

The Educational Review.

Devoted to Advanced Methods of Education and General Culture.

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EDITORIAL NOTES.

WE beg to remind those of our readers, to whom time was granted for the payment of their subscriptions, that our expenses of publication are somewhat heavy, and we wish to meet them promptly. The careful and hearty support that has thus far been tendered the REVIEW by its friends, has made the task of its management a very pleasant one, and if they will assist us as far as possible in meeting our financial obligations promptly, we will endeavor to make the REVIEW still more worthy of their consideration and support.

MCGILL UNIVERSITY, Montreal, has conferred the degree of LL. D., on Principal Anderson, of Prince of Wales College, Charlottetown. This honor, coming from the leading university of Canada, is a well-deserved tribute to one who has devoted his mature powers and a ripe intellect to the cause of popular education.

THE committee appointed to arrange the final details of the Inter-Provincial Educational Association will meet in a few days, and we hope in our next issue to present a general outline of the programme of the meeting. Several distinguished educationists of Canada will be invited to take part in the proceedings, and there are indications that the meeting will be an important one in our educational history.

THE lecture on "Socialism," prepared by Principal Forrest, of Dalhousie University, and delivered by him in Halifax and St. John recently, is not only an able refutation of certain mischievous principles of political economists, but is an instructive account of the growth of wealth among the people of these provinces. Dr. Forrest's facts are gathered largely from personal observation, and he presents them with a vigor that convinces one that he at least believes we have a country in which steady honest labor has a certain prospect of reward.

THERE is a power for good in a well-spent life. Its influence is not confined to one generation nor to one class in society. The example of a pure life and a steady sustained resolve outweighs, a thousand times, mere precept. Dr. Botsford, of St. John, who recently passed away at the ripe age of seventy-seven, was a leader of society in the truest sense of the term. Of him it may be truly said that he spent his life in doing good, and his influence was not confined to one class, but was felt by all—rich and poor, educated and uneducated, old and young. In public and private life his integrity of purpose and disinterested benevolence will cause his memory to be revered for many years to come.

THE attention of teachers in New Brunswick is directed to the following changes in Regulation 30 of the School Law Manual: (1) That there is but one station (Normal School, Fredericton,) for the examination of student-teachers; and (2) that a special examiner in reading has been appointed by the Board of Education, the more fully to classify candidates according to their attainments in this branch.

THE seventeenth annual report of the Halifax School for the Blind has just been published. It records a year of progress and increased efficiency in methods towards improving the condition of those who are placed at such a great disadvantage with their fellow-creatures. The school is admirably conducted and is well deserving not only of public but private liberality.

IN speaking of the resources of Newfoundland, Mr. Norman says in the *Pall Mall Gazette*: "For abundant evidence in justification of these optimistic forecasts let the reader apply to the Rev. Moses Harvey, F. R. G. S., of St. John's, the historian of Newfoundland, to whose exhaustive knowledge of the history and condition of this island, backed by the most patriotic devotion, every inhabitant and every visitor is under obligations, and myself not least so among the latter."

THE *St. Croix Courier* referring to the Labrador Tea Plant described in the January number of the REVIEW, says: "We agree with the REVIEW's conclusion that, when the probability of securing a more healthful general beverage, and at the same time developing a new industry within our country is indicated, both science and patriotism suggest a patient and complete investigation of the facts."

MR. W. F. GANONG's paper on the echinoderms of the Bay of Fundy, read this month before the New Brunswick Natural History Society, was a valuable contribution to the knowledge of these marine forms. Mr. Ganong pointed out that they are interesting objects of study, as illustrations of animal life and structure, especially in the lower forms. He urged teachers and students on the shores of the Gulf of St. Lawrence to endeavor to ascertain what species are to be found in those waters, in order that ampler information concerning their distribution may be furnished.

