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DOUBLE NUMBER.

The Educational Review.

Devoted to Advanced Methods of Education and General Culture.

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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.

TO OUR READERS.

READER, a word with you. The REVIEW is in its fourth year. It has successfully passed its second and third years—fatal periods for less enterprising periodicals. Its circulation has gone from the hundreds into the thousands—slowly but steadily. This special edition numbers FIVE THOUSAND copies, and will have, it is safe to say, FIFTY THOUSAND readers, chiefly in the Atlantic Provinces of Canada.

Of the five thousand teachers collectively in Nova Scotia, New Brunswick, Prince Edward Island and Newfoundland three-fourths should be subscribers to the REVIEW. This leaves a very liberal margin of those who may prefer other educational papers, or of those who do not take any educational paper, and whose only ambition is to get out of the profession

as soon as possible or to linger in it with imperfect methods or no methods at all.

We have been modest in setting forth the claims of the REVIEW. That it has claims upon our teachers for their support cannot be denied. It is published for Atlantic Province teachers and in their interests.

We have two requests to make of our readers: First, will those who receive a copy of the September number enrol themselves as subscribers, if they have not already done so. If you do not wish to subscribe hand the copy sent you to some one who may wish to become a subscriber. Do not return the copy. We have no use for it. Secondly, will those who are already subscribers pay no attention to the circulars enclosed unless they are in arrears.

The testimonials that we receive every week from our best teachers show that the REVIEW has already become a power in our educational development. With the plans we have in view for its further improvement this year, it should receive increased support. It costs eight cents a month. Can any teacher afford to be without it at that price?

Without an organ of inter-communication there can be first, no community of thought or sentiment; and secondly, no harmony of action. And under what more favorable circumstances could a paper for the teachers of these provinces exist than the REVIEW holds at present? Its editors and proprietors are as independent of the governments and government officials of the various provinces as it is possible for men to be. They are also engaged in the active work of teaching, and in that respect no sounder condition can be imagined. Yet there are some counties in which but comparatively few of our teachers have yet found out the necessity of maintaining such an organ, and are probably not aware of its existence. This number we hope all without exception may see.

But it may be retorted, you are independent of the government and are practical teachers, why then have you not hurled thunder-bolts at the governments of Nova Scotia and New Brunswick for cutting down the provincial grant to teachers while the members increased or kept at their former figure their own salaries? For two reasons: We have been waiting for the governments to see the pettiness of the reduction made and, man-fashion, make restitution; second, we have been waiting for a united sentiment on the part of our teachers — a spirit of action, not a tameness that makes them always a target for the pruning process.

There should be more of an *esprit de corps* among our teachers, a spirit born of firmness and resolution to stand up for what is just and substantial; and that may mean an increase of salary and it may mean an energetic and dignified insistence upon what is just and proper to a profession that should have very strong claims upon society. And if some teachers do not care at all for their rights and decline to insist upon them perhaps they are not to be pitied if they suffer not only a reduction of the grant but a total annihilation of it. But such a tame and doing-nothing policy causes both a direct and indirect injury to the unselfish and qualified teachers in the profession. If such a policy characterized our teachers to any extent, we repeat it, they would deserve to be despised and docked of salaries and privileges without any consideration whatever. But we belong to a profession that numbers in its ranks men and women of character and standing, and their influence should be exercised with more directness and energy. The aim of the REVIEW has always been not to foster a spirit of discontent that will vent itself in grumbings, but to arouse a greater respect for the profession of teaching, and keener sympathy and more united aims of those engaged in that profession.

When teaching is entered upon as a life work; when men and women, properly qualified, undertake the work with an unflinching purpose to succeed, then success will be certain. But the aim must be high, a high value must be set upon the office of the teacher. At the outset, they must realize that intelligence, tact, industry, faithfulness, are just as certain of rewards in this as in other professions. When this is fully realized, the public will not be slow to yield a more ample recognition and greater material benefits.

EDITORIAL NOTES.

THE University of New Brunswick will open on the first of October with a strong faculty, and, for the first time in its history, with four classes of undergraduates. Prof. A. W. Duff, who sailed from Liverpool on the 2nd of September, will deliver an inaugural address on the utility of a chair in experimental physics, which chair he will occupy at the University. The Senate instructed him to purchase, before leaving Liverpool, \$500 worth of apparatus for his department. Prof. Stockley, of the department of English and modern languages, has been given leave of absence for one year to engage in literary work, which, it is understood, is the editing of Moliere's Plays, to be published by a New York house. Prof. Douglas Hyde, LL.D., of Trinity College, Dublin, will occupy Prof. Stockley's chair the coming year. Dr. Hyde is a distinguished scholar, having been highly recommended by Professor Dowden of Dublin University, the celebrated Shaksperian scholar. Dr. Hyde was senior moderator and gold medalist in English and German, first honor man in French, Vice-Chancellor's prize-man in English prose and verse in 1887.

THE very pleasant relations established between the teachers of New Brunswick and Nova Scotia at the recent session of the Summer School of Science at Parrsboro has caused the management to decide to give the school an inter-provincial character in future. The next session will, no doubt, witness a large increase in the membership, both from New Brunswick and Nova Scotia.

THE New Brunswick normal school opened on the first instant with an attendance of nearly 200. The Nova Scotia normal school will open on the first of November. See the advertisement in another column.

WE would like to draw the attention of our readers to the books advertised in this number of the REVIEW. In justice to *all* the publishers who advertise with us, we have hitherto made it a point not to make special editorial mention of any *one* firm to the exclusion of the others. In this number we see many books advertised from which we know our teachers would receive many new ideas and great practical benefit. We invite them to scan closely the advertising columns, and then *act*. One of the most successful teachers in these provinces to-day is one who, at the outset of his career, was forced to practise the most rigid economy. But he never denied himself books. Whenever he saw a notice of a book which he thought

would help him in teaching he procured it, and to-day he is reaping the reward of his wise self-sacrifice.

WE will begin in the October number a series of papers on methods and appliances for teaching chemistry, by Mr. John Brittain, teacher of natural science in the New Brunswick normal school. The excellent work that Mr. Brittain is doing for natural science will tend to increase the interest and value of this subject throughout the provinces, and we are sure the teachers both of Nova Scotia and New Brunswick will heartily welcome the series of articles from his pen.

Many educational journals of the United States circulate freely in the Atlantic Provinces, and to the best of them we give a cordial welcome. The EDUCATIONAL REVIEW numbers among its subscribers some influential teachers across the border. We are quite sure that they appreciate the REVIEW as highly as do the teachers of the Atlantic Provinces; and to give others an opportunity to make the acquaintance of our journal, we send this number to nearly two hundred leading teachers in New England.

THE academies, high schools or grammar schools of Newfoundland while not under a uniform management, as in these provinces, are turning out superior scholars, as is evidenced by the success of Newfoundland students abroad. Some of these institutions have a staff of instructors which would compare more than favorably with some degree-granting colleges we know of on this continent.

THE educational display at the approaching exhibition to be held in St. John this month will probably be the most complete and extensive ever shown in New Brunswick. The schools of St. John, St. Stephen, St. Andrews, St. George, Fredericton, Woodstock, Moncton, Newcastle, Chatham, Douglastown, Hampton, Sussex, Elgin, Alma, and other places, will exhibit work, and the educational department will be one of the most attractive features of the exhibition.

THE Prince of Wales College and Normal School, Prince Edward Island, was opened for the session 1890-91, on 25th August. The number of students in attendance is even greater than in previous years—138 having been enrolled. In future, botany and agriculture will be added to the subjects of examination for entrance, and papers of greater difficulty and wider scope will be set in English, Latin, and algebra. An advanced examination will also be held of those candidates who do not rank as second-class teachers but desire to study for first-class license in algebra, geometry, Latin, and French, as far as is

required of those who compete for second-class license. Mr. A. E. Shuttleworth, B. Sc., McGill, and a graduate of the Agricultural College, Guelph, has been appointed to the Prince of Wales College. Besides being professor of agriculture he will also be instructor in chemistry and physics.

PROFESSOR CHAS. G. D. ROBERTS, of King's College, N. S., has been engaged in translating a story of the fall of Quebec—*Les Anciens Canadiens*—by Philip Aubert de Gaspé. The story is full of interest, with strong local colorings, which the genius of Prof. Roberts will reproduce in the translation. The book consists of about 200 pages, and will be published by the Appletons of New York.

THE prospect of the year's work at Acadia College, and the academies at Wolfville, are of the most encouraging character. With so many knocking at the doors of these and similar institutions, the prospects for higher education in these provinces were never better.

IN spite of the fact that eight extra pages are printed with this edition of the REVIEW, making thirty-two pages in all, we are obliged to hold over matter that should appear this month.

THE Sackville Institutions have re-opened with a large number of students and with increased facilities for improving upon the work of previous years.

THE P. E. I. Educational Association will be held at Charlottetown on the 2nd and 3rd of October. As will be seen by the advertisement in another column the programme is an excellent one. The indications are that educational work in the Island is making rapid advances, and we hope the success of the approaching meeting will amply verify these signs.

CANADIAN EDUCATIONAL CONVENTION FOR 1891.

The American Institute of Instruction, Ray Greene Huling, president, will hold its next meeting, beginning July 6th, 1891, probably upon the mountains of New Hampshire; the National Educational Association of the United States will assemble about a week later, probably July 13, at Saratoga. Would it not be well to hold a Canadian convention of teachers, to begin a week later, July 20, say at Montreal or Toronto?

The project of a Canadian educational convention has been frequently hinted at in the last few years. There would be many advantages arising from a meeting of the teachers of Canada—a meeting for introduction, at least. We know little or nothing of our fellow-teachers in Ontario and Quebec or the educa-

tional work of those provinces. Such a convention would bring together the teachers of the Dominion for the exchange of ideas and comparing notes on the different systems of education: it would widen the current of thought and enlarge the mental horizon of our educationists; it would give an opportunity to those teachers of eastern Canada who have sought their fortunes in the far west to pay a visit to their old homes; finally, it would be in line with the other meetings named above and give an opportunity to those who wished to do so to attend, at a moderate expense, all three meetings.

Let the beginning of the last decade of the 19th century be signalized by breaking down some of those barriers which have so long kept our teachers sectional and, therefore, narrow.

The following letter from Mr. Ray Greene Huling will be read with interest. Mr. Huling attended the Inter-provincial convention in St. John in 1888, and many entertain very pleasant recollections of his visit, not only on personal grounds but as the representative of the influential educational association of which he is now the president:

I am sure that all who participated in the delightful Inter-provincial Convention of 1888 will be glad to welcome the suggestion, now in the air, of a Canadian Educational Convention in 1891. And if that assembly should convene at Montreal, the National Educational Association at Saratoga, and the American Institute of Instruction in the White Mountains of New Hampshire, as is possible, what a veritable feast of good things the summer of 1891 will have in store for the lovers of educational progress in North America! It will need but a wise selection of specific dates, and liberal terms on the part of railroads and hotels, to give all three meetings a large and enthusiastic attendance from both sides of the line. For one, I shall take great pleasure in promoting within New England a hearty interest in the proposed gathering from all Canada. Nothing less would be a suitable return for the many kindnesses received by me in the Maritime Provinces three years ago.

Let me now say a word about the American Institute of Instruction. You know we claim that it is the oldest association of teachers with a continuous history in the world. Its first meeting, in the summer of 1830, was a remarkable gathering at Boston of more than three hundred friends of education from eleven different States, from Maine to South Carolina. Every summer since has seen a similar assembly for three or four days discussing themes of supreme interest at the time to the immense advantage of education in the States. Over four hundred speakers, some of them the ablest thinkers on education in the land, have given their best efforts to the institute, and naturally the influence of his organization has been widely pervasive and efficacious for good. Leaders in education and in society have been glad to serve it as officers and lecturers, and each rising generation of teachers offers loyalty to this mother of educational associations, with her crown of three score years. It

is a peripatetic body, going hither and yon over all New England, with an occasional journey into New York, and thus it has scattered its beneficent influences through every nook and corner of the New England States, whence with the migrations of the restless Yankee they have spread to the South, to the West, and even to the Pacific slope. Ever since the formation of the National Educational Association, with its splendid gatherings of thousands, the older body has lost nothing of the love of the teachers within the former area of its meetings. The larger meetings of the larger association, perhaps, by a well known arithmetic, divide less of profit to the individual listener than the more familiar gatherings of the American Institute, in which heart draws very close to heart, and the experience of the older teachers comes into most helpful contact with the enthusiasm of the younger. "The meetings of the Institute are the best of the year" is a very frequent comment among observing teachers.

The attendance at the meetings has varied within the last dozen years from 500 to 2,300, which can only by comparison be deemed small. There is usually a rivalry among places seeking the coming of the meeting, and many kind attentions are shown by the residents. Reductions in railroad fares and in hotel rates are freely made; thus the long journey and the stay of three or four days are brought within the means of teachers with limited salaries. At the meetings themselves, the mornings and evenings are devoted to the discussion of educational subjects, while the afternoons are left free for rest and recreation. Membership, which costs but a dollar a year, opens the way to all the reductions of fares and other privileges of the meeting.

It is impossible to state just now when and where the next meeting will occur, as those matters will be definitely determined at a directors' meeting in January; but custom in recent years practically fixes July 6th, 7th, 8th and 9th as the dates for the meeting of 1891. As to place, there is a sentiment in favor of some point in the White Mountains, and it is certain that it will be within easy reach of Montreal and Saratoga. Wherever it shall be, I can promise the presence of some of the ablest speakers in New England and, besides, I am not without hopes of drawing a few from your own preserves across the border.

Let me extend, through you, to the teachers and friends of education in the Atlantic Provinces and all Canada a hearty invitation to visit us next summer and enjoy to the full the pleasures of a meeting with the American Institute of Instruction. Cordially yours,

RAY GREENE HULING.

New Bedford, Mass., August 18, 1890.

FRENCH ACADIAN CONVENTION.

From the excellent reports in *L'Evangeline*, we are able to cull a few items of specially interesting educational import in the action of the great French Acadian Convention, held on the 13th, 14th and 15th of August at Church Point, Digby County, Nova Scotia. Over 2,500 were in attendance, representing the provinces of Canada specially; but having representatives also from Quebec and the United States.

RESOLUTIONS ADOPTED BY THE CONVENTION.

1. The Acadian Convention decrees that it is desirable that in all our schools, whether primary or secondary, academies or colleges, convents or boarding schools, the English language be taught concurrently with the French, but as far as possible the language of teaching should be French.

2. The Convention humbly desires to draw the attention of the authorities, both religious and lay, to the fact that there exists in Nova Scotia and Prince Edward Island a great number of localities altogether French, in which French is not taught in the educational institutions; that this state of affairs is very prejudicial to the best religious and material interests of the Acadians; that it is desirable to remedy this ill by encouraging the teaching of French to all the Acadians without prejudice to the teaching of English or any other languages.

3. The Convention regrets that in a great number of our convents, principally in the counties of Digby, Yarmouth and Richmond, the French language is either not taught or but imperfectly taught. This state of affairs is seen in the centres where the majority and even all the children and parents are French. We desire to respectfully attract the attention of competent authority to this regrettable deficiency.

4. The general committee invite the Acadians of the Maritime Provinces to keep, each year as a holiday, their national festival in each French settlement, and whereas, thanks to God, we become Catholics as we become French, the celebration of the holy sacrament of the mass should in all cases enter into the programme.

5. The next Acadian Convention will be held in Cape Breton, at the place and date chosen by the committee of organization duly convened.

His grace, Archbishop O'Brien, was not present in person. We translate the closing portion of his letter to the Convention, referring to the language question.

"One word on the question of language. Is it true that our Acadians should study and cultivate the French language. However, we do not hesitate to say, that he who places an obstacle in the way of the learning of English cannot be considered a true friend of the Acadians. He who will not recognize the utility of the English language for the Acadian people can only be either a man wrapped in prejudices or one who cannot see beyond the hills of his own village. The affairs of this country are conducted in English, as are also those of the United States. And as a consequence a commercial English course is a first necessity for the young Acadian if he wishes to succeed in the commercial world.

Those who are convinced of this fact, and who are not afraid to avow it, in striving to inculcate their idea into the minds of those whom they should benefit, whether it is agreeable or not, are the true guides of the people and their true friends; and not those men of narrow mind and oblique view who appear to think that it is sufficient for the Acadians in order to become great and prosperous to know the French language.

As for you, gentlemen, you will raise yourselves above these infantile views, and will consider the realities of life. You will regard such notions as unworthy of the attention of serious men. You will act on this question as you would if one asked you to select the pattern or color of a piece of cloth."

NEWFOUNDLAND SCHOOLS.

The statistics of the Newfoundland schools for the year ending June 30, 1889, are before us in three pamphlets. The report of James J. Wickham, superintendent of Roman Catholic schools, contains 105 pages; of William Pilot, superintendent of the Church of England schools, 86 pages; and of George S. Milligan, superintendent of Methodist schools, 86 pages. They are extremely interesting from a Canadian point of view; but we cannot attempt at present more than giving a summary note or two from them:

	Schools.	Teachers.	Male.	Female.	Average No. registered each quarter	Boys.	Girls.	Teachers' salaries.
Roman Catholic	188	193	58	125	7073	4017	3056	21,149.66
Ch. of England	179	177	105	72	6857	3699	3158	29,811.52
Methodist	135	131	48	83	5762	3112	2650	30,803.40
Total	502	501	211	290	19692	10828	8864	\$71,764.58

From this it can be readily seen that so far as salary is concerned our fellow workers in the ancient colony are not so well off as ourselves. This point is forcibly alluded in the reports. There is improvement however along the line. Arbor day has been duly observed, as with us.

Would it not be a capital idea for the teachers of Newfoundland to meet in convention once a year, and in order to receive the greatest benefit possible, should not all the three classes of school teachers meet together. If such an institution were modelled after that of Nova Scotia, in which the Superintendent of Education is *ex-officio* president, it might be modified in Newfoundland by a constitution making each of the three Superintendents President in turn, beginning with the senior in office, the other two being vice-presidents when not president. Superintendents make good presidents of teachers' conventions for more than one reason. They are in virtue of their position intermediate between the teachers and the government, and therefore give the most direct information from one body to the other whenever required. They will be interested in preventing any extreme measures taken which would react injuriously on the relations between teachers and the government, so that convention work is more likely to be guided judiciously under them, producing the minimum of irritation with a maximum effect.

As we hope the EDUCATIONAL REVIEW may become the acknowledged organ of all the teachers of Newfoundland, we should be glad to have concise expression of views from them on this or other matters,

Mission of the Kindergarten.

No one can live in a large city without having thoughts severely exercised by the condition of the poor. What can be done to alleviate their condition? What especially can be done for the little child who is early sent out to beg or to earn a pittance—the street waif? During the last century there arose one who was able to offer a solution to this problem. His keen insight discovered the secret that the elevation of humanity is dependent on education. That this education must begin with the first dawns of life. He devoted long years to the study of child-life, and finally came to the conclusion that the most important period in human education is before the child attains his seventh year. He realized the influence, on the whole of the after life, of the tone and bent given to these early years. Having himself experienced the weary longing of an unsatisfied, neglected childhood, he was not content to let the pain of this experience vanish without at least trying in some way a means to satisfy and develop the craving and instincts of child nature.

It was no easy task to which he devoted himself, but with this object in view, he was not content to pass through life, quietly, safely and creditably, as might have been consistent with mere reputation, but he sought to prove himself a good man and true; to acquit himself like a hero. The children of all future generations will rejoice that *Frobel* ever lived.

In establishing the Kindergarten he provided a place where the little human plant may be cultured, where all the needs of child-nature can be supplied. With every healthy child the brain is busy, the body active, and if proper work is not given for both to do, it will seize upon whatever comes near. In the Gifts and Occupations of the Kindergarten, Frobel provided for this phase of child-nature, giving it work it can do and enjoy. When it sees the result of its work in the structure of blocks it has erected, or in the mat it has woven, it learns by experience that labor and self-exertion alone give happiness. The social element in the child's nature is satisfied by meeting with children of its own age and attainments, and in the games and songs it finds an outlet for the exuberance of young life which will manifest itself in play.

While with the object lessons and the various devices for drawing out the child's powers of observation, these powers are quickened to such an extent, that the world ever after is richer and brighter.

We suffer, all of us, from the limitation of the insight which would open our blind souls to myriads

of happy impressions. One of these forlorn, neglected little beings comes into the Kindergarten. He has been accustomed through the years of its baby-life to disorder and dirt, to the jarring sounds of harsh voices, to unkind words and rude acts. He has begun to feel somehow there is no place for him in the world, that he is always in the way in the poor room he calls his home. His overworked or dissipated parents think they have fulfilled their duty if they give him sufficient food to keep him from starving, and he is sent into the streets to find what employment these haunts afford for the busy little fingers and the growing brain.

The Kindergarten is to him a new world. Here he feels that interest is taken in him personally. He feels instinctively the elevating effect of order and cleanliness, he comes under the influence of that powerful agency, which perhaps he has never felt before, the influence of love. We have seen the lip quiver and the eye fill with tears, when instead of the harsh reproof and the sharp cuff to which he has been accustomed, a hand has been softly laid on the shoulder, and kind words have fallen on his ear. His rough exterior and ragged garments cannot conceal the fact that under it all there is what the highest and the lowest alike possess, the yearning, struggling, rejoicing, sorrowing, human heart.

In the Kindergarten his busy brain is supplied with food for thought, in the pretty stories and object lessons given by the teacher, his ear is pleased with the bright and cheery songs, and his hands are employed with work, which he soon learns to love and take an interest in.

In the plays of the kindergarten, while they please and delight, he is brought into such relations with other children that all the principles which govern society are brought into action.

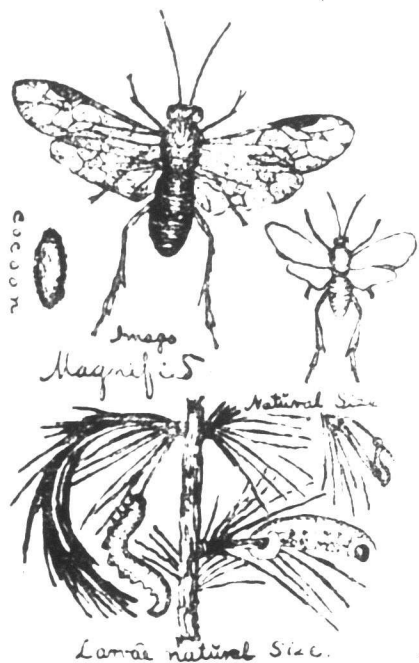
He learns to respect the rights of others, and to respect himself; and through it all, through the work and the play and the lessons, he feels the influence of the law, he learns that by following a principle he will surely come to a certain result, and that law, not accident, rules in everything.

So we hope by the daily work of the Kindergarten to counteract the evil influence and the disadvantage under which these city waifs have been born, and to give them at least a fair chance of developing into useful and respectable citizens.—*E. J. Jameson, New York.*

Manual work, whether in paper, in clay or in wood, if duly accompanied with measurement training to a sense of proportion and beauty, would become a most valuable educational instrument.—*Dr. J. G. Fitch.*

FERNDALE NOTES.

TEN YEARS FROM BOSTON TO HALIFAX.

The Larch Saw Fly (*Nematus Erichsonii*, Hartig.)

Walking through the Young memorial gate into the beautiful park of which Halifax has good reason to be proud, about the commencement of the holiday, we looked at the fine larch trees among the spruce and pines to see if the prediction made by the REVIEW last September and repeated this July was showing any sign of fulfilment: if the Larch Saw Fly first noticed near Boston in 1880, in the borders of Quebec in 1882, in New Brunswick in 1884, in Western Nova Scotia in 1888, would reach the heart of Nova Scotia in 1890, and leave behind it the brown spines of the tamarac as if they were licked with flame. But the Halifax tamarac was green. Among its still branches we noticed a fly, simply a house fly it appears in the distance, but one with strange tastes, for it flew lovingly in and out around the branches as if it had a special affection for the fragrant boughs. We bade a midsummer farewell to the park, and after a few weeks at the Summer Science School and its picturesque surroundings, again returned, to find the larches of Point Pleasant changed into scorched skeletons as lank as the spectres of the tamarac swamps of Maine which a few years before foreboded their destiny. Westward and northward have these small four winged flies flew some thirty and odd miles per year, until now the perimeter of their widespread devastation passes through Halifax and beyond Ottawa.

We figure roughly above the insect in its various stages. It belongs to the order Hymenoptera, and

family *Tenthredinidæ* (the Saw-flies, so called on account of their saw-like apparatus for boring holes in the bark of twigs in which their eggs are placed). The fly may be described thus: Head and thorax as well as the nine-jointed antennæ black, together with the base and tip of the abdomen; segments two to five and part of the upper and whole of the lower surface of segment six of a rich waxy orange color; first and second pair of legs yellowish, the thighs a little darker and slightly tipped with black above, and the third pair of legs much longer than the others, with legs yellowish, but claws black, while in the fore legs the claws are yellow. The wings are black veined, with a tawny fore margin on the costa, The dark spot—the stigma—near the tip of the wing, black. The fly emerges from its cocoon about the first of July. The eggs are laid in the terminal young shoots of the larch (*Larix Americana*). Within a fortnight they are hatched. The larvæ eat the leaves rapidly, moulting four times, the first three times changing color and appearance very much. When mature it is about one and a quarter inches in length, blueish-white above with two double rows of black tubercles on middle segment, greenish beneath, head and thoracic feet black; prolegs, seven pairs, green. Before they pupate a brownish hue is assumed. They generally drop to the ground and spin an oval cocoon, brownish, about half an inch in length. The perfect pupa stage is not attained until next spring.

The larches do not always wither from the first attack; but recurring attacks are sure to kill them. No method of stopping the ravages of the pest has yet been discovered.

SISYPHUS.

A great many of our provincial papers are referring to the unusual destructiveness of the Colorado Beetle to the potato this season, and some want to know why the government is not taking means to exterminate the pest. Well, it is rather late to talk of extermination now, if we could not think of it before. When the Colorado Beetle coming along the isthmus, first folded its wings to alight on the territory of Cumberland County, in 1882, was the proper time to exterminate him in the Province of Nova Scotia. Nor were measures of a mild degree wanting. The Agricultural Society of Pictou at once published an illustrated circular fully describing the insect, and showing how to treat him. These were placarded all over the country. And the Provincial Society had a second edition of the same distributed and placarded in the west of the province. The result was that com-

paratively little injury was done for a number of years, until the area of careless people became so great that the beetle suddenly assumed dangerous proportions. A costly era of repression will follow, and the evil will diminish again, until some people or their neighbors will begin to imagine it not dangerous after all. Thus it appears we are condemned to fight against an evil until it nearly disappears, leaving only enough to germinate, then relaxing our efforts an instant too soon, it all comes back again to arouse us to fight for life.

When the Potato Beetle entered Nova Scotia some eight years or so ago, the Larch Saw-Fly started towards us from its New England home. The Larch Saw-Fly has just touched Halifax, and now we hear of the start of the Gypsy Moth from the same centre. We trust that the experience of the past will enable our southern neighbors to stop this migration at the start. And to stop it means to kill every Gypsy Moth or caterpillar in the sixty and odd square miles now inhabited by them. To kill millions and millions but yet leave two or three, is to have to do the work over again. A single moth escaping to any other part of the continent without being detected is sufficient to undo the \$50,000 effort now being made in the interests of the continent in Massachusetts. In a future number we shall endeavour to give a cut with a description of this moth, so that in case any should migrate in our direction we may commence their extermination before they may begin ours. Are we doomed in every thing to toil like Sisyphus in his Tartarean abode—

With heavy sighs and a heavy soul
Up the long high hill to slowly roll
A huge round rock to the very top
Where it rests for a moment then topples off,
And down again with a thundering sound
Smokes in its flight along the ground.

A STARTLING INVASION.

The European Gypsy Moth, *Operia dispar*, appeared last year in a part of Massachusetts, affecting an area of three miles by one. This year the area has extended to fifteen miles by four, or sixty square miles. As soon as it was recognized, an appropriation of \$25,000 was made to exterminate it. The vote this summer has been increased to \$50,000, and a cordon of men is drawn around the district, who examine even the carriages and merchandise moving out of the district for fear some cocoons might be secreted in them, and transported beyond the lines. The trees in the district are being sprayed with batteries of pumps discharging water poisoned with Paris green. But there are a good many hiding places in sixty square miles. How much easier it would have been to have

killed the first one. If the United States forces are worsted in this engagement, the continent will suffer more from it than from the Colorado Beetle and Larch Saw Fly combined. Its larva feeds on the leaves of the apple, cherry, elm, linden, maple, poplars, birch, oak, willow, spruce, and corn; and the insect is very prolific. Let the people see what the Saw Fly from Massachusetts (described in this issue), has been able to do to our fine larches, and imagine the same process applied to all the trees in the list just given. Every soul in Canada has a deep interest in this fight, whether he can realize with vividness the gravity of the interest involved or not.

Plant Study.

A CLEVER INSECTIVOROUS PLANT.

In the July number of the REVIEW, a description was given of a few of our insectivorous plants—the Sundews and Pitcher-plant. A few weeks ago we received through the kindness of Rev. Mr. McIntyre, Faison, North Carolina, a fine specimen of the most remarkable insectivorous plant in the world—the Venus' Fly-trap.

Drosera muscipula

It belongs to the

Sundew Family, and

resembles our com-

mon Sundew (*Dro-*

sera rotundifolia) in

having a rosette of

leaves close to the

ground, from the

centre of which a

flower-scape, about

a foot in height

rises, bearing from

eight to ten pretty

white flowers. This

fly-trap has no

sticky solution, like

the *Drosera*, with

which to tempt the

flies, but instead the

upper part of the leaf

is divided into two

lobes, on each side of

the mid-rib. On the

inner or upper surface

of each of these

lobes are three sensitive

hairs or filaments. If

any of these hairs is

touched by an insect,

the two lobes fly

together instantly and

the strong bristles on

the edge of the leaf

interlock in the most

curious fashion, im-

prisoning any but the

strongest flies, that

may have disturbed

the sensitive filament.

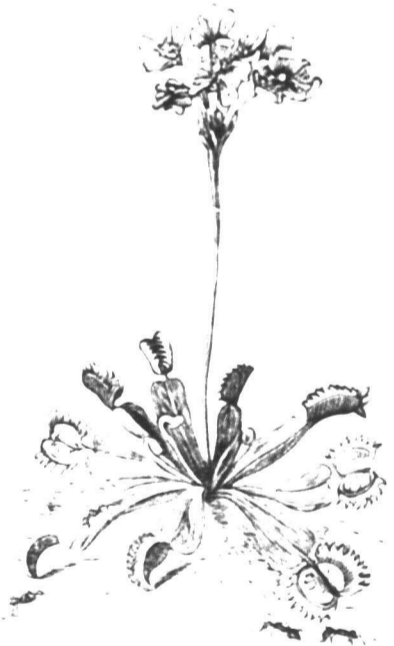
The imprisoned insect is

soon enveloped in a

sticky secretion, which

exudes from the inner

surface of the leaf, and



after several days all the soft parts of the insect are digested and the trap is set again.

What is the difference between this mode of catching insects and that of the *Drosera* described in last number of the REVIEW and pictured here? Our readers who have been observing the *Drosera* during the past two months will readily answer this question.



Those readers of the REVIEW who are in or near St. John may examine the Venus' fly-trap by calling at the Girl's High School, where the specimen described above is to be seen. The plant is rare and

local, being found only in the sandy bogs of eastern North Carolina and the adjacent bogs of South Carolina.

SOME PARASITIC PLANTS.

Has your attention ever been turned to parasitic plants—namely, those which attach themselves to a *host-plant*, receiving support and abstracting nourishment therefrom? Animal parasites are so abundant and their ravages so well known, that we are accustomed to overlook the plant parasites. But these are perhaps just as numerous and as varied. Thackeray's famous couplet:

“Big fleas have little fleas to bite 'em
And so *ad infinitum*.”

will apply in general to plants equally as well. Look at the blade of grass at your feet, the strawberry leaf, or any other leaf that wears a sickly look. Pick it up and examine its under side. You will find there round or oval yellowish spots. Probably at this season of the year on most of the *host-plants* the parasites of this kind have completed their life history—have lived for a season on the generosity of their *host-plant*, perfected their spores, and have left on the leaf an unsightly blotch to mark their ravages. Seen earlier in the season some of these leaves on the under side would bear cup-like excrescences, in which the spores are developing. Again, every old tree, wall, or fence, is covered with lichens which are parasitic. The spots on the bark of fruit trees are parasites. Bacteria are microscopic parasites which multiply with extraordinary rapidity, at the expense of their hosts. Very often these hosts are the blood and tissue of animals, and many contagious diseases are ascribed to the presence of bacteria in the blood.

Let us consider one or two parasites found among the higher plants; you will recognize them on account

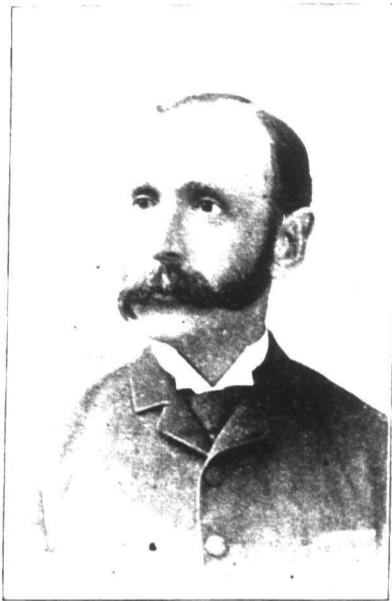
of their curious appearance; most of them are destitute of green.

The “Indian Pipe” or Ghost Flower (*monotropa uniflora*) is pure white throughout, blossoming in late summer in rich woods. It is a parasite, or better, a saprophyte, that is, it grows on decaying vegetable matter. Dig up the plant and you will see that the waxy-white stem and flower is elaborated from dead vegetable matter clustered around the fibrous roots.

If there are any beech trees growing in your vicinity, look along the ground in early autumn near their base, and you will find a much branched brownish plant. Dig down and you will find out another secret about parasites—that this one grows on the roots of the beech, hence called “beech-drops” (*Epiphegus Virginica*).

Another curious plant to be seen in September, with its leafless golden-yellow stems, twining around various plants, is the “Dodder” (*Cuscuta Gronovii*.) You can tell that it has contracted bad (parasitic) habits because it has lost its green chlorophyll, which is the badge of all hardworking plants who get their living in an honest way. Now this plant began life in a seemingly honest way. It sprang from a seed. But mark this—its seed did not begin to germinate until a month or six weeks after the seeds around it had begun to grow. When the Dodder does begin to grow, it sends up a shoot very rapidly. This shoot seems to pause and look round. If there is a growing stem near, the thread-like shoot twines round it several times, cuts loose from, and spurns the earth which gave it birth, and clings with its suckers to its foster-plant, which henceforth has to provide nourishment for itself, and its *fidus Achates*. How like some members of the human family.

I learned, by practical experience, that two factors go to the formation of a teacher. In regard to knowledge, he must, of course, be master of his work. But knowledge is not all. There may be knowledge without power—the ability to inform without the ability to stimulate. Both go together in the true teacher. A power of character must underlie and enforce the work of the intellect. There are men who can so rouse and energize their pupils, so call forth their strength and the pleasure of its exercise, as to make the hardest work agreeable. Without this power, it is questionable whether the teacher can ever really enjoy his vocation; with it, I do not know a higher, nobler, more blessed calling than that of the man who, scorning the “cramming” so prevalent in our day, converts the knowledge he imparts into a lever, to lift, exercise and strengthen the growing minds committed to his care.—Prof. Tyndall in *The Forum*.



Frank Herbert Eaton, A.M.

We have much pleasure in giving the portrait and a short biographical sketch in this issue of the retiring President of the N. S. Summer School of Science, Frank Herbert Eaton, A. M., the son of William Eaton, Esq., at present town clerk of Kentville, Nova Scotia, a gentleman who in his day did much work in the educational field, having been in turn a teacher in the common schools, master of the Kentville Grammar School, and Inspector of Schools for the County of Kings, as well as filling other important positions in the public service. Frank Herbert was born at Kentville in 1851. When seventeen years of age he attended the Horton Academy, Wolfville, and matriculated next year, 1869, in Acadia College. In 1873 he graduated, standing second in a class of twelve. The same year he obtained his A license and for one term was Head-master of the Shelburne Academy. Immediately after he proceeded to Harvard where he gave special attention to physics and graduated A. B. in 1875. He was then appointed Instructor of Greek and Natural Science in Horton Academy, and in 1876 became Instructor in Classics Acadia College, while acting for a portion of the year as Principal of the Horton Academy and Seminary. As an acknowledgement of his ability and good services the college conferred upon him this year the degree of A. M. In 1877-8, he studied comparative philology and educational science in the graduate department of Harvard. He was in 1878 appointed to the principalship of the Cumberland County Academy at Amherst; and in 1879, to the position of teacher of mathematics and physics in the Provincial Normal School of Nova Scotia at Truro, which

position he now holds, having just declined the professorship in physics in Acadia College. From 1880, he was one of the most active members of the Senate of Acadia College until 1879, when he was elected a member of the Board of Governors. From 1881 he was a member of the Senate of McMaster University, Toronto, and from 1882 President of the Acadia College Alumni Association. He was one of the original promoters of the Nova Scotia Summer School of Science, and during the first year of its existence, 1887, served in the capacity of instructor in physics and chemistry; in 1888, as instructor in physics; and in 1889 and 1890, as President.

Mr. Eaton has made no inconsiderable impress on the educational features of the country. Both as a writer and speaker he is fluent and forcible. His addresses on education have received attention on account of their progressive and scholarly tone. He has published a work on practical mathematics, a compendious treatment of analytical trigonometry and its applications, navigation and the elements of statics and dynamics, which has been prescribed for the public schools of Nova Scotia by the Council of Public Instruction.

For the Reviewer

Notes for Teaching Music by the Tonic Sol fa Notation.

EDITH PATER.

TRANSITION.

The more thoroughly the teacher has mastered the mental effects of the different notes of the scales, and the more he has impressed these on the minds of the pupils, the easier and the pleasanter will be the lessons on transition. Intelligent work is always best, and the more intelligently this subject is brought before the pupils, the more satisfactory the results will prove. Get the pupils to feel the effect of the change of key, and how and why such change produces that effect, and let the teacher gradually pass from the easier to the more difficult forms of transition, and the difficulty will be lost sight of in the delight these effects give to the pupils.

Revise then well the mental effects of each of the notes which are felt most when the notes are sung slowly. Give more attention to the bright, clear, ringing, cheerful effect of Soh, the bold, firm, restful effect of Doh; the desolate, awe-inspiring effect of Fah, along with its tendency to go down to Me, which may be called its flat effect; the piercing effect of Te when high in pitch, and the (shall we say) tender effect when low; also the tendency to go up to Doh, *i. e.* its sharp effect. Further let the pupils notice from hearing it that there is a smaller

interval of pitch between Me and Fah and Te and Doh, than between any other two consecutive notes of the scale. It is sufficient for the present to state that there is a semitone between these, and two semitones between the others. Show this on the modulator; but meantime do not touch the fact that as the modulator shows there are three kind of steps in the scale, two little steps between m f and t d, three greater steps between d r, f s, l t; two smaller steps between p m and s l:

No. 1, Key E.

{ :D m | f :s | s :m | f :s | d¹ :t | l :s ||

No. 2, Key E.

{ :D m | f :s | t :— | l :— | s :— | t :d
:S — | :s— | fe:— | s:— ||

Let the teacher sing exercise No. 1, to the syllable Lah, and get the pupils to tell and note the bright effect of the note at the end. Then sing exercise No. 2 more slowly the first two and a half measures. Ask the class what the three notes repeated resemble or suggest m r d. Draw attention to the fact that the Soh has lost something of its brightness and has more the restful effect of Doh. Next sing the whole of No. 2 to Lah, and the pupils will feel the effect still more strongly when the fe s are added. Show the pupils that these notes are really m r d, m r d, t d in the right hand column and sing the exercise with the notes, pointing them on the modulator.

In the tune French you have this transition into the first key to the right in which Soh becomes Doh. The large part of the tune is the phrase m r d t, d in the original key, there is the first key to the right and once more in the original key.

French.

{ :D | m | f | s | :d | r | :m | f | :m | r | :d | d | :t₁ | d
:S | d¹ | :t | l | :s | s | :fe | s | :m | r | :d | d | :t₁ ||

This is clear when you write the second line thus showing the change of key.

{ :s :d | f :m | r :d | d :t₁ | :s :m | r :d | d t₁ | d ||

The tune is commonly set key F and passes into key C and back into F. But to show more simply the construction of the tune, while you pitch the tune key F think of it as the key of C and passing into the key of G and back into key C. The return from key G into key C is virtually the same as changing into the first column on the left where Fah becomes Doh.

Before leaving this, if the teacher sings or ask the class to sing s f s instead of s f s the pupils will feel that f does not answer, and that it is a sound a little

higher in pitch, that becomes the new note t. The Tah sharp we call fe and fe is the t of the new scale. The dull Fah is changed for the brighter Te. The pupils can thus feel that the effect of passing into the key on the right, the sharp key as it is called, brightens the music.

By looking at the modulator the pupils will tell that in going into this key to the right where s becomes d, l becomes r, t becomes m, d becomes f, r becomes s, m becomes l and not f, but its sharps fe becomes t, and hence it is called a sharp key from this and perhaps partly from the brightening effect of the change of key.

The music may pass into the new keys at any of these notes, but the easiest transition is when the note that becomes Doh is the bridge note, and only these transitions should be taught at first. The teacher may notice that in the change into the first sharp key, the upper tetrachord or group of four notes, s l t d becomes the lower tetrachord d r m f of the new key.

We have had notes of one pulse with time name taa, of two pulses taa aa, two notes of equal duration to one pulse taataa, and notes of 1½ pulse followed by three pulse taa-aatai. Let the teacher sing down pulse left d d, right d d d d up d, and ask how many notes to each pulse. Repeat this and ask the pupils to sing the same till they can do it with ease and accurately. Then ask them to do the same with m, next with s, and then with d¹, next ask them to sing down pulse d, left m m, right s s s s up d¹. Put these on the black-board and get the pupils to put in the time marks for all except the third pulse. Next as two s occupy half a pulse we put a dot between second and third s. Ask the pupils to suggest what might be put between them. First and second s, and third and fourth s, and then the exercise will appear thus:

{ d :d. d | d, d. d, d :d | m :m, m | m, m. m, m :m ||
s :s. s | s, s. s, s : | d¹ :d¹. d¹ | d¹, d¹. d¹, d¹ :d ||

Next give the time names,

| d, d. d, d
| ta-fa-te-fe

Similar teach half and two quarters.

| d .d, d
| taa tefe

Three quarters and half.

| d .,d
| taa fe

J. A.

The Boston School Board is proposing to allow its teachers, after nine years of service, to take a year's leave of absence on half pay, the other half going to provide a substitute.

For the REVIEW

Meteoric.

A very remarkable phenomenon was observed in New Glasgow and the neighborhood on the evening of Wednesday, August 6. I had just finished evening service and was standing on the steps of the church conversing with four or five members of the congregation, when suddenly my attention was forcibly drawn, if I may use the expression, to the north-western quarter of the sky. At about twenty degrees from the horizon a luminous point originated. Shooting rapidly upward it made and left a well-defined line of light. The apparent length of this line was such that a pencil or other object one inch long if held about a foot before the eye would cover it. I give this estimate, however, from recollection and not from actual observation at the time. At its first appearance the line was rigidly straight, and, so far as the eye could judge, absolutely vertical. The instant it defined itself I called my companions on the church steps to observe it. At first I supposed it to be a shooting-star of very unusual brilliancy and very exceptional in the direction of its movement, that having been upward. Two gentlemen were lingering in the church; and confident that the luminous effect would fade as rapidly as it had appeared, I refrained for a few seconds from losing the last opportunity of witnessing so extraordinary a spectacle by re-entering the church to summon them. But to my utter amazement the line of light lost not a particle of its brilliancy nor an inch of its length. Seeing this I hastily went inside the building and called my friends. Thus we numbered seven observers. One of the gentlemen just summoned took out his watch and stated that it was then twenty minutes past eight. A minute or a minute and a half anterior to this the phenomenon had first appeared. At this time (viz., 8:20) the line had begun to lose its rigid straightness. At about one-third of the distance down from its upper extremity it bent suddenly toward the south, and then presented an irregularly zig-zag appearance for about the second third of its length, while along the remaining third it nearly retained its original straight and vertical character. Slowly the central portion deviated more and more decidedly towards the south, until it assumed the shape of a rectangular loop. While these changes were going on the line received a steady increase in breadth, so that ultimately it presented the appearance of a broad ribbon. All this time, it is to be observed, the sun had long set, although a slight ruddiness was to be seen among the masses of dark clouds which fretted the western sky. The brighter stars were here and there to be seen.

To account for the phenomenon I have suggested

that far out in the atmosphere, in the region of cirrus clouds, a cirrus moving very slowly may have suddenly reached such a position that it reflected back to us in New Glasgow the rays of the sun, now far below our horizon. Its altitude, combined with its conjectured distance out from our atmospheric region, might place it so as to bring about the result observed.

I think it difficult to account for the rigidly straight character of the streak. We often see clouds with horizontal boundary lines that are absolutely straight, but I cannot recollect seeing any bounded by lines that were straight vertically. Still it is not perhaps an inconceivable thing.

The explanation may appear to those who witnessed the phenomenon as unsatisfactory, in so far as the intense brilliancy of the light is concerned. It was fully equal in this respect to an electric arc light. Indeed when I observed it at first I was for some instants divided in opinion whether it was the trail of a shooting-star or a streak of lightning. I think the intensifying effect of contrast will serve to account for the extreme brightness with which all observers were impressed. Years ago I descended a salt mine at Halluin. A series of slopes leads you down into the very heart of a mountain. Then you pass out of the mine through a long passage about at right angles to the line of your descent. You are conveyed in a transept. The current of air encountered put out the light carried on the hat of my conductor, and for perhaps half a mile we pursued our course in absolute darkness. Suddenly a point of light almost dazzling in brilliancy made its appearance. I could not conjecture what it was. It resembled in color and intensity the ball of a very fine Roman candle. Its brightness increased — so did my wonder. In a few moments the brilliant mystery was solved. We were in open day, emerging from the mouth of the level at the base of the mountain from whose top we had descended into the mine. The passage was tortuous and its walls for a long distance excluded the light with the exception of a very minute pencil of *ray*. This by reason of its very strong contrast with the utter darkness of the mine impressed my eye with its extraordinary brilliancy.

I believe we had a parallel case in the very remarkable phenomenon observed in New Glasgow and the vicinity on Wednesday last.

I should add that I have met and conversed with several persons besides those mentioned who saw the effect as above described. Two persons whose statements agree with the above affirm that they saw also a luminous ball which preceded in its appearance the luminous line. I find, however, that the one of these two whom I saw agrees with all other observers in the

important item that the line originated at its lower extremity. I fancy that the point of light as it flashed upward and defined the line, gave the two observers alluded to the impression of something larger than what was really to be seen. MYLTON MAURY.

New Glasgow, N. S.

For the REVIEW |

Higher Musical Culture.

How vast the distance that separates the shepherd in Virgil's Eclogue, practising a sylvan lay on his oaten pipe, *sub tegmine fagi*, from the clever amateur! Yet a whole realm of unexplored thought and feeling lies between the mere amateur and the accomplished musician who has lived in a musical atmosphere and submitted himself, with intelligent docility, to the subtle play of its complex influences.

For the multitude music is still nothing more than a flowing successions of sweet sounds arranged in pleasing rythm. By actual observation, even among those accustomed to musical entertainments, it has been found that harmony is ignored and only the melody really followed. It has not been sufficiently recognized, that music, as an art, must rest on the solid basis of scientific knowledge and original investigation. No thoughtful person would deny this vital connection between science and plastic art, but many would not concede the same necessity for musical art. Why is this? Partly, perhaps, from the more spiritual nature of the latter; partly, also, because music is, in and of itself, so pleasing in its results that its votaries rest content with a smaller measure of excellence than would command respect in any other pursuit, the finished work of which could be easily submitted to comparative analysis. But perhaps the fact that music is generally regarded as nothing more than a pleasing accomplishment and an elegant adjunct to a fashionable education weighs most strongly in the popular estimation of its claims.

But the student who has made himself familiar with the history of musical art, and who has critically examined the works of the great masters who have enriched it, will sometimes find himself at a loss to determine which is the more admirable, their profound musical knowledge or their inspired genius. It is not too much to assert that Bach, Handel, Cherubini, C. M. Weber and Beethoven were enabled to attain heights which would have been inaccessible to them with all their genius, if that genius had not been nourished and fortified by a thorough knowledge of the science of their art so far as it was known in their day.

To enjoy the music of Wagner, even as a listener, requires at first unflagging attention and no inconsiderable musical knowledge. One who would make a fruitful study of his works needs a competent guide amid the intricacies which appear, to the tyrö, mere arbitrary purposeless wanderings, but which analysis proves to be strict, though subtle examples of obedience to musical law. We have no desire to undervalue the labors of those who are faithfully working in the interests of musical art, but a far more serious and definite course of training and instruction will soon become necessary if we are to cultivate to their fullest extent the musical talent of these provinces, and to raise music from an accomplishment to the dignity of an art and a science.

No mere provincial training can give that comprehensive grasp that makes one not only a finished performer, but a discerning critic, a great artist, an original composer, and an able leader in the vanguard of musical progress. It may be said, Why not send the clever young musical aspirant abroad at once and expose him to the full influence of the musical atmosphere of England, France and Germany?

Many reasons might be adduced. Let two suffice. First, the change is so great from the simple life that obtains in this country to the complex social and artistic condition of a great musical centre, that the student is liable to be thrown off his balance, and in the destruction of mind that ensues, either fails to adapt himself to his new environment, or loses time and energy in doing so.

Secondly, the force of a great artistic community is so immense that it is apt to suppress or over ride individuality, especially in delicate organizations that lack the power of self-assertion.

It is just here that the value of a capable, music-loving teacher comes in; one able to give sound technical instruction and training, but of that impersonal character that encourages spontaneiy of expression in the pupil, thus bringing out traits peculiar to the individual, fostering originality and begetting a not improper sense of power and self-confidence. One year of careful systematic training, with the distinct aim to fit the pupils for entrance, upon examination, to some institution of world-wide renown in Europe, where they might pursue their studies under great specialists, with all the advantages of communion with distinguished artists in evrey department, would soon develop one of our natural resources—musical talent—and prove as profitable in opening up new avenues of usefulness to our young people as it would be honorable and pleasing to those who should succeed in bringing it about. C.

Echoes from the National Association.

The thirtieth meeting of the National Educational Association of the United States was held at St. Paul, Minn., July 8-11. The following extracts, selected from the N. Y. *School Journal* will enable our readers to catch the spirit of what was said:

FORM OF DISCIPLINE, ETC.

It is a question of teachers rather than of subject or method. Normal schools should point out that the power to teach lies in the individual and not in the method. No system however skilfully administered will prove successful. And in management it is the same; if there is need of corporal punishment it must be inflicted. Yet it must be remembered there has been an excess of this. — *Prof. B. L. Wiggins, Tennessee.*

WHAT EXAMINATIONS EFFECT.

While it is highly desirable that knowledge should be its own reward, it is very seldom it should be so; the desire for knowledge is an acquired taste. Daily markings by the teacher should be abolished; reviews should be held under the supervision of the principal or superintendent, and only the monthly estimates should be put in figures. The examination should be held only when a subject has been completed. Examinations exercise the reproduction of knowledge. They set up a standard for the pupil and they act as a stimulus for teacher and pupil. — *Supt. W. H. Maxwell, Brooklyn, N. Y.*

MORAL VALUE OF ART EDUCATION.

Few studies can claim to do as much as music and drawing toward advancing children in paths of peace, obedience and order, giving them present happiness, future occupation and a constantly elevated enjoyment. All children should be taught enough drawing to be able to express themselves readily with the pencil. Not with the purpose of making artists of them, but because such power is an enrichment of ordinary daily life. The higher our conception of material beauty, the higher will be our ideal of moral beauty. — *Art M. Laughlin, St. Paul.*

THE WHITE CROSS IN EDUCATION.

My contention is that the true teacher's office is to explain the little child to himself, and afterward go as far as may be to explain the universe to him. Though a man's forehead be lifted toward the stars his feet are planted on earth, and a sound, pure mind must have a pure, sound body in which to dwell. The pupils' life should be lifted toward the heights, not lowered to the slums. What must be had in all large schools is a guardian of the playground; a moral horticulturist, whose specialty in physical ethics; an apostle of health whose gospel outranks that of head or hand, for without it the head is apt to swim, the hand to tremble, and the heart to be a cage of unclean birds. It would be better to abolish recess altogether and let gymnastic exercises under the teacher's supervision take its place. This seems one of the best practical means to a higher civilization in our public schools. Such is the opinion of experts in education. — *Francis Willard, Pres. W. C. T. U.*

COMPULSORY EDUCATION—TWO VIEWS.

Compulsory education is against the fundamental ideas of our public schools. Education is a right inherent in the family rather than a privilege delegated to the family by society. It is one of the highest duties of government to make ample provision for the education of the youth, but beyond this the state should not go. To enforce the attendance of children would invade the sacred domain of private life. The tyranny of a confident majority, as has been illustrated in religious persecutions in past ages, would arise. The American public school system has been built up without the aid of such laws, and the public school has become a vital institution of the whole people. The advancement of education is to be secured by making the schools better, equipping them better, providing more and better school-houses, and above all better teachers. — *Supt. Cooper, Texas.*

It is no more hateful, nor tyrannical, nor un-American to compel a citizen to educate his own child, than to compel him to pay a tax to educate his neighbor's child. To hold that compulsory school laws are un-American is to ignore the history of our free school system and remain ignorant of the spirit and purpose of past and present opposition to the establishment of free state schools. — *Supt. Thayer, Wisconsin.*

THE TRAINING OF THE EXECUTIVE POWERS.

The work of the teacher is to train the child, not merely to communicate knowledge to him. Man possesses receptive, reflective and executive powers. By the first class he acquires knowledge, by the second he prepares it for use, by the third he applies it. By executive power I do not mean administrative ability merely. I mean the power to execute what we know; the power to be in action all we are of good in feeling or thought; the power to accomplish what we plan; the power to "do noble deeds, not dream them all day long;" the power to mould humanity in harmony with God's great purposes. The world is filled with two classes of men—those who know the truth without even planning to practice it, and those who decide to do right, but fail to carry their plans into execution. Both classes are failing to accomplish the work they were intended to do, and both fail because their executive powers were not trained in harmony with their receptive and reflective powers. It should be the chief function of education to remedy this great defect in human character. — *James L. Higgins, Toronto, Ont.*

SYSTEM VS. ORIGINALITY.

The teacher's individuality should be such that it will not overshadow, but stimulate that of the child. Too exclusive stress has been laid upon the literary qualification of the teacher. No amount of knowledge can compensate for the want of that individuality which enables the teacher to stamp upon the child the impress of his own character. The schools are filled with too many teachers whose only qualification is knowledge. — *Supt. Sabie, Iowa.*

THE KINDERGARTEN.

The kindergarten should never make the mistake of studying the tools more than the child. System is a good servant in this training, but a bad master, and a slavish observance of cut and dried details, would eventually kill

the soulful creative faculty of the child. Nothing will succeed but a tireless study of the spiritual and mental needs of the little soul launched upon a sea of mystery.— *Anna E. Bryan, Louisville, Ky.*

GEOLGY IN EARLY EDUCATION.

The truths of geology and its facts and principles, if not too difficult of access, should command attention, in the earlier stages of education; and they are not difficult of access, and the study should receive its proper attention. Childhood being the period of observation, the acquisition of geological knowledge is therefore proper at that time.— *Prof. Winchell, Michigan.*

MUSIC.

It has been demonstrated that the study of elementary vocal music can be placed in the regular course of schools, and its accomplishment acquired in the same way and on the same basis as is arithmetic and geography; the necessity for the music, both in concert and in individual recitation, being given with the same regularity as the spelling lesson. Music should be thus taught not as an accomplishment, but as part of that training that goes to make an intelligent citizen. The ability of the teacher to sing has little to do with the singing of the pupils, as they do the practising and not the teacher. Song singing is a small part of the legitimate work. Too often the children are not taught the difference between noise and song, and both principal and superintendent are blamed for the vitiated tastes of the children.— *Supt. Gore, Denver.*

SECONDARY EDUCATION.

The high schools are prepared to do a great educational work in the community. But they have not reached a proper standard; in fact, they are some distance from it. This is yet only a provisional arrangement; it still purposes to do too much. The full benefit of the high school system will be obtained only when there is developed from it a series of special schools—all public schools, but each one a fitting school for something beyond.— *A. F. Becholdt, Minn.*

The high school should fit for college and every influence should be exerted to get the pupils to go there; also the grade of the high school should be so high that it would be an honor to be graduated from it.— *C. W. Barden, Syracuse, N. Y.*

TOO MUCH MACHINERY.

There is a growing feeling that the National Educational Association has reached a turning point in its history. Many well-informed persons believe that it can now profitably lay aside the excursion feature, allowing that interest to be cultivated by the various state associations, and devoting the general association to conventions of experts, who will give a trend to the educational thought of the country. The association threatens to fall apart by its own weight.— *Cor. School Journal.*

Pestalozzi never uttered a truer sentiment than when he said: "I would go so far as to lay it down as a rule that whenever children are inattentive, or apparently take no interest in a lesson, the teacher should always look first to himself for a reason."

Astronomical Notes.

THE SEPTEMBER SKY.

The Notes this month are for those who don't know, but wish to know, the most conspicuous of the celestial objects now visible in the evening.

Let us suppose "now" to be September 20th. The REVIEW should have reached all of you by that time.

The Sun will set on that evening nearly due west. After he is gone the most conspicuous object will be the Moon, six days old, nearly half full, and a little west of south. When full at the end of the month, this will be the Harvest Moon.

Now look around and see if you can pick out any stars. There are three bright "evening stars" in sight, and if you look sharp you will be able to see at least two of them immediately after sunset—before sunset, indeed, if you happen to know where to look for them. An hour after sunset you will find the brightest one a little to the right of southwest and less than half as high as the moon. That is Venus. To the left of south and higher than the moon you will find another which you may perhaps think is as bright as Venus. That is Jupiter. The third of the "evening stars" is Mars, much less bright than Venus or Jupiter, red in color, and not very far to the left of the moon. On the evening of the 21st, when the moon is half full, she will be close above Mars, the following evening she will be off to the left of him. On the night of the 23rd she will be near Jupiter.

Mercury and Uranus are also "evening stars" at present, but they are much too faint and set too early to be seen. The next favorable opportunity for seeing Mercury will be in October, especially from the 10th to the 15th, when he will be a "morning star."

The above as to the Moon, Venus, Jupiter and Mars is true for the end of September *this year*, especially so (except when other dates are specified) for the hour mentioned on the evening of September 20th.

What follows is true in a general way for the end of September in *any year*, especially so for the hour or hours mentioned on the evening of September 20th. But if any of the above-mentioned objects should be mentioned again, then what is said in connection with them will not be true for every year.

Having tested your eyes in picking out the planets in the early twilight, you should try them next on the brightest stars. The brightest of all the stars—the Dogstar—does not rise to us at this time of the year until about a couple of hours after midnight; so it's no use looking for it. Canopus and Alpha

Centauri rank next, but they never rise to us — they are too far south. Next comes Arcturus, Capella and Vega, and they are above our horizon after sunset in September.

As soon as you can easily see Venus and Jupiter look almost directly overhead and try to get your eye on a star much like them in color. That is Vega. Now run your eye down towards the western point of the horizon. About two-thirds of the way down you should see a reddish spot doing quite a lot of twinkling. That is Arcturus. If the sky is clear low down to the east of north you will see another reddish one twinkling still more. Perhaps you won't be able to see it so early in the evening, but it will be conspicuous enough a little later. It is Capella. As the twilight wanes look again at Vega and run your eye from it to Jupiter. Nearly mid-way between them you will find Altair, one of the standard stars of the first magnitude. The others that have been mentioned are all brighter than first magnitude. Now turn to the Moon (Sept. 20th, 1890) and look a little to the right, and below her, about as far as Mars is to the left of her. The red star you see there is Antares. For information about it and the constellation it belongs to, see the REVIEW for May. Mars has been near it all summer. Venus is now moving towards it and will be very close to it on October 17th.

These are the brightest objects in our September sunset sky, and, if the sky is clear, they may all be seen quite early in the evening, while there is still light enough to read or write or play tennis by. If there are one or two others that you find it easier to see than some of these, it is not because the others are brighter, but because they are more favorably situated — higher up or farther from the sunset glow.

For these and the rest let us wait until later — say until 9 o'clock, your own local 9 o'clock. At that hour, mean time on September 20th, it will be within a few minutes of 21 o'clock sidereal time. If you have a celestial globe and know how to use it, you can adjust it so as to show the position of the constellations at that hour as seen from wherever you may happen to be. If your latitude is 45° N., raise the north pole of your globe 45° above the wooden horizon. That is the adjustment for your *place*. For the *time* adjustment there are several ways of giving directions. It is an opinion of mine that the simplest way is to give them in terms of sidereal time. About March 20th, our p. m. hours of mean time are the same as the hours of sidereal time. A month later the sidereal time can be got from a p. m. hour by adding two hours, two months later by adding *twice* two hours, and so on. September 20th is six months later than March 20th, therefore 9 p. m. mean time

on September 20th is 9 plus 6 times 2, that is, 21 o' (the sidereal) clock. This is not an exact statement of the relation between mean time and sidereal time, but it is quite exact enough for our present purpose.

Well, adjust your globe for *place* as above. Then find XXI on the equator and bring it to the brass meridian. There, now, the upper half of your globe shows the constellations that are above your horizon at 9 p. m. on September 20th. And it shows them and their stars not only in their proper positions relative to each other — as a star-map does — but also in their proper positions with respect to your zenith and to your horizon, and to the north, south, east, west and other points of your horizon — which a star-map cannot do. A celestial globe is thus a very useful article for a star-gazer. And yet for a beginner at the business it is apt to be rather more puzzling than useful. If you wish to know why, get a globe and try. But a star-atlas is much cheaper and much easier for the novice to work with.

At 9 you will find that Venus has set — so has Antares. Mars will follow soon after. Jupiter has moved westerly and is now a little to the right of south. Vega and Altair have also gone west a bit. Arcturus is close down to the horizon. Capella has got higher up and farther round to the east. Why all this is thus is a matter that is *ultra vires* of this article.

To the west of north you will see the Dipper, upside up just now. Before Arcturus sets, notice that he is nearly in line with the two outer stars in the handle of the Dipper. This will help you to recognize him any time when he is in sight. Now, take the two stars in the bowl which are farthest from the handle run a line from the one in the bottom of the utensil to the one in the top. Produce this line about six times its length and you will come to the Pole-star, a standard star of the second magnitude. The Pole-star is at the outer end of the handle of the Little Dipper. It is not so easy to distinguish this Dipper as the other one, but it is easy enough after a little looking. The three stars in the handle and the two at the top of the bowl curve round from the Pole-star towards the handle of the big Dipper. The two in the handle that are nearest the bowl and the two in the bowl that are nearest the handle are quite faint; the other two in the bowl are much brighter. Mid-way between this last pair and the star in the middle of the handle of the big Dipper there is a star which is famous as having been the pole-star at the time when the Pyramids were built. Its name is Alpha Draconis.

Now face towards Arcturus again and run your eye up from it toward Vega. When about a third of

the way up you will find half-a-dozen or more stars (one much brighter than the rest) arranged in a curve something like an arc of a circle. Between this diamond necklace and Vega there are four stars forming a quadrilateral figure, almost a trapezium. The necklace is Corona Borealis, the Northern Crown; the trapezium is part of Hercules. The stars between these two groups and the part of the horizon lying between west and southwest belong to the constellations Hercules, Ophiucus and Serpens. They are shown on the map that appeared in the REVIEW of November, 1889. Along with that map there was an article on Lyra, the constellation to which Vega belongs. You might find the map and the article of some interest now.

Higher up than Vega and right overhead you will see the Cross formed by the principal stars in Cygnus the Swan. At our supposed hour the top of the Cross is almost exactly in the zenith, and the upright beam of it stretches down towards the southwest. If you run a line upwards through the three stars in the cross-piece you will come to a small quadrilateral figure which is in the head of Draco, the Dragon. A fifth star still farther from Cygnus makes a curved V with the four in the quadrilateral. One of these four is the pretty double Nu Draconis, for which see the Lyra article of November last. Your glass will tell you which one it is.

Face round south again and look up at Altair, which you found in the twilight between Vega and Jupiter. Look at the stars above and below it — the one above brighter and nearer than the one below. The three are easily remembered. They are the brightest stars of Aquila, the Eagle. Above and to the left of them look for four small stars arranged in the form of a diamond. Some call the group Job's Coffin, others call it the Ace of Diamonds. It forms part of the small constellation Delphinus, the Dolphin.

Above Jupiter you will see two stars one above the other. They are Alpha and Beta of Capricornus — Alpha the upper one. Your eye will see that Alpha is double and your glass will show that Beta is so too. Those stars to the right of Jupiter and near the horizon belong to Sagittarius. Six of them form the Milk-Dipper. It is upside down; its handle, which contains only two stars, stretches across the Milky Way.

That will do for the western half of the heavens at this hour. Now turn to the east. Here there are no planets at present — none at any rate visible to the naked eye. And, therefore, whatever is said about the objects now there will hold good in this latitude for 21 o'clock sidereal time on any day of any

year. What is said as to the positions of the stars with respect to each other will hold good for any hour of any day of any year.

Between south and east, and down near the horizon, two stars stand out much brighter than any others in that quarter. The brighter of the two is the one on the right. Its name is Fomalhaut (pronounced fomalo.) It is nearly of the first magnitude, and is the farthest south of the baker's dozen of brightest stars that we ever see. The other is Beta Ceti, the brightest star in the Whale. Higher up, half way or more to the zenith, you will find two stars nearly in line with Beta, and two others almost exactly in line with Fomalhaut. These two pairs together form a large diamond or square. It is the Square of Pegasus, sometimes also called the Handkerchief. The star at the left hand corner is one of three in the heavens which enjoy the distinction of belonging to two constellations. It is both Delta Pegasi and Alpha Andromeda. Pegasus lies round to the right of it just now. Andromeda stretches down to the left towards Capella, that brightest star in the northeast. Andromeda is easily distinguished by three stars in line, but not equi-distant, lying to the left of the left corner of the Handkerchief. Above the middle one of the three you will see two smaller ones. Near the upper of these two lies the famous Andromeda Nebula, the only object of the kind that can be easily seen by the naked eye.

Between Andromeda and Capella there is a row of stars forming a J. That makes the constellation Perseus. Its most remarkable star is Algol the famous variable. It is the brightest star in the space between Andromeda and the J, and lies below a line forming the brightest star in J with the left hand one of the three just mentioned in Andromeda. If you watch Algol at hour intervals on the evening of October 5th or October 8th you may chance to see what is meant by calling it a variable.

Between Andromeda and the Pole star look for five stars that make a sort of W — one half of the W being smaller than the other. A sixth one, less bright, added to the five will make a chair in either of two ways. The constellation is Cassiopeia.

Between east and northeast you may see the Pleiads. For them see the REVIEW for January last.

A. CAMERON.

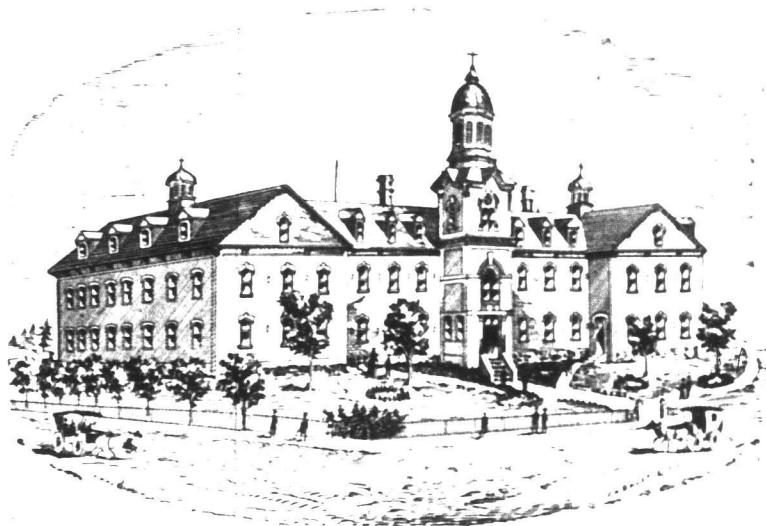
Yarmouth, N. S.

Should headmasters and headmistresses be teachers? At first thought many, who know something of all that is involved in the management of a large school, will be ready to say that the responsible heads have enough to do without teaching, and that their whole time is needed for oversight.

St. F. X. College, Antigonish, N. S.

The governors of this college erected a new building two years ago, a cut of which is shown here. It is built of brick, and consists of a main central part, and two wings. The central part is ninety feet long by forty, and has a tower ninety feet high projecting eighteen feet in front. The wings are each eighty feet long by thirty-eight. The building faces north, and at the south end of the western wing is a brick kitchen twenty-seven by twenty-two. The interior of the building is divided with a view to the twofold purpose of class work and residence of both professors and students. There are always several students who board in the town, but the majority reside in the college. On the first floor are three

three Gurney furnaces. A successful attempt was made in this building to secure ventilation for some of the most important rooms. Two of the flues were made large enough to have in each two outlets, one for smoke and the other for vitiated air. The thin portion between the two parts of the flue—in fact the whole flue—is warmed by the furnace fire, causing an upward current in both parts, so that the openings into the part in which there is no smoke give good outlets for bad air. These openings are near the floors. In another part of the building a galvanized iron pipe, one foot in diameter, serves the same purpose. In this the upward current is caused by a hot water radiator encased at the bottom of the pipe. To have good ventilation, however, it is not enough to provide outlets. Pure air must be brought in. In



class rooms, the laboratory, the chapel, the dining room (thirty-six feet square), the President's room and office, two parlors, and a recreation room for the junior students. The main entrance is through the tower into a hall fifteen feet wide, where the main staircase leads to the second floor. Here a hall nine feet wide runs from end to end of the central building. On the south side of it are the Professor's private rooms. The other divisions on this floor are two study rooms, one class room, the library, the infirmary, two bath rooms, a recreation room for senior students, and the college hall with its ante-room. This hall is sixty feet by thirty-six. The third floor is entirely used for student's sleeping apartments. In winter the whole building is heated by about two miles of hot water pipe, the water being heated by

warm weather this is easily done through open windows but in winter the best way is to warm the air brought from outside before it reaches the room. In this building hot water coils are made to serve the purpose. In the basement two large coils (six hundred feet of pipe) are encased in two galvanized iron boxes. To these the cold air is conducted through a pipe connected with an opening in the wall of the building. This aperture is twelve feet from the ground. From the boxes pipes conduct the warm air to the rooms. Care was taken to have the boxes and pipes as nearly air-tight as possible.

What St. F. X. College is perhaps most noted for is its classical course. Four of its present Professors studied several years in Rome, in whose colleges Latin may be almost said to be a living language.

For the REVIEW.]

Normal School Education.

A good deal of quiet but persistent attention has of late been given to the method of licensing teachers which has been practised in Nova Scotia for twenty years or more. The conviction has taken definite shape in the minds of the leaders of educational thought among us, that we have long since out-grown the provision which it was necessary to adopt when our system of education was in its infancy. It is well known that no professional training has ever been required of candidates for license. Attendance at the normal school has been entirely voluntary, and indeed students have been attracted thither not so much, in the majority of cases, by the professional, as by the non-professional advantages the school is supposed to afford. It will readily be seen that to no small extent, the two interests which the normal school undertakes to serve, are somewhat conflicting. In so far as it endeavors to discharge completely its functions as an academy or high school, its character as a professional school must suffer. Hence it is, that not only have comparatively few persons who enter the teaching profession any special training for their work whatever, but even those who prepare for their license examination at the normal school are very imperfectly trained professionally.

The time has admittedly come when no one should be allowed to teach in the schools of Nova Scotia who has not had a more or less complete course of special training for the work, and when the non-professional or academic preparation of candidates for licenses should devolve upon the academies and other schools, leaving to the normal school the exclusive function of training in a professional way, those who shall have already satisfied the non-professional requirements of their respective grade.

To effect these changes it will not be necessary to make any radical changes in the machinery or the method of examination, or in the syllabus of non-professional subjects agreeably to which the examinations are at present conducted. It is quite true that some such changes are in themselves desirable, particularly is it desirable to materially elevate the standard of scholarship for grades C and D, and it might be fitting to make such changes concomitantly with the reform in contemplation, but it must be remembered that the one set of changes is in no way conditioned on the other.

Thus the provincial examination could be held as now at the various stations. The syllabus (exclusive of professional subjects) could either remain as it now stands, or be modified as may be intrinsically desirable. Successful candidates would then be accredited, in

respect of their scholarship, simply as *first, second, or third* class. In order thereafter to become fully qualified to teach under these grades of license respectively, it would be further necessary for candidates to submit themselves to the course of professional training prescribed for the grade aspired to. This training would of course be provided for by the normal school. The course prescribed for grade B might well cover the full normal school year, from November till July, though for the present that demanded of Grade C candidates might extend only from the opening of the session till the end of April. These two courses would have much in common, the former, though more extended and more philosophical, involving as well the more exclusively practical character of the latter. Would it be necessary then that the one who had taken the more elementary course as a C candidate, should afterward be compelled to take the higher as a candidate for Grade B? It is here suggested in reply, that a Grade C teacher of say one year's successful experience, who had previously taken the six months course of training at the Normal School, might be admitted to the rank of Grade B after reaching the necessary scholarship standard, and after undergoing examination upon a prescribed course of professional reading, without an additional term at the Normal School. In other words there might be two methods by which one could qualify professionally for a Grade B license, either by taking the six months course at the Normal School, teaching a year under C license, and undergoing an examination on a course of advanced professional reading; or by taking the full nine months B course at the normal school.

It is quite aside from the purpose of this article to describe in detail the character of the training and instruction that should under these circumstances be given at the normal school, and yet in this regard it may be said, that among the prominent features of both courses, would be included provision for fuller instruction in vocal music, elocution, and natural science, than could be afforded to candidates in other schools. This instruction would, however, be especially adapted to fit them for their prospective work as teachers.

No allusion has therefore been made to the training to be demanded of candidates for Grades A and D. Probably it would be sufficient to make essentially the same requirements of the former as of the candidates for Grade B, with perhaps an examination upon a more extended course of professional reading.

It would seem desirable in reference to the professional training of Grade D candidates, that the course should not extend over more than six or eight weeks,

and should be simply a drill in the simplest matters of school keeping and teaching. Such a course the normal school could provide during the months of May and June, after the graduation and discharge of its six months' class. This course should in no way however obviate the necessity of taking the full course required of candidates for the higher grades.

From the above suggestions it will be seen that no revolutionary changes in the mode of administering education are involved in the proposal to make a certain degree of professional training incumbent upon all candidates for any grade of license.

The question whether provision might not be made, and of what sort, for granting professional certificates to those who should be able to give satisfactory evidence of good training elsewhere than at the Provincial normal school need not here be considered. Such cases would be entirely exceptional no doubt, and such provision need not in any case interfere with the general scheme.

FRANK H. EATON.

Kentville, Sept. 2nd, 1891.

Nova Scotia Summer School of Science.

The sessions of the Nova Scotia Summer School of Science, closing on August 2 at Parrsboro, have been the most successful in the history of the institution. Although the attendance was not quite as large as last year, it was much more representative of the country and of the teaching profession. The teaching was better, and the work more definite and better organized. The weather was very favorable, and all the excursions most enjoyable. Many of those present were heard to express their determination to be present next year, bringing their friends with them. The Nova Scotia teachers were much delighted with their associates from New Brunswick. These as teachers and pupils took high rank. Chemistry, as taught by Prof. Brittain, of Fredericton Normal School, was one of the most attractive features of the Summer School, while in the higher departments of Botany, Principal Hay was equally appreciated.

The students in attendance were:

H. L. Flowers, Halifax; E. M. Flowers, do.; M. R. McCurdy, do.; A. M. Johnson, do.; B. J. Trenholm, Amherst; M. Shine, Halifax; F. G. Berton, St. John; Ellie Sullivan, Halifax; L. A. McKenna, do.; M. Sullivan, do.; B. Mahon, New Glasgow; A. J. Davison, Economy; L. Thompson, New Glasgow; Anna McKay, do.; E. Fletcher, Five Islands; H. S. F. Theakston, Halifax; G. Creighton, do.; M. Cavanagh, New Glasgow; G. Wagner, Pictou; L. A. Kirkpatrick, Parrsboro; M. E. Charman, Wallace; G. J. Oulton, Dorchester; F. J. A. McKittrick, Kentville; H. S.

Freeman, Amherst; W. R. Foote, Kings; N. D. McTavish, Pictou; A. McLellan, Noel; H. M. McKay, Pictou; D. F. Campbell, Port Hawkesbury; M. Moody, Truro; L. Lynch, Aylesford; M. Fitch, Auburn; N. Peppard, Great Village; G. Murphy, St. John; L. S. Read, St. John; A. C. McSweeney, Moncton; F. L. Dieuniade, St. John; C. A. McCart, Acadia Mines; E. Wotton, Parrsboro; L. Wotton, do.; T. C. McKay, Halifax; O. Leake, Parrsboro; H. Sproul, River Philip; A. Wadman, Five Islands; A. Wier, Sand River; B. C. Foster, Fredericton; G. A. Inch, do.; H. L. Galt, Moncton; L. R. Everett, Fredericton; P. Vanward, St. John; J. Pardy, do.; E. H. Stewart, Pictou; A. E. Miller, Restigouche; A. McCabe, Parrsboro; S. A. Hirtle, Lunenburg; C. M. Crowe, Selma; L. B. Crowe, do.; H. W. McKenna, Amherst; R. R. Duncan, Grand Pré; Mrs. R. R. Duncan, do.; E. Thompson, St. John; Carlotta Maury, Boston.

NAMES OF TEACHERS.

Zoology — Principal A. H. MacKay.
Botany — Principal G. U. Hay, Inspector Lay and Principal I. M. Creighton.
Mineralogy — A. J. Pines, M. A., and Miss M. T. Dwyer.
Physics — Principal E. MacKay.
Chemistry — Professor Brittain.
Physiology — Dr. M. L. Angwin.
Geology — Rev. Dr. Maury.
Astronomy — Principal Cameron, Yarmouth.
Music — Miss A. F. Ryan.
Education — Miss H. E. Wallace.

The school will probably meet next summer in Antigonish so as to suit the teachers of Cape Breton, Prince Edward Island and Eastern New Brunswick.

The officers and teachers for 1891, so far as selected, are:

President — Supervisor McKay, Halifax.
Vice Presidents — Principal Hay, St. John, Inspector Rosecoe, Wolfville.
Secretary — — — — —
Assistant Secretary — L. A. McKenna, Halifax.
Microscopic and Histology — Principal MacKay, Halifax.
Botany — Principal Hay, Inspector Lay, Principal Creighton.
Geology — Dr. Kennedy, Kings College.
Mineralogy — A. J. Pines, M. A., Pictou.
Zoology — Professor Brittain, Fredericton.
Chemistry — Professor Coldwell, Wolfville.
Astronomy — Principal Cameron, Yarmouth.
Physiology — Dr. Angwin, Halifax.
Physics — Principal E. MacKay, New Glasgow.
Music — Miss A. F. Ryan, Halifax.
Education — Miss McGarry, Halifax Ladies' College.
Pedagogy — Professor Eaton and Dr. Hall.

Lectures on pedagogy free to all enrolled students.

Principal Calkin of the Normal School, Truro is taking a tour through a portion of the United States, with a special view to matters educational.

Educational Meetings.

The Teachers' Association of the District of Kings and Hants, Nova Scotia, met in Kentville Academy, July 11th, with about fifty teachers present. The President, Inspector Roscoe, gave the opening address. Papers were read by Mr. E. B. Newcombe "School Houses and Grounds;" Principal A. M. McLeod on "Health;" Principal Smith, of Windsor Academy, on "Physical Training;" Principal Reid, of Wolfville, on "Teachers' Salaries." This was followed by a brief discussion on a Teachers' Union and cognate matters, in which Principal Calkin, of the Normal School, Principals Reid, Miller, McLeod, A. McN. Patterson, Shaw, W. F. Cogswell and Mr. F. J. A. McKittrick took part.

On motion a committee of five, namely, Messrs. McLeod, Miller, Shaw, Miss Burgoyne and Mr. Smith were appointed a committee to draft a memorial to the Government in this connection. In the evening a public meeting was held and largely attended by the citizens. The speakers were Principal Calkin, W. E. Roscoe, barrister, who read an able article on School Punishments, from an historical and legal point of view, which we shall put before the readers of the REVIEW at some future day; Professor Kierstead, of Acadia College, Dr. Allison, Superintendent Education, A. McN. Patterson and Rev. W. P. Begg. On the second day, Miss West, of the Kentville Academy, gave an exhibition of good teaching. Mr. W. T. Gratz read a paper on Arithmetic; Mr. W. S. Shaw on the "Nature Lessons" of the course of study, in which he gave important and sound advice, advocating the lessening of time given to the memorizing of geography, history and kindred subjects in favor of objective science teaching; and Mr. G. W. Coffins on the "Trials and Triumphs of Teachers." In the afternoon a paper on "School and Discipline," by Miss Chute, of Berwick, was read by Mr. B. W. Wallace. Mr. Bishop was elected Secretary and Treasurer of the Association. Closing addresses were delivered by Dr. Allison, Superintendent of Education, Mayor Chipman, of Kentville, and the President, Inspector Roscoe; and the Association adjourned to meet in Hantsport.

Any of our readers who purpose investing in a life or endowment policy will do well to peruse the card of the Ontario Mutual Life Company, published in another column. The General Agent, Mr. E. M. Sipprell, is quite able to explain the merits of his Company which on account of its safety, liberal policy and profit returns is without doubt, one of the best, if not the very best Company doing business in the Dominion.—*Advt.*

N S. Educational Association.

This Association meets in Halifax on Monday evening, December 29th, and will probably adjourn at noon Wednesday 31st—the day before New Year's Day. The programme is not yet complete; but it is expected to be unusually interesting on account of several circumstances. Our readers will find more detailed information in our subsequent issues.

The Summer School of Science of Atlantic Canada will next year be held at Antigonish or in Cape Breton. As soon as the Executive Committee makes its decision we shall have much pleasure in reporting the same. The eastern *Ultima Thule* of the continent is notably one of the most interesting to the tourist as well as to the scientist.

Educational Opinion.

While the colleges of the Maritime Provinces are training a larger number of students, they appear to be in a position to do it better. This indicates great progress in higher education. It remains for some person, or college, or government to come to the front with a project for providing scientific training in agriculture, engineering, the mechanical arts and handicraft.—*St. John Sun.*

From Mr. A. W. Edson's address before a section of the Massachusetts Teachers' Association: "The primary school should furnish an easy and natural transition from the free and unrestricted life at home or the kindergarten to the more arduous life and work of the intermediate and grammar schools. When the true spirit of the kindergarten imbues the heart of every primary teacher then will school life be made pleasurable to every pupil. Into the heart and life of a child there cannot enter too much sunshine. Before school days a child's greatest delight is in acquiring knowledge; the same pleasure in learning may be continued through all school life. All actions should be spontaneous, and should spring from a right motive. In the aesthetic training of children much may be done to lead them to recognize and love the beautiful in nature, art, literature and action. Too often we are reminded of eyes that see not and ears that hear not."

Rev. Edward Thring had a theory upon which he worked. His main principle was simple enough—that every boy is good for something, and that education means to help him to find out what he is good for, and to make the very best of him without making the capacity of one boy the standard of another. The principle sounds almost too obvious for statement. And yet to put into consistent practice, would be to sweep away the very last relic of cram, to change test by examination out of all recognition and

to transform a public school from a place of polishing exceptionally clever boys into one for making the best of every boy individually, whatever might be the quantity or quality of his brains.

Professor Simon Newcomb, chief astronomer of the observatory at Washington, who, by the way, is a Nova Scotian by birth, doesn't like to be drawn away from scientific research by social dissipation, and on the occasions when he is thus drawn away he is apt to express his dissatisfaction with refreshing frankness. Thus the *Detroit Free Press* relates that toward the close of a reception at his house a lady approached the host and asked him with much enthusiasm: "How often do you have these delightful reunions, professor?" No polite prevarication delayed the reply: "Thank God, madam, but once a year."

SCHOOL AND COLLEGE.

The Board of School Commissioners at the regular monthly meeting held in the first week of September, have reduced the tuition fee of the Halifax County Academy to the rate of one dollar per month — six dollars per term of six months — for all students coming from *beyond* the county; while it is free to all within the city and county who are qualified to enter.

Acadia College has just decided to recommence the teaching of theology, and a new professor is to be appointed.

The Munro Exhibitions and Bursaries of the University of the Dalhousie College are attracting a greater number of competitors this year than before.

The Curriculum of the Halifax County Academy is being specially adapted to the requirements of candidate teachers up to grade A, and for candidates for provincial university matriculation. The attendance is the largest in the history of the institution, and numbers many students from beyond the county.

PERSONAL.

David Allison, LL. D., Superintendent of Education for Nova Scotia, will be in England September and October.

The eighth session of the *Congres International Des Americanistes* meets in Paris, 14th October. The delegates elected from the Atlantic Provinces of Canada are G. F. Matthew of New Brunswick, and A. H. MacKay of Nova Scotia.

Henry T. Colpitts, Esq., A. B., teacher of the Superior School at Elgin Corner, Albert Co., has been appointed Principal of the Grammar School, Richibucto. His successor is Mr. Herbert B. Steeves.

The Petiteodiac Superior School opened on Monday 11th August, with three new teachers. Mr. Hanson, A. B., is Principal, Miss Annie Sprague teaches the Intermediate department, and Miss Nettie Naughton the Primary.

F. W. Cowperthwaite, B. A., of the University of New Brunswick, has been appointed assistant to the Principal, Central School at Vancouver. Mr. Cowperthwaite was formerly head master of the Bathurst Grammar School.

Rev. Arthur Wentworth Eaton, a Nova Scotian, stationed in New York, who has attained some fame in the field of literature, has been offered an Episcopal church in Florence, Italy.

Miss K. Mackintosh, organist of the Brunswick St. Methodist church, Halifax, has published five hymns which have received the most favorable criticisms from high musical authorities, and have been adopted in choirs in Halifax and elsewhere. Several of this lady's compositions have taken prizes in London, the judges being among England's most eminent musicians.—*Exchange*.

Miss Mackintosh is one of the staff of the Halifax County Academy. The Halifax papers have been highly praising her latest composition, a *Te Deum Laudamus* composed for the occasion of the first public exhibition of the powers of the great organ just introduced into the Brunswick Street Church.

Professor Eaton of the Nova Scotia Normal School, who has lately been offered a professorship in Acadia, has declined. He has gone to Germany for a year.

Dr. Hall of the Nova Scotia Normal School, who has been in Germany during the past year, has returned.

Professor Howard Murray of the Halifax Academy, and Principal W. R. Campbell of the Truro Academy, have our heartiest congratulations on their auspicious movement into the benedictine ranks since our last issue.

Messrs. Hay and Brittain at the Summer School of Science discovered another habitat of *Aspidium fragrans* at the Moose River Falls in the Cobequids; a few days later the Misses Flowers of Halifax, Miss Jenks of Parrsboro, and Mr. A. H. MacKay, discovered at the Minnehaha Falls, near Parrsboro, *Aspidium fragrans*, *Asplenium trichomanes*, and *Aspidium acutatum*, var. *Braunii*, all very important finds from the point of botanical distribution.

Dr. T. H. Rand, who has been spending a year in England and Germany, has returned to McMaster University.

Rev. Dr. Goodspeed has retired from the editorial management of the *Visitor and Messenger*, and has accepted the chair of Apologetics in McMaster University.

Dr. Ryan, of the Montreal High School, spent his vacation in Nova Scotia, visiting St. John the last week in August on his way home.

Geo. H. Croscup, Esq., formerly of the model school, Fredericton, but who has been residing in New Jersey for the past six years, visited the Provinces in August with his family.

Rev. Dr. McLeod of Fredericton, having resigned his pastorate, will give his attention more entirely to the *Religious Intelligencer*, which he has so ably edited for many years.

QUESTION DEPARTMENT.

1. What zoological atlas was used at the Summer School of Science?

(1). *The Biological Atlas*, by McAlpine, royal quarto (eight and one half inches by ten and one half inches.) Twenty-four colored plates (eight on plant life, nine on invertebrates, and seven on vertebrates. Price 7s. 6d. (2). *The Zoological Atlas, Part I.—Vertebrata*, by McAlpine, Imperial quarto (fourteen and one-half inches by ten and one half inches), twenty-four full colored plates. Price 10s. 6d. And *Part II.—Invertebrata*, Imperial quarto, sixteen full colored plates. Price 7s. 6d. All published by W. & A. K. Johnston, Edinburgh and London.

2. What is the best book for a beginner in entomology—the one mentioned as such at the Nova Scotia Summer School of Science?

Entomology for Beginners, for the use of young folks, fruit growers, farmers and gardeners, by Packard, cloth, about seven inches by five, pages xvi. and 367. Price not quoted, perhaps \$1.50. Published by Henry Holt & Company, New York.

Literary and Scientific Announcements.

Ginn & Co., Boston, announce a second volume of "Open Sesame", a collection of prose and verse, to be ready in September.

The New England Magazine, Boston, is publishing a series of articles on Educational Leaders and Institutions. Horace Mann was the subject for August.

D. C. Heath & Co., Boston, will publish a Brief Course in the Elements of Chemistry, by Jas. H. Shepard, Professor

of Chemistry, and Chemist to the United States Experiment Station.

A Special School Issue of *Architecture and Building*, published by W. T. Comstock, 23 Warren Street, N. Y., will be brought out on the first Saturday of October. It will be sold at fifty cents, and will contain designs and descriptions of school houses from the smallest district school house, costing \$500, to the largest and most elaborately planned academies.

Ginn & Co., Boston, will publish early in autumn, a Synopsis of English and American Literature, to contain in small compass the most important facts of English and American writers, from the Celtic Bards to the present time. The same firm also announces the publication in August or September, of Shelley's "Defence of Poëtry", by Professor Cook of Yale College.

D. C. Heath & Co., Boston, will issue shortly Anatole France's "Abeille," De Vigny's "Laurette, ou Le Cachet Rouge." Selections for German Composition, with notes and vocabulary, and a new number in the series of *Guides for Science Teaching*, entitled *Insecta*, written by Prof. Hyatt, Curator of the Natural History Society.

Ginn & Co., Boston, will publish in September, Selections in English prose from Elizabeth to Victoria; also Allen & Greenough's Ovid, revised addition.

BOOK REVIEWS.

SHAKESPEARE'S MERCHANT OF VENICE; JULIUS CÆSAR; with introduction and notes, by K. Deighton. London: MacMillan & Co.; and New York. These two volumes are the latest in the Shakespeare series published by MacMillan & Co. In addition to their excellent mechanical appearance and finish, the student will find the notes very full and valuable, with numerous references to Abbot's Shakespearean Grammar.

THE LEADING FACTS OF AMERICAN HISTORY, by D. H. Montgomery, with numerous illustrations, maps and tables. Mailing price, \$1 10. REFERENCE HAND BOOK, for students of English History, by E. H. Gurney. Mailing price, 85 cents. Publishers: Ginn & Co., Boston. The first of these books aims to present the leading facts of American history, from its discovery up to the present year, in a clear, connected and forcible manner. Although this is done within the compass of about 400 pages, no important fact appears to be sacrificed. The style is admirable, and students who have read many books on American history will read this with all the avidity of a beginner, so fresh and sparkling with interest is the narrative. The second book named above should be in every student's library. It gives the descent of the kings and nobility of England.

PRIZE ESSAY OF AMERICAN PUBLIC HEALTH ASSOCIATION. —We have before called the attention of our readers to the essays of the American public health association. They have been written by authors of well-known ability, with the special design of helping persons of moderate or small means in the management of their households. The last essay has been received—Practical sanitary and economic

cooking, adapted to persons of moderate and small means, by Mrs. Mary Hinman Abel. To this essay was awarded the first prize among seventy competitors, and the unanimous opinion of the judges proves that it is a work of great practical value, and that it would in many cases assist in securing to families health, comfort, and happiness in life, if it could be placed in their hands. The essays are sold at a merely nominal price. Three copies of the above named essay, bound in cloth, may be obtained for \$1, on application to Essay Department, American Public Health Association, Rochester, N. Y.

ELEMENTARY ALGEBRA, by Charles Smith, M. A., Master of Sidney Sussex College, Cambridge. Second edition, revised and enlarged. Cloth, 7 in. by 4 1/2 in., pp. viii. + 403. MacMillan & Co., London and New York.

SCHOOL ALGEBRA, by G. A. Wentworth, Professor of mathematics in Phillips Exeter Academy. Cloth, leather back, 7 1/2 in. by 5 in., pp. iv. + 362. It is not easy to decide which of these, taken all in all, is the better book. The price would probably decide the matter. They cover much the same ground. Wentworth has the largest type and simplest looking exercises. Smith appears to be fuller of matter of a more athletic kind. Both are certainly among the best, if not the best text books on the subject for our ordinary high school course.

A COMPENDIOUS FRENCH GRAMMAR, by A. Hjalmar Edgren, Professor of modern languages and Sanscrit in the State University of Nebraska. Cloth, leather back, 7 in. by 5 in., pp. xiv. + 293. D. C. Heath & Co., Boston, U. S. A., 1890. This book first makes a survey of French grammar, in sixty-six pages. In the second part, two hundred and ninety-three pages, it takes up the whole minutely and in the most regular order, beginning every section with an historical account of the historical development of the forms of the part of speech under consideration. It makes French a philological study for the student who knows a little Latin. In its fullness, French prosody is not overlooked. On the whole, as a grammar, we have seen none of the same size which we can say is its equal.

BOOKS RECEIVED

ELEMENTS OF CALCULUS, by Hardy; and **DIRECTIONAL CALCULUS**, by Hyde. From Ginn & Co., Boston.

Selections from **HEINE'S POEMS**, with notes by Prof. H. S. White, **ABELLE**; D. C. Heath & Co. **A PRACTICAL DELINEATING PRIMER**, C. W. Barden, Publisher.

PUBLICATIONS RECEIVED.

The *Literary Digest* is the name of a new periodical, published by Funk & Wagnalls, New York. It aims to give a weekly summary of the current literature, selected from the best sources, with book reviews; a monthly chronicle of the current events of the world with other valuable features. To the teacher and student who would be informed on all topics at a very moderate expenditure of time and money, this journal seems admirably adapted. Subscription price \$3.00. The *Herald of Health* published monthly in New York, contains excellent sanitary hints for each month of the year. *Forest and Garden*, published weekly by D. R. Munroe,

New York, is doing excellent work in directing the preservation of forests and the ornamentation of public and private grounds. For literary excellence and readable selections the *Quebec Black Cross*, edited by Dr. George Stewart, has few competitors. The *Black Cross* is a bright weekly, devoted to newspapers, authors, artists and publishers. It recently sent out its first series of American clippers, which comprised hand-some portraits of fifty leading newspaper men, each portrait set in a beautiful page of the paper represented. The *Scientific Digest* contains in its first issue of each month a valuable article on the position of the planets for that month.

Pamphlets Received.

A Suggestion Relative to Science Teaching in the Secondary Schools, by Professor G. L. Goodale, Cambridge, U. S. A., President of American Society of Naturalists, eight pages. He makes a good plea for the study of the outlines of the natural sciences as *class-problems* following a properly written book; and the special study by laboratory or objective work of some one of the included sciences in the true scientific manner.

Reading in Modern Language Study, an essay read before the Modern Language Association, 1890, by Edward S. Joynes, Professor of Modern Languages, University of South Carolina. Forty-six pages. A valuable paper for language teachers.

Calendar of the College and University, Law department opens Sept. 2nd, Arts, Sept. 10th, *Medicine*, Oct. 29th. *Calendar of McGill University*, examination for Arts and Applied Science, courses begin Sept. 15th. In Law, Sept. 24th. In *Medicine*, Sept. 26th.

Pamphlet showing the proposed enlargement of *Applied Science* courses at McGill University; the MacDonald Technical buildings, the new work shops, electric engineering, etc.

Harvard College Academy Calendar, Fall term opens Sept. 3rd.

Harvard Ladies' College and Conservatory of Music announcement, Autumn term opens, Sept. 10th.

TEACHERS' INSTITUTES.

ST. JOHN COUNTY TEACHERS' INSTITUTE.

The Saint John County Teachers' Institute, will be held at the Centennial School on Thursday and Friday, Oct. 30th and 31st.

Thursday, a. m.—Enrolment of members and other routine business; Papers on Animal Life by Miss O'Sullivan—Standard I; Miss Gregg—Standard II; Miss B. Thompson—Standard III; Miss C. M. Hogan—Standard IV.

Thursday, p. m.—Physical Geography in Public Schools, by Edward Manning.

Friday, a. m.—A course of reading in History and Biography, by George R. Devitt. Modelling and Drawings in Primary Schools.

Friday, p. m.—Hints suggested by visits to Summer Schools by St. John teachers, by Miss Grace Orr, Miss Murphy and others. Election of Officers. Discussions will follow the reading of the papers.

WM. C. SIMPSON,

Secretary.

EDWARD MANNING,

President.

RESTIGOUCHE CO. TEACHERS' INSTITUTE

The Restigouche County Teachers will convene at Campbellton, September 25th and 26th, 1890.

First Session, Thursday 10-12 o'clock.—Opening Address; Enrolment of members and election of officers; address by C. H. Edgett, and paper by Miss Miller on "The Benefits to be derived from Teachers' Institutes."

Second Session, 14-16 o'clock.—Number—; lesson on—by Miss Barnes; Practical Arithmetic; paper on—by Miss Fleiger; lesson on—by Miss Devereaux.

Public Meeting 19 o'clock.—Lecture by the Chief Superintendent of Education.

Third Session, Friday, 9-12 o'clock.—Report on manual Exhibit; Lesson on Clay Modelling and Drawing by Miss Galt; Canadian History in Standard IV ungraded Schools; paper on—by Miss McKinnon; School Discipline; Essays on—by Misses Thompson and Turvey.

Fourth Session, 14-16.—School libraries, by C. H. Edgett; paper on "Teaching Music in Schools," by Miss Barnes; Essay by Miss Galt: determining time and place of next meeting; closing. C. P. STEEVES, Sec., *pro tem.*
Campbellton, N. B., August 25th, 1890.

CHARLOTTE COUNTY TEACHERS' INSTITUTE.

The twelfth annual meeting to be held at Saint Andrews, September 18th and 19th, 1890.

Thursday, 10 a. m.—Enrolment, election of officers, addresses, etc.

2 p. m.—Paper—"The Newspaper as a Factor in School Education," Mr. W. T. Kerr; discussion to be opened by Mr. W. A. Brodie.

Paper—"How to deal with Backward Pupils"—Miss

Agnes Boyd, discussion to be opened by Miss Bessie Howard. 7.30.—Lecture.—"Objects of Natural History in Charlotte County," Mr. W. F. Ganong.

Friday, 9 a. m.—Paper—"How to Teach Spelling."—Mr. J. B. Sutherland, discussion to be opened by Mr. P. G. McFarlane.

Paper—"Temperance Teaching in the Public Schools,"—Miss Annie M. Gillmour, followed by discussion.

2 p. m.—Paper—"Practical Arithmetic."—Mr. G. M. Johnson, discussion opened by Mr. J. S. Lochary.

Discussion—"The Promotion of Pupils in Graded Schools," determining time and place of next meeting.

The following arrangements have been made with steamboats and railroads: Teachers who travel by either the Shore Line R.R., or steamer "Flushing," will pay one fare and return on certificate of attendance at Institute. The steamer "Rose Standish" will issue return tickets at one fare. The N. B. R.R. will sell excursion tickets at one fare for the round trip to St. Andrews and return. When buying your tickets state that you are going to the Institute.

Let every teacher in the County attend the Institute, and take part in one or more of the discussions.

JAMES VROOM, P. G. McFARLANE.
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English Literature for License of Class I. at the June Examination of 1891.

Literary Extracts.—Royal Reader VI.
Meiklejohn's English Language.
Wordsworth's Excursion, Book I., The Wanderer.
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CHIEF SUPT EDUCATION.
Education Office, August 12th, 1890.

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Badlam's Suggestive Lessons in Language and Reading, \$1.50; Hall's How to Teach Reading, 25cts.; Wright's Nature Readers, Seaside and Wayside No. I, 25cts.; No. II, 35cts.; No. III, 45cts.
All by Mail for \$2.00
- LANGUAGE**
Badlam's Suggestive Lessons in Language, 50cts.; Hyde's Lessons in English, Book I., 35cts.; Book II, 60cts.; Meiklejohn's English Grammar, 80cts.
All by Mail for \$1.75
- NUMBER**
New Arithmetic, - - - - - 75cts.
Badlam: Aids to Number, First Series (one to ten) Teacher's edition, 40cts.; Pupil's edition, 25cts.; Second Series, (ten to one hundred) Teacher's edition, 40cts.; Pupil's edition, 25cts.; Number Chart, 5cts.
Howland: Drill Card, two cards, - 6cts.
Luddington: Picture Problems, - 6cts.
Pierce: Review Number cards, 2 cards, 6c
Safford: Mathematical Teaching, - 25cts.
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SPECIAL ANNOUNCEMENT.

To introduce this Institute to the notice of a large number of persons, to whom a knowledge of Shorthand would be useful and remunerative, I am arranging, with the assistance of the teaching staff, the formation of

A SPECIAL CORRESPONDENCE CLASS

for the study of Shorthand, or Phonography, such class to commence study on or about the 1st October next.

The course covered in this class will be precisely the same as that followed in the "Home Course" of the Institute, excepting that one fortnight only will be allowed for the study of each lesson. This restriction is made to prevent interference with the other branches, and to allow the teaching staff to correct all exercises promptly and without interruption. As each lesson may be studied in about two hours the restriction is quite reasonable.

The fee for the Complete Course, including the Text Books, will be **\$4.00.** The text books, one copy each of "The Phonographic Teacher," "Key to ditto," "Manual of Phonography," "Key to ditto," "The Phonographic Reporter," "Reporting Exercises," and "Key to ditto," the price of which separate would amount to \$2.35, and a quantity of special exercise papers.

As the class will not be formed unless one hundred prospective pupils hand in their names, and is limited to one hundred and fifty, it would be advisable to make prompt application for admittance to the class. Without comment upon the low fee asked for this class course, I may mention that it is based entirely on the assumption that over one hundred pupils will commence.

I believe that a class on this plan will be a boon to a number of persons of limited means. It will readily be seen that the recompense for the vast amount of work will be small and hardly pay expenses, but I rely on the advantages to be gained by a practical demonstration of the method of teaching employed at the Institute to ensure a larger annual attendance, and thus keep up with the demand for competent and practical stenographic business help.

Application forms and circulars will be mailed free to any address.

J. HARRY PEPPER,

CONDUCTOR.

Shorthand Institute, St. John, N. B.

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 this 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.

SCHOOL FURNITURE.

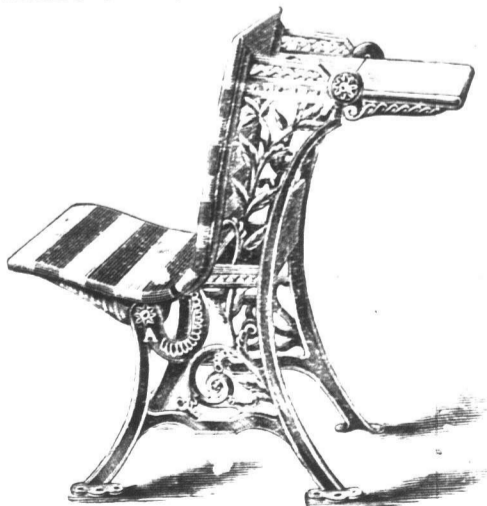
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GOODWIN & WHITE'S GREEK SERIES.

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GAGE & WILLIAMS' NATURAL SCIENCE.

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

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

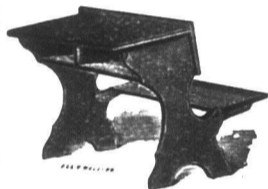
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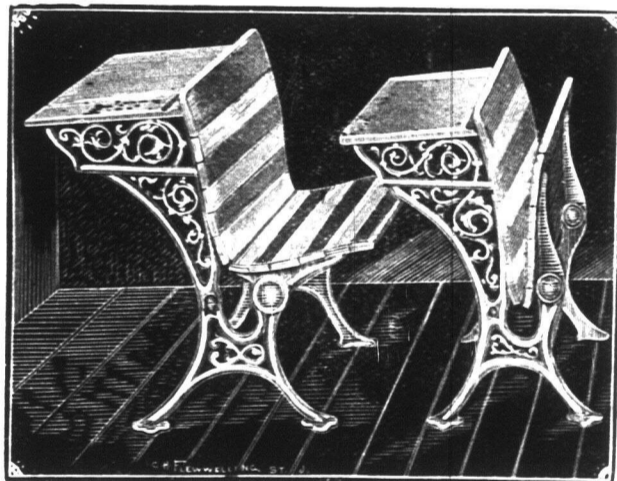
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