate that *income* is the equivalent of property in entitling one to vote, how the voting is conducted, etc.

TEACHER. What are councillors elected for?

PUPILS. To makes laws for the county, and appoint such officers as constables, tax collectors, etc., to see that the laws are carried out.

T. Then, we do not make laws for ourselves?

P. Oh, yes, we do. We send two men from each parish to do just as we would do if we were there.

T. Why do we not all attend the council?

JOHN. We could not get a building large enough to hold us all.

THOMAS. It would be a great waste of time for a larger number to go when two can do just as well.

JAMES. These two represent all the people in the parish.

T. Do you know about any other election?

P. Yes. The local election.

T. Why you call it *local*?

P. To distinguish it from the Dominion election.

JAMES. Local elections are held in the Province every four years, at least.

T. Where do the members sit?

JOHN. In Fredericton, as it is the capital.

This is the way I try to draw from the pupils what they know as a basis upon which to build their future historical knowledge. When their knowledge is at fault I tell them in such a way as to impress it on their minds in the strongest manner possible, sometimes even resolving the class into a miniature House of Assembly with myself as speaker for the occasion.

My object is to give them a clear idea of responsible government as we have it now. Then I can, by contrast, lead them to see what irresponsible government was like, and they will thus appreciate the boon conferred upon us in 1848.

In my next I shall give notes of a lesson intending to show the importance of confederation, and the causes leading up to it.

TEACHER.  
Northumberland County, N. B., Oct. 1st, 1890.

The women teachers of Germany, besides a great pension association, have had an insurance society of their own for the last six years. For a monthly fee of twenty-five cents a member can, in case of sickness, draw \$2.50 a week for thirteen weeks and for the same period again after an interval of six weeks.

For the Review

### The Teacher's Work and Preparation.

At the opening of the present term many teachers have, for the first time, entered upon their work, others have taken charge of new schools, while some have returned to the school which they taught during the past term. All will, however, find difficulties to encounter and will spend weary hours in thinking how they can best overcome them. I sometimes think teachers undo each others' work — that is, they leave out some important subject which has been taught by their predecessors.

I have at present, charge of a school in which the pupils are much farther advanced in reading than in any other subject — but the pupils in Reader V have studied very little Canadian history, no chemistry, very little grammar, and no elementary natural history, nor temperance; and the other classes were graded in the same way. Why should they have been allowed to enter Grade V, while actually not doing the work of Grade IV? Parents perhaps urge the teachers to "promote" their children, taking reading as the basis, thinking, no doubt, that other subjects are of minor importance; but a teacher should use her own judgment. Some teachers do not wish to take the trouble to follow the plan mapped out for them in the Course of Instruction. "It is too much trouble to teach all the subjects to so many grades, I will teach the easiest and let the rest go." This must be the line of reasoning some teachers follow, or the results of their labor would be different.

I do not wish to censure my fellow-teachers unduly, but if anything I have written will prevent any teacher from falling into the error I have mentioned, I shall be quite willing to bear any criticism my remarks may call forth.

I think care should be taken by every teacher to give instructions in *all* branches required. Else how shall they say that they have taught diligently and faithfully? And surely we are all bound to try to do that. A teacher must give the very best of her thoughts to the profession, if she wishes to be successful. The same method which would be successful if brought to bear on one pupil will not suit another.

Oral lessons, if properly applied, are of great benefit, but these must be diligently prepared, simplified, and continued with an end in view, or they will produce no lasting result.

Canadian history is not so much taught as British; at least, I have found this to be the case in my experience as teacher. Perhaps I give it too prominent a place in my school, but I certainly think Grades IV

and V should be given lessons in this important subject.

We need to be conscientious in our work. It is not the amount of work we can do in a day, nor is it an endeavor to please parents, inspector, or other school officers, which should be our only motive; but the knowledge that it is our *duty* to do our work in the very best manner we can, that should stimulate us to greater efforts. God sees our work and will help us to be diligent if we only take Him as our guide and counsellor.

CIE-CIE.

For the Review.

#### Kindergarten Methods in Primary Schools.

Kindergarten methods may be used to great advantage by the primary teachers if they will give the subject thoughtful attention.

There are ten gifts, so called by Froebel, the founder of the Kindergarten, used, and these begin with the solid, proceeding to surface, line and point. The occupations which are closely connected with these gifts begin with the point, proceeding through the medium of line and surface to solid, and these occupations tend to emphasize the knowledge gained by the lessons on the gift.

Froebel intended by the Games and Songs connected with the gifts and occupations that a harmonious development of body, mind, and soul should take place. Finger-Plays by Miss Emilie Poulsson, 57 Chestnut St., Boston, is a little book of great value to all teachers of little children. Miss Poulsson will send it to any address for \$1.

The first gift consists of six worsted balls of different colors—red, yellow, blue, green, orange, and purple. Lessons on this gift open to our little pupils the possibilities of language, number, form, color, motion, direction, surface, and the qualities, smooth or rough.

In the first lesson, which might begin in a variety of ways if the children have not seen the balls before you hold the red ball and ask, "What have I in my hand?" Show them how to make a nest out of their hands, drop the ball in their nest, and sing,

My little ball lies in its nest  
So quiet and so still,  
I'll gently rock it till it sleeps  
And keep it well I will.

"Where are your hands?" is asked and the answer comes, "Around the ball." Then a conversation is held about things that go round, and things which are round, and while singing the song,

My red ball likes to wander from one child to another  
And wishes many happy days,—

slip the ball around from one to another. Draw

the picture of the ball and count them at the close of the lesson as they are placed in the box.

In a series of lessons which proceed slowly language is particularly emphasized.

By holding the ball by the string which is attached to it and swinging it up and down, round and round like a hoop rolling, left and right like the pendulum of the clock, ideas of direction and motion are gained.

Songs and rhymes are used and motions made, as the little ones are happiest when talking to their play-fellow. Imitating the church bell they sing,

Bell high in the steeple,  
Calls to church the people,  
Ding dong, ding dong,  
Ding dong, bell.

Making the motions they say:

Round and round like the sun so bright,  
Round and round like the moon at night.

The balls are rolled from one to another and as they go from side to side count them to keep attention and to teach number. Again they sing,

My ball I want to roll you,  
Once, twice, three times, four times, five times, six times.

It is noticed how noiselessly the ball rolls because it is soft and that it rolls because it is round.

We talk about the different colors and think of flowers, fruit, vegetables, etc., the color of our ball, and point out things in room as Lizzie's ribbon, Tommy's tie, etc.

As the balls are held up, the strings twisted together, the beautiful Bible story of the first rainbow is told.

They are asked to think of cherries and to find the ball which resembles them in color. Next, to think of the cherry's shape and the questions are asked: "Can you bite it easily?" "And why?" The qualities soft and hard are brought out in contrast to each other.

Of what the ball is made is talked about, and rubber and wooden balls are shown and the difference noted. Short stories are told, or little conversations held about our pretty worsted ball, of the yarn and what it is, of a visit to a farm and what we saw there, of the sheep that did not want to wear its heavy coat in summer and so gave us his wool, of the mill, of the spinning wheel, and the dye-house.

"Babyland," for February, 1889, has this story in rhyme,

Once a little baby,  
On a sunny day,  
Out among the daisies  
Took his happy way.  
Little lambs are frisking  
In the fields so green,

While the fleecy mothers  
All at rest were seen.

For a while the Baby  
Played and played and played;  
Then he sat and rested  
In the pleasant shade  
Soon a sheep came near him,  
Growing very bold,  
And this wondrous story  
To the Baby told:

Baby's little blanket,  
Socks and worsted ball,  
Winter cap and mittens,  
And his flannels all,  
And his pretty afghan  
Warm and soft and fine,  
Once as wool were growing  
On this back of mine!

And the soft bed blankets,  
For his cosy sleep,  
These were also given  
By his friends, the sheep.  
Such the wondrous story  
That the baby heard:  
Did he understand it?  
Not a single word!

In answer to questions and in conversations, complete sentences are always required of the pupils, and if they are taught to speak well they will read with expression.

These balls furnish suggestions for number work as:

I have 3 cherries and Jessie gives me 2 more. How many have I?

If there are 4 bluebirds on a tree and one flies away, how many are left?

3 green apples and 2 green apples are how many?

I divide 6 oranges between 2 girls. How many did each receive?

4 purple pansies and I drop one. How many left in my hand.

The primary teacher possesses in this gift "A mine of riches," and as she moves the ball up or down, to or fro, or places it in the tiny hands of the child that make a nest to receive it and transfigures it into a bird she is always opening the door that leads to all knowledge. And when we recall the familiar definition, 'the earth is round as a ball' it would seem as if in the selection of this dainty toy for early educational purposes that Froebel had been inspired."

D.

The Halifax Ladies' College has opened with a larger attendance of students from abroad than ever before.

FOR THE REVIEW

#### The Twelfth Convention of American Instructors of the Deaf.

This convention was held from the 23rd to the 28th of August in the New York Institution, where, forty years ago, the first one assembled. At that time only about thirty-five delegates were present, representing six schools. At the one recently held nearly four hundred delegates were present from all parts of the United States and Canada, representing over sixty schools. Dr. W. Wilkinson, of the California Institution, was elected president, and J. Scott Hutton, of Halifax, was elected one of the vice-presidents.

Those who were present could not but be impressed with the ability and zeal of those assembled, both deaf and hearing. Though a diversity of methods was represented, yet all were united in purpose, having for their common aim the greatest good for the deaf. Perfect harmony and good feeling prevailed in all the discussions, and each seemed anxious to learn all the experience of others could teach.

A very interesting feature of the convention was the presence of a large number of deaf teachers, who, in themselves, by their papers, and ready and intelligent discussions on subjects, illustrated the value of the methods and the possibilities of deaf mute instruction, and contributed no little to the meetings. Indeed, some of their papers could hardly be improved on by those possessed of all the senses, and cultured under the educational advantages of the age.

In connection with the convention was a normal department in which great interest centered.

Perhaps the most noteworthy feature of the convention was the organization of the oral teachers into a separate section for the consideration of subjects pertaining to them. They also took steps to incorporate an association for the promotion of oral teaching. To this proposed corporation Dr. A. Graham Bell made a gift of \$25,000. One of the plans in view is the holding of a summer school for teachers. This is a step that ought to be taken by all teachers of the deaf where it is possible, as no better way could be conceived of spending part of the vacation than in meeting for the better preparation for this work.

It was decided to hold the next convention during the world's fair at or near Chicago. S. H. L.

Chemistry teaches us the important arts of close and accurate observation, and of drawing correct inferences from the facts recognized. If we regard education as intellectual discipline rather than the mere absorption of a number of facts, we shall find some one of the branches of natural and physical science absolutely essential and indispensable. And under most circumstances chemistry will prove the most appropriate subject.

For the REVIEW ]

**Meteoric.**

Having noticed a correspondence in the EDUCATIONAL REVIEW concerning observation of a meteor, or what appeared at first as a shooting-star, on the evening of August 6th, I thought I would give a description of what I observed on that evening just after sunset; and allowing a few minutes for the difference of longitude, I think it must have been the same object observed at the same time.

As viewed from here it was about east and I think about 40 degrees from the horizon. It appeared to shoot upwards; the streak of light (to speak without regarding distance) about 20 feet in length, it remained longer than I had ever observed any before. It then appeared to widen out as the object described by your correspondent, becoming first crooked at the upper portion then nearly all of its length; and from different portions of its length appeared to send forth streams of vapor, the whole in a few minutes forming into a cloud; it floated slowly towards the northeast. I observed for the space of half an hour or until with distance and darkness it could not be seen. I conjectured if it had been a meteor it may have shot downwards, and the gas into which it dissolved by friction did not at first ignite as it rushed through a body of vapor and generating electricity was instantly lighted from the lower end, the electric shock condensing the surrounding vapor into a cloud — as there was no cloud to be seen in that direction at the time of the flash of light, the meteor appearing to show in a clear blue sky.

Its motion towards the northeast or rather the cloud form in the upper strata of vapor moving in that direction caused me to think that probably this was one of the many phenomena often occurring in the upper stratas of our vapory atmosphere but seldom witnessed.

The above remarks I give on account of the different positions viewed from, should it have been the same object would interest some as regards the distance from the earth at time of occurrence.

G. PARKER.

Parker's Ridge, York County, N. B.

**Commendation.**

Never forget to commend a good recitation. Should a pupil fail to come up to the standard, to merit unqualified commendations, } give him such encouragement as you can consistently. Pass an opinion upon his effort anyway, and let him know that you are thoroughly cognizant of where he stands. It may be necessary sometimes to tell him that he has succeeded admirably in one part of his lesson and

failed entirely in another. It helps wonderfully for a pupil to know that earnest labor will be appreciated by his teacher.

A prominent lady teacher, in writing on the subject for an educational journal, some time ago, expressed herself as follows: "There is no influence emanating from a teacher, during recitation, which so completely paralyzes the mind of the pupil as the practice of scolding or ceaseless fault-finding, once so prevalent, but now rapidly disappearing from the public schools. The temptations to petulance and snappishness on the part of teachers are manifold and at times almost irresistible. Lack of faithful preparation, of quickness of perception, of moderate reasoning power, of interest, of enthusiasm, of uninterrupted attention, of just appreciation of the object and advantages of recitations, are causes of irritation to be found in almost all classes. Those who possess but little love of the work of education, who regard neither the present happiness of children nor the future welfare of individuals and States, who, in short, work in the educational vineyard exclusively for dollars and cents, or because more congenial fields of labor are not immediately accessible to them, are peculiarly liable to infuse this kind of narcotic influence into all the intellectual exercises of the school.

"Don't" is more often heard in some schools than in others. "Don't whisper so much," "Don't make a noise with your pen," "Don't study out loud," etc., is the burden of the teacher's talk. In our schools there is much cheerful talk, much encouragement. We hear the teacher say, "John read that charmingly — loud and clear, and without a single stumble." "See how quietly May has been sitting; you would not know she was here." "Did you notice how carefully James came in? He shut the door so carefully that no one was disturbed." Fault-finding is not pleasing to the pupils — they get so used to it that they shut their ears to it. The teacher thinks it strange that they don't mind his "don'ts;" he is sure he puts in enough of them.

**Directions for Making a Large Putty Map.**

1. Make, or have made, of half-inch board, a wooden molding board, two feet by three feet. Paint it on both sides a light blue, two coats.
2. When dry, mark out with colored crayon or pencil the line of the continent to be made.
3. Then spread over the surface of the grand division a thin layer of putty, using the hands, putty knife and a small roller. Cut out the coast line distinctly.
4. The next day additional putty can be added to indicate the elevation, table land, etc. The long

strips of putty are put on to mark out the different prominent chains of mountains, and a cone of putty half an inch high placed in its position to illustrate the highest mountains. The mountains can be made rough with a sharp pin.

5. Now mark the courses of the rivers from mountain source to mouth with an awl, and fill the little channel with tinsel thread such as ladies use for ornamental work. The lakes and inland seas can be covered with tin foil. When the putty finally dries, these will be held in place. Different colored putties may be used to represent elevations, as on Guyot's physical maps. Red putty is considered a good color when only one color is used.

If the putty is in proper condition for setting panes of glass, it can be easily manipulated for the raised map: it does not crumble or crack, and does not need to be painted. We have a full set of these maps made by a pupil fourteen years of age. They have proved to be most valuable for teaching elevation and drainage. Each one costs about \$1.25.

The pupils may be encouraged to make small putty maps after the sand map has been introduced. They will enjoy the experiment, and some with a little help will succeed remarkably well.

Raised globes are used to a considerable extent in Germany, but they are at present too costly to be used in this country. Such raised globes could be easily and cheaply made by putting putty on a paper globe.—*King's Methods and Aids in Geography.*

#### The School Teacher in Germany.

“Teaching in Prussia is a profession, as law, medicine and theology are in America.

“The teacher receives a definite professional course of study, he has definite purposes and aims in his work, and, therefore, definite knowledge of the means to be employed by which these ends are secured. He has studied the child physically, intellectually and morally; he has studied pedagogics or the history of education; he has studied didactics, or the application of these principles to teaching; and he has taught and thus put his knowledge into actual practice. It is not surprising then that there are so many good teachers, and there is no blind guessing in the school room. The above facts account in a great measure for the general good health of the teachers and the absence of nervous worry. Where the face of the teacher usually has wrinkles, the Prussian teacher has dimples. The absence of friction and worry is quite noticeable in the school. The teachers appear to direct, and the pupils work and notice results. As already observed text books are small and but little

used; threadbare explanations are worthless, verbalism discountenanced, the child is directed to observe, to work, and then to express the results orally and on paper. The teacher believes that by simply telling or reading, there is only a communication of signs to the pupil. As the wires convey signs, signs at one end, signs at the other, but they are only signs, the benefit derived from these signs depends upon the child's ability to properly interpret them. The voice, the eye, the manner of the teacher may rouse the child, may direct him, but it gives him absolutely nothing.”

During the first school years much of the history, geography and knowledge of nature is learned in the fields. The children are taken to the field to observe and study the physical features of the country, plants, animals and minerals as they are, and then they describe what they have seen, orally and on paper.

The use of dead specimens, drawings and explanations are employed to correct, complete, fix or extend this information. In addition to this local study the teachers and pupils take journeys, which may continue a day, or even a week. On these occasions the plan is carefully sketched before they start. Everything of interest is carefully examined, and the impression noted in a book. The children make collections, sing national songs, march, act, speak and think naturally in presence of the teachers.—*Notes on German Schools.*—DR. HALL.

Our readers will observe that our summer science schools are really an outcome here of the principles which have more profoundly and universally affected the German system of teaching. Reason here as well as in Germany points out the same general road; but the Germans evidently took the road long before us, and are now quite a distance ahead.—EDITOR.]

#### The Personality of the Teacher.

No fact has been more conspicuous in every reform than that the reformers placed their work far above themselves, and were willing to make any personal sacrifice for its success. Just as in battle soldiers are led to victory by their captains, but not driven, so in social life the vicious and ignorant can only be induced to seek higher life by those who show a direct personal interest in their welfare. The life of the leader is of far more importance than his doctrine. Many a minister of the gospel who could hardly preach a passable sermon has done incalculable good to his fellow-men by his walk and conversation, and self-denying zeal in their behalf. So, many a teacher whose intellectual qualification and endowments were of the slenderest kind has proven a greater

blessing to his pupils than another much more richly gifted but selfish, by his evident devotion to the good of his pupils. It is a trite but true maxim that actions speak louder than words. It is not enough that the teacher take a mere scientific interest in those who come under his or her instruction. This is all very well; but there must be superadded to this a moral interest. This will make its influence felt in the life when much that is intellectually comprehended will be forgotten. Protestant parents are frequently warned by their better informed co-religionists against placing their children, especially their daughters, in Roman Catholic boarding schools, because of the imminent danger of their conversion to the obnoxious faith. Yet there is reason to believe that no direct efforts at proselyting are made under such circumstances. It is more probable that the kindly attitude towards, and the affectionate interest of the Sisters in, their pupils are what lead to a change of creed, for it is natural to assume that the creed of the teachers regulates their life and inspires their motives. In like manner the instructor whose teaching is only "for what there is in it" will never inspire pupils with a genuine and lasting love of learning.—*Journal of Pedagogy*.

#### Requisites of a Real Education.

In an address before the Teachers' Association of the McGill Normal School, Montreal, Prof. Wesley Mills, explaining his educational creed, assumed that the need of knowledge, or realization, is infinitely greater than the needs of expression, as witness the whole creation below man. An individual may be educated, though unable to read a sentence, write a line, or add up a column of figures. As a matter of fact, many men have become eminent among their fellows who could not do any of those things. Why has this been so? The reason is plain. These men understood the forces of nature, though they could not in all cases have stated their knowledge in our conventional forms of expression. The art and science of expression should be taught in schools, but should be subordinated to the acquisition of knowledge of things. The moral and social nature of man should receive greater attention. The teaching of religious doctrines and the observance of religious forms are not practical in the public schools, but ethics by precept and example should be prominent from the day that a child enters the school. A reverence for all kinds of truth should ever be impressed. Only one system of education—the Kindergarten—has ever met the nature of the child even fairly. The laboratory of the college is only the modified Kindergarten. Why is not the public school teaching more like one of these? Because we have mistaken

forms for knowledge and words for things, to a lamentable extent. "As our schools are now constituted, I must deliberately declare it as my conviction that they tend rather to quench than to excite a love for nature and real knowledge of things, and to disgust young minds thirsting for a contact with realities. . . . I have known children that did not go to school till seven years of age, who had prior to that learned to be good observers of what was going on around them, lose all love for natural objects after being at school a couple of years; and I do also know to my sorrow that many of the young men that enter our colleges neither know how nor care to observe. They prefer not to look nature directly in the face, but try to see her through the medium of books, lectures, etc., and for this our school system is largely responsible." One of the remedies proposed for this evil is the simplification of the too ambitious school programmes. Abstract subjects, like history and grammar, should be left for future years. They take up the time that might be devoted to developing the intelligence through cultivation of observation and stirring the mind with the results of the exercise of the senses. Childhood is not the period of life for developing abstract notions, but for acquiring concrete ones. While in the abstract it is true that a knowledge of French, Latin, Greek, etc., may help to make one a better English scholar, the idea that an amount of these languages that would be of any value can be taught to the average pupil, without the neglect of other important work, is a delusion. The school should aim to enable the child to speak and write its mother tongue readily, clearly and elegantly. This will not be accomplished by teaching English grammar or foreign languages, but by contact with good models and practice. "Time is now frittered away on so many subjects that nothing is well done, and with the most disastrous effects on the habits of the learner. Our schools are dreadfully bookish."

#### Order.

1. The teacher's desk should be an object lesson in order and neatness. It should not be a receptacle for bits of strings, marbles, waste paper, broken pencils, etc.
2. All places for storage of copy-books, etc., should be as neatly arranged as the desk.
3. The floor should be as free from unnecessary dirt at 3:30 P.M. as at 9 A.M. The floor is not to be used as a waste basket.
4. Teach the pupil how to avoid dropping ink upon floor or desks. Have all ink-spots removed daily. Do not allow them to accumulate.



5. Inspect all furniture often (daily inspection is best); notice all scratches, ink-stains, or other marks. Call the pupil to account for each injury.

6. Return crayon, as it is used, to the box; do not leave it about the room to be crumpled upon the floor, or to be slipped into a boy's pocket for the marking of fences and walls.

7. Give some care to the execution of temporary blackboard work, even though it must be hastily done. Erase such work at the close of each session. Let all work which is to remain for several days be executed in the best possible manner. These things teach much and in a forcible way.

8. Both window curtains of a pair should be uniform in position at all times. A curtain askew is not an aid to the child's education.

9. Let whatever of pictures, paints, or other ornament the room may contain, be neat and tasteful, however inexpensive.

10. The pupil's desk should contain no article not used in his work (*i.e.*, in first or second grade, lead pencils, paper, erasers, etc., are forbidden articles, since the slate only is in general use, and all pencils are kept by the teacher.

11. The pupils of the same class should be taught to arrange their books in a neat and uniform manner. Teachers should notice, often, that this is done. The pupil's desk should never be "out of order."

12. Do not allow the pupils to lay wet sponges upon the desk at any time. The place for the sponge is in the iron frame-work, during the session, and inside the desk at night.

13. See that pupils do not accumulate a quantity of waste-paper in desk or books. Papers of problems, etc., to be destroyed directly after use.—*Colorado School Journal*.

Dalhousie University has opened with the largest attendance yet. The law-school students have held their first mock parliament already. The arts' students have organized their various societies. The successful candidates at the Munro competitions are as follows: *Senior exhibitions*, \$300 each. 1, Bakin, 2, Webster, 3, Johnston, G. F., 4, Robertson. *Senior Bursaries*, \$200 each. 1, Hill, 2, Johnson, J. B., 3, Weston, 4, Miss Archibald, 5, McNeill, 6, McIntosh, D. S., 7, MacDonald, 8, MacIntosh, J. A., *Junior Exhibitions*, \$300 each. 1, Brehaut, P. E. I., 2, Fraser, Pictou, 3, Gordon, Halifax, 4, Miss Ross, P. E. I., 5, Gray, Pictou. *Junior Bursaries*, \$200 each. 1, McKay, Pictou, 2, Ross, P. E. I., 3, Miss McKenzie, Pictou, 4, Miss McPhee, Pictou, 5, Grant, Pictou, 6, Archibald, Truro, 7, Miss McDonald, Pictou, 8, Johnson, Pictou, 9, Simpson, Halifax, 10, Bigelow, Truro. In all \$6,300 (six thousand three hundred dollars).

### BOOK REVIEWS.

THE HISTORY AND STORY OF KING'S COLLEGE, OR THE UNIVERSITY OF KING'S COLLEGE, 1790-1890, by Henry Youle Hind, M. A. Pp. 119, 6 by 9 inches; cloth, \$1.50. Proceeds for the benefit of the College. New York: The Church Review Co., Halifax: T. C. Allen & Co., 124 & 126 Granville street. This is got up in good typographical form and contains many interesting historical facts selected for the purpose by the clever author, Henry Youle Hind. It will be a valuable monument to the virtues and graces of a collegiate institution which, in the pioneer age, existed for several years without a successful rival. Those were the days when the rivalry of educational institutions not under the wing of the Church were sternly discountenanced; when the Pictou Academy was doing the work but could not confer the degrees. King's College, on the other hand, degenerated in the amount of work, but reached a maximum of degree-conferring performances with the close of its century and of the volume. While this volume professes to be historical, it must be remembered that it is historical with a purpose. Witness the state of mind of the author in nearly his closing words: "It closes the hundredth year of its existence with six professors, three lecturers and one tutor" [Number of students not mentioned]. "Throughout this period, sometimes peaceful, sometimes stormy, always, until late years, uncertain, it has ever remained true to the Church, and resisted all blandishments, threats, and commands directed towards alienation. *De hoc signo regno*. It has gradually been united in closer bonds with the representatives of the Church through the Synods of the two Dioceses it now serves; and so intimate is this relationship that in an appeal bearing the signatures of the Right Reverend the Lord Bishop of Nova Scotia, and the Most Reverend the Metropolitan of Canada, dated July, 1889, the whole matter was summed up in the following unequivocal words: "All who love their church and their country must, if they will but consider for a moment, recognize the fact that the BEST INTERESTS OF BOTH IN THE FUTURE ARE BOUND UP WITH THE MAINTENANCE IN FULL EFFICIENCY OF KING'S COLLEGE." Those who would amend this eloquent conclusion by realistically reading "Windsor" for the words "their country" would sweep away at one breath much of the inimitable power of this masterly comic touch, as the curtain falls.

FIRST YEAR IN ENGLISH GRAMMAR, by Jessie McM. Anderson, teacher of English and Latin at the Cedars, Washington, D. C. Publisher, John B. Alden, New York. This is an attempt to teach English Grammar scientifically. Children are first taught to observe, then to express the result of their observation in words, and gradually to consider these words as parts of speech and combine them in sentences.

SELECTIONS FROM HEINE'S POEMS, edited with notes, by Prof. Horatio Stevens White, Cornell University. Publishers, D. C. Heath & Co., Boston. Mailing price, 80 cents. The selections contained in this neat volume embrace a great variety, and illustrate the peculiar powers of the great German poet and his masterly style.

ELEMENTS OF THE DIFFERENTIAL AND INTEGRAL CALCULUS. Method of Rates by Arthur Sherburne Hardy, Ph. D., Professor of Mathematics in Dartmouth College, pp. ix. + 239, 8 inches by 6, cloth, \$1.65. Boston, U. S. A., Ginn & Co., 1890. We have seen no treatise on this subject which puts the elements of the calculus in a more simple and elegant manner. The typographical character of the book admits of no superior among modern text books.

THE DIRECTIONAL CALCULUS, based upon the methods of Hermann Grossmann, by E. W. Hyde, Professor of Mathematics in the University of Cincinnati, Ohio, pp. xii. + 247, 8 inches by 6, cloth, \$2.15. Boston, U. S. A., Ginn & Co., 1890. What is true of the typographical style and finish of the above mentioned volume is also true of this. This is a novel treatment of that new algebraic system invented by Hamilton, and generally known as Quaternions. Grossmann's method has great generality, all results being obtained for  $n$ -dimensional space. In this volume the discussion is confined to space of two and three dimensions, and, therefore, deals with ordinary geometrical dimensions. It is probably the most popular possible presentation of this mathematical branch yet published.

HOME EXERCISE FOR HEALTH AND CURE, with 45 illustrations, translated from the German of D. G. R. Schreber, M. D., (23rd edition), by Charles Russell Bardeen, pp. vii + 91, 6½ by 4½ inches; cloth. Syracuse, N. Y.: C. W. Bardeen, publisher, 1890. The object of this work is stated to be "to furnish physicians, patients, parents, educators, and weak persons of every condition of life with a costless, easily understood and perfectly practical system of individualized bodily exercise for the cure of many diseases, for strengthening and developing the body; for preserving health and vigor till ripe old age; in short to bring to the notice of everyone a means of health within himself." It is certainly a most practical little book, more than usually interesting on account of the exact physiological effects described as the object of each kind of exercise.

A POCKET HAND-BOOK OF BIOGRAPHY, containing more than ten thousand names of celebrities in every sphere of human action, showing their nationality, rank or condition, profession or occupation, the dates of their birth or death, etc. Compiled by Henry Frederic Reddall. Pp. 263; 4 by 6 inches; cloth. Syracuse, N. Y.: C. W. Bardeen, 1890. Generally one line to each name, ending with dates of birth and death, forming a double column of dates on the right margin of the page. *A multum in parvo.*

THE ANNALS OF TACITUS, I. VI., by the late W. F. Allen, Professor of history in the University of Wisconsin. Mailing price, \$1.65. Publishers: Ginn & Co., Boston. This volume is the latest in the College series of Latin authors published in such excellent form by Messrs Ginn & Co. In the volume before us are presented the first six books of the Annals of Tacitus. The Annals are regarded as the masterpiece of the writings of Tacitus. The ample introduction presents a life of Tacitus, an estimate of his language and style, a discussion of the characters treated in the Annals, and the constitution of the Roman empire at the

time Tacitus wrote; and the excellent notes condense the rich stores of illustrative material derived from a long and concentrated study of Tacitus by modern scholars.

RECOLLECTIONS OF GEN. GRANT is a neat little brochure of 100 pages, by G. W. Childs, editor of the *Public Ledger*, Philadelphia.

PRIMER OF BOOK-KEEPING, by J. Thornton. London: MacMillan & Co.; and New York. This is an exceedingly simple and excellent introduction to book-keeping, with the object of assisting and encouraging the intelligent study of its principles in schools and families.

BUNYAN'S PILGRIM'S PROGRESS. One of the series of Classics for children. An excellent abridgment by Montgomery of Parts I. and III. Board, 7 in. by 5 in., pp. vii. + 119, good print, 35 cents. Ginn & Co., Boston, U. S. A., 1890.

A FIRST READER. One of the series, Stepping stones to Reading, by Anna B. Badlam, Principal of Training School, Lewiston, Maine. Makes use of phonic aids and illustrations, with script exercises. Board 7 in. by 5 in., pp. xiii. + 159, beautiful print, 35 cents. D. C. Heath & Co., Boston, U. S. A., 1889.

PLANE AND SOLID GEOMETRY, with numerous exercises, by Edward A. Bowser, LL.D., Professor of Mathematics and Engineering in Rutgers' College. A capital book, in line with modern improvement. Contents: pp. 1-13, Introduction. Book I., Rectilinear figures, 54 pp. Book II., The circle, 62 pp. III., Ratio and proportion, similar figures, 49 pp. IV., Areas of polygons, 28 pp. V., Regular polygons: The circle; Maxima and Minima; 42 pp. VI., Plane and solid angles, 37 pp. VII., Polyhedrons, 53 pp. VIII., The sphere, 30 pp. IX., The three round bodies, 25 pp. Each of these books is subdivided with admirable analysis and order. The demonstrations are expressed in extremely concise form, and a great number of exercises are given on each subject. We would estimate that the same mathematical knowledge and power might be acquired from this book in at least two-thirds of the time it would require from Euclid's classical text. Cloth, 7 in. by 5 in., pp. vii. + 393, good paper and print. D. VanNostrand Company, 23 Murray and 27 Warren streets, New York, 1890.

ABEILLE *par Anatole France*, edited by Chas. P. LeBon, Boston. D. C. Heath & Co., publishers. This is a series of delightfully told stories, suitable for French learners, but the maturer students of French will find the humor contagious and the style pleasing and simple.

A PRACTICAL DELSARTE PRIMER. C. W. Bardeen, publisher, Syracuse, N. Y. This is a compendium stating briefly the principles of the Delsarte system of elocution, and may be used as a manual and drill book by students.

SIDNEY'S DEFENSE OF POESY, edited, with introduction and notes, by Professor Albert S. Cook, of Yale University. Published by Ginn & Co., Boston. Students of English

will welcome this admirable essay, which for pure and simple style, eloquence and aptness of illustration has no superior in English literature. In the bright, fresh pages before us, accompanied with the useful notes of the editor, there is a greater inducement than ever to read this master-piece.

**SOUTHBY'S LIFE OF NELSON**, edited, with introduction and notes, by Michael MacMillan, B. A., Oxonia, Professor at Epiphany College, Bombay. London, MacMillan & Co., and New York. This is one of the most stirring biographies and sketches in the English language. The admirable manner in which it has been edited, with its clear explanations, its plates showing the position of the opposing fleets at the battles of the Nile, Copenhagen, Trafalgar (which could be easily reproduced on the blackboard), would make this an adjunct in the hands of the teacher, to give a new life to the history lesson, especially as a Friday afternoon exercise.

#### BOOKS RECEIVED.

**TEXT BOOK ON GEOLOGY; GEOGRAPHY OF INDIA.** Publishers, MacMillan & Co., London and New York.

**FRENCH GRAMMAR.** D. C. Heath & Co., Boston, publishers.

**HAND-BOOK OF LATIN WRITING; SYNOPSIS OF ENGLISH AND AMERICAN LITERATURE.** Ginn & Co., Boston, publishers.

**PROGRESSIVE FRENCH READER.** Drysdale & Co., Montreal.

**SIXPENNY ATLAS.** W. & O. K. Johnston, Edinburgh and London.

**POSTS VOLAPUK GRAMMAR.** Mattapan, Mass.

**KING'S COLLEGE CALENDAR.**

#### Exchanges.

The *American Geologist* of September among other interesting articles has one by George M. Dawson, Assistant Director Geological Survey of Canada, on "glaciation of the northern part of the Cordillera, with an attempt to correlate the events of the glacial period in the Cordillera and great plains." It is of special interest to Canadian geologists. The *American Naturalist* of August has the very interesting article on "History of Garden Vegetables," continued, and a good review of "Gouldes and Thompson on Evolution of Sex." The *Monograph* has had some interesting articles on fresh water sponges by E. Potts, Esq., of Philadelphia.

#### Special Notice.

We are daily revising our subscription list, and with a view that no subscribers name may be left off the new list, we send a memo. circular to each one by arrears, stating the amount of indebtedness due June 1890. We have fixed this date in order that subscriptions may begin with the new year in July. Those who have not received bills will remember that payment to the Review was made in advance. This is satisfactory to us, so we do not accept arrears. Our bills for past years, the Review will pay. They are not promptly paid, and our subscribers are not to be troubled in future, as in the past, by non-payment. Please answer this notice, if at any time you have arrears, send a post card stating when they are paid, so that your name may be retained on the list.

AT

**HALL'S BOOK STORE,  
FREDERICTON,**

ALL THE

**BOOKS**

Used in the Normal School, University of New Brunswick, Acadia College, Mount Allison College.

#### BOOKS FOR TEACHERS

See also a list of books for sale at the University of Education, Fredericton, N. B., and at the University of New Brunswick, Fredericton, N. B.

AND A FULL STOCK OF

**GLOBES, MAPS, BALL FRAMES,  
ARTISTS MATERIALS, SLATING.**

Books ordered from England and the United States when required.

## McGILL UNIVERSITY, MONTREAL.

The Calendar for the Session of 1890-91 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 Sept. 15th 1890.

**DONALDA SPECIAL COURSE FOR WOMEN**—Sept. 15th.

**FACULTY OF APPLIED SCIENCE**—Civil Engineering, Mechanical Engineering, Mining Engineering, and Practical Chemistry. Sept. 16th. Increased facilities are now offered in this

Faculty, by the erection of extensive workshops, which will be ready for the session.

**FACULTY OF MEDICINE**—Oct. 1st.

**FACULTY OF COMPARATIVE MEDICINE AND VETERINARY SCIENCE**—Oct. 1st.

**FACULTY OF LAW**—Oct. 1st.

**McGILL NORMAL SCHOOL**—Sept. 1st.

Copies of the Calendar and of the Examination Papers may be obtained on application to the undersigned.

Address McGill College.

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

# GINN & COMPANY

— INVITE ATTENTION TO —

## ALLEN & GREENOUGH'S LATIN SERIES.

Grammar, Caesar, 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 *far in advance* 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'Onge, University of Michigan.

## 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.

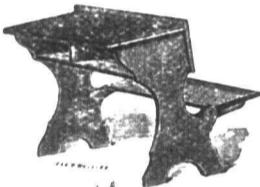
Also many other valuable text books described in our full Catalogue, which is sent free on application.

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

## SCHOOL FURNITURE!

### SCHOOL DESKS AND SEATS

Hardwood, Double,  
\$3.00 each.



### TEACHERS' DESKS FROM \$6

UPWARDS.

Write for prices and description.

Mention this paper.

The best School Desk in the market for the money.

C. E. BURNHAM & SONS, Saint John, N. B.

## THE ODELL TYPE WRITER.

\$20 will buy the ODELL TYPE WRITER with 18 characters, and \$15 for the SINGLE CASE ODELL warranted to do better work than any machine made.

It combines simplicity with durability, speed, ease of operation, wears longer with out cost of repairs than any other machine. Has no ink ribbon to bother the operator. It is neat, substantial, nickel plated, perfect and adapted to all kinds of Type writing. Like a printing press, it produces sharp, clean, legible manuscripts. Two to ten copies can be made at one writing. Any intelligent person can become an operator in two days. We offer \$1,000 to any operator who can equal the work of the DOUBLE CASE ODELL.

Reliable agents and Salesmen wanted, Special inducements to Dealers.

For Pamphlet giving Indorsements, etc., address

ODELL TYPE WRITER CO.,  
85 and 87 5th Ave. CHICAGO, ILL

## FRANCIS & VAUGHAN, WHOLESALE & RETAIL Boot & Shoe Manufacturers,

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

## THE Ingres-Coutellier Schools

— OF —  
MODERN LANGUAGES.

Toronto, Ont., Hamilton, Ont.,  
Ottawa, Ont., Winnipeg, Man.,  
St. John, N. B., Halifax, N. S.  
London, Ont. Woodstock, Ont.  
Brantford, Ont. Kingston, Ont.  
Brockville, Ont. Grimsby, Ont.  
Charlottetown, P.E.I. Fredericton, N.B.  
Truro, N.S. Moncton, N.B. Yarmouth, N.S.

TRIAL LESSONS FREE.

## NORMAL SCHOOL,

Truro, Nova Scotia.

The next Annual Session of this Institution will begin on

Wednesday, Nov. 5th, 1890.

For Calendar and any information required, apply to the undersigned

J. B. CALKIN,  
PRINCIPAL.

## CHROMO REWARD CARDS.

Over 1,000 new pretty designs of Landscapes, Flowers, Bunnets, Vases, Ensigns, Shields, Crescents, Juveniles, Bells, Scenes, Views, Fruits, Balloons, Ships, Animals, Birds, etc. Prices for 12—size 2 1/2 x 4 1/2 inches, 10c—3 1/2 x 5 1/2, 15c—4 1/2 x 6 1/2, 25c—5 1/2 x 7 1/2, 35c. All pretty cards no 2 alike.

Fringed Chromo Cards—with silk fringe and tassels, price each, 2 1/2 x 4 1/2 inches, 4c—3 1/2 x 5 1/2, 6c—4 1/2 x 6 1/2, 8c—5 1/2 x 7 1/2, 12c., no two alike. Excellent for Rewards, etc.

New School Aids—Each set contains 136 large pretty Chromo Excelsior, Merit, and Credit cards. Price, 50c.

Alphabet Cards—59 large plain capitals, small letters and numerals printed on 300 cards 1/2 inch square. 20c.

Reading Cards—16 cards 6x9 inches, 32 pages pleasant new stories for First and Second Reader scholars. 12c.

Drawing Cards—14 different easy drawing patterns on 24 cards, size 3 1/2 x 5 1/2 inches, 30c—36 patterns, 50c.

Drawing Stencils—2 different perforated patterns of animals, birds, flowers, etc., on cards 4 1/2 x 6 1/2 inches, 30c.

School Reports—Arranged for 1, 2, 3, 4, 5, & 6 months for any school, card board, 12 for 10c; paper, 12 for 6c.

Song Book—Merry Melodies, contains 48 large pages best school songs for all grades, manilla covers, 15c.

School Speaker—100 pages best Pieces, Recitations, Motion Songs, for children 6 to 12, or 12 to 16 years. 15c.

School Dialogues—120 pages best Dialogues for all kinds Entertainments, for ages 8 to 12, or 12 to 16. 25c.

School Entertainments—116 pages best Recitations, Dialogues, Tableaux, Charades, Concert Pieces, etc. 25c.

Teachers' Examiner—New edition, contains 400 pages and over 5,000 important Questions with Answers on all the different branches of school studies. It is the best book for teachers who wish to prepare for examination. It will carry you through. Cloth bound. Price, \$1.50.

New Price List Chromo Reward Cards, Gift Cards, Gift Books, Teachers' Books, School Supplies, and few samples Chromo Reward Cards free. All postpaid by mail. U. S. postage stamps taken. Please address, A. J. FOUCH & CO., WARREN, PA.

## S. R. FOSTER & SON, MANUFACTURERS OF Cut Nails and Cut Spikes, Tacks, Brads, Finishing Nails, Shoe and Hun- garian Nails, Etc.

Office, Warehouse and Manufactory,  
GEORGES STREET, - - - ST. JOHN, N. B.

## JUST RECEIVED: Sponges, Toilet Soaps, Brushes, Perfumery, Tooth Preparations, Toilet Articles, Patent Medicines, etc., etc.

WILLIAM B. McVEY,  
Dispensing Chemist,  
185 UNION ST., - - - ST. JOHN, N. B.



## 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 Rugs, 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, Doylys, 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.

A. & J. HAY,

Dealers in Diamonds and Pearls, French  
Clocks, Fine Jewelry, American & Swiss  
Watches, Plated Ware, Spectacles  
and Eye-glasses a specialty;  
Wedding Rings.

JEWELRY MADE TO ORDER AND REPAIRED.  
76 KING ST., ST. JOHN, N. B.

CLIFTON HOUSE,

27, Princess of Wales Street,  
SAINT JOHN, N. B.

A. N. PETERS, Proprietor.

Telephone Communication. Heated by  
Steam throughout.

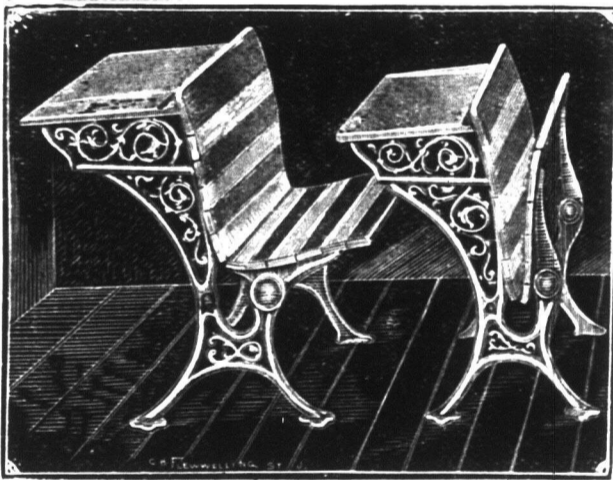
JAMES S. MAY

W. ROBERT MAY

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

58 Prince Wm. St.

P. O. BOX 22  
ST. JOHN, N. B.



## Paragon School Desk,

WITH FOLDING SEAT.

No. 2, height Seat 17 in., Desk 29 in.

No. 4, height Seat 14 in., Desk 25 in.

MANUFACTURED BY

**RHODES, CURRY & CO**

AMHERST, N. S.

## 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 \$120.

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.