THE Course of Instruction for Superior Schools in New Brunswick, drawn up by the Chief Superintendent and the Inspectors, will be found in this issue, and we direct special attention to it as it takes the place of the Course which by an oversight was published in the November issue of the REVIEW. Both the Grammar School Course published in October, and the Superior School Course in this issue have been adopted for the present term by the Board of Education. In another column will also be found the proposed changes in the Common School Course which is of interest to the teachers of New Brunswick.

THE teachers of Fredericton have made arrangements with Dr. Bailey to give a series of lectures in geology and botany during the winter and spring.

WE have just received from the publisher, T. Fisher Unwin, of London, a volume of Addresses by the late Edward Thring, Head Master of Uppingham School, England. In the volume before us, and which we have had time merely to glance through, there is the address to the Teachers' Guild, published in the July number of the REVIEW, through which was breathed the earnest spirit of this great teacher. The volume is edited by Sarah E. Thring, his daughter, and "is dedicated in fulfilment of the author's wish, to George R. Parkin, Head Master of the Collegiate School, Fredericton, New Brunswick, his fellow-worker over the seas."

MR. MONTAGUE CHAMBERLAIN has conferred a boon on science by the publication of his catalogue of Canadian birds, which comprises all the species known to Canadian ornithologists. With but limited time at his disposal, but with an earnestness, an industry and a love for the work that no obstacle could overcome, Mr. Chamberlain has toiled patiently at his task. With that spirit that distinguishes the true scientific enquirer, he has delivered his work conscious that it has imperfections, but desirous that it may lead to a fuller knowledge of bird life and distribution in Canada. Since the publication of Mr. Chamberlain's list of New Brunswick birds, six years ago, he has seen the students of bird life in this Province rapidly multiply, and now in the greatly extended field, and in the many observers appealed to, there is a prospect of more systematic attempts to study Canadian bird life in the future. The taste shown in the arrangement and mechanical execution of the work is highly creditable to the author as well as to the publishers, Messrs. J. & A. McMillan.

AT a recent meeting of the Montreal Natural History Society, the President, Sir Wm. Dawson, exhibited a cast of the new trilobite (*Paradoxides regina*) recently discovered by Mr. Matthew in the Cambrian of New Brunswick, and remarked on its great size and the importance of its discovery. He then read a paper on certain sponges discovered by Dr. Hanington in the Quebec group rocks at Little Metis, describing one of them as a species of *Protospongia* (*P. tetraneima*) and explaining its form and structure in comparison with other sponges recent and fossil, and the peculiar form of its root-spicules. He also referred to four other sponges found at the same locality, and belonging to four distinct generic types.

SCHOOL SAVINGS BANKS.

The Newcastle, N. B., *Advocate* makes some timely remarks on the subject of school savings banks. After referring to the introduction of the institution in the Dartmouth schools, mentioned in the January REVIEW, it records the adverse opinion to the system given by the teachers of Northumberland County at their Institute in October last, that objection being founded on the apparent violation of the spirit of the free school law by the tendency of such a system to place poorer children on an unequal footing with richer companions. The *Advocate* adds:

"This, however, might prove to be a sentiment which would have no existence in the practical workings of the plan, and, like similar sentimental theories propounded at the time of the adoption of the school law as to the social disturbances that would result, be found only the creation of a prejudicial fear. The success of the trial at Dartmouth inclines strongly to this belief.

"The importance of encouraging the principle of saving and economy in the child cannot be over-estimated, and any scheme that offers an intelligent training of children in this direction seems to deserve more than a speculative discussion. How much of success in life is due to the practice of economy! How many of life's sad failures are due to the violation of its principles. 'Economy is wealth.' It is more. It is the restriction of desire, the strengthening of character and the building up of a self-reliant robustness of mind that is a shield against temptation in all its forms. It makes thrifty and industrious citizens, and to a people who practise it generally it means social contentment and prosperity. It seems only to be necessary to consider the social evils the neglect of its principles entails to become convinced that it deserves a more active place in our educational system than that of theory or precept. The boy with a few pennies in his pocket who can be trained to run the gauntlet of the candy shops on his way to school is strongly fortified for the battle of life. It may not only develop a habit in him which is wealth itself, but be the means of giving him a start in life, a thing of great importance to ambitious boys. The School Savings scheme seems at least to be worthy a trial."

RULES OF THE DARTMOUTH SCHOOL BANK.

1. Deposits of One Cent and upwards will be received at the department in which the child is enrolled, every Monday, a. m.
2. The Money received will be invested in the Post Office Savings' Bank, on behalf of the above-named School Bank, in the names of the School Committee, being Trustees of the said School Bank.
3. Depositors may withdraw all, or a portion, of their deposits, on giving One Week's Notice, any Monday, the Deposit Book to be left with the Trustee in attendance.
4. So soon as the amount paid in by any depositor reaches \$1.01, the Trustee will assist him to open an account, in his own name, for said amount in the Government Post Office Savings' Bank. As, however, no deposit of less than \$1.00

will be received at the P. O. Savings' Bank, he may continue to pay into the School Bank as before, so long as he attends school, each additional dollar being in turn transferred to the P. O. Savings' Bank.

5. Any child who does not attend School at least four days in the week, except absent through illness, will not be allowed to deposit the following week.

6. Each depositor will be furnished with a Bank Book free of charge; but should it be lost, he will be charged three cents for a new one.

7. In the event of the death of a depositor, the amount to the credit of the deceased will be paid by the Trustees to the legal representative of the deceased child.

8. The books and accounts shall be audited quarterly by a person appointed for that purpose.

SEVERAL members of the N. S. Summer School of Science, which held a meeting of its Executive in Halifax last month, visited the regular weekly meeting of the Halifax Teachers' School of Science in the County Academy Building. Although it was the first meeting after vacation, a large number of teachers was present. Principal O'Hearn, of St. Patrick's School, was presiding, and Messrs. McKenna and Thompson were conducting a chemical demonstration on our entry. We found on further observation that the class was following a course of practical chemistry outlined on cyclostyled sheets by Supervisor McKay himself. The Association has also a class in drawing, physics and mineralogy this winter. The inspiring genius of this movement lays special stress on practical self-proven knowledge. All the work is designed to be practically demonstrative. Short addresses were made by the visitors bearing on the work of the Association. Prof. Eaton referred to the distinguished position taken by the Halifax teachers in the Nova Scotia Summer School of Science, and to the remarkable organizing genius of the Supervisor of the city schools. Prof. Hall and Principal MacKay also bore testimony to the value and high character of the voluntary work undertaken by the Halifax teachers for the purpose of enhancing the efficiency of their educational work. We have good reason to believe that no city in America has a more energetic and progressive staff of teachers than the public schools of Halifax. Our town and country teachers cannot afford to rest on the laurels of a bare B or C diploma, while the teachers of the metropolis are constantly studying. Try this association system.

A new English text-book of Volapuk has just been published in Milwaukee, Wis., U. S. A., by C. N. Casper.

TRURO KINDERGARTEN.

We enjoyed a pleasant hour the other day at the Truro Kindergarten. As we entered the dear little birdies were circling hand in hand on the floor, singing a charming, simple bird song, and keeping time with the piano. It was a little drama of music, motion and beauty-thoughts. Then they turned in to their little work tables. One set strung straw beads with thread and needle; another, small colored paper disks; while yet others were weaving checkered mats. Some little fellows tried drawing with chalk crayon on the low blackboards around the walls. Then the teacher took a small class sitting around their little tables in the form of a hollow square, showed them some pieces of calico, of various patterns. Some patterns were better liked than others. They would prefer to buy the prettier pieces. The difference was in the little ornaments, pictures or designs on the cloth. Now cannot the little ones make as pretty a design? A number of large and small rings which would come apart as half circles were next given them, to arrange in a given design. The little ones took up the idea, and they all formed the design from dictation simultaneously. Then more complex designs were dictated. It was interesting to note how difficult it was for some of the little ones to comprehend a described position, thereby illustrating the great mind developing nature of the exercise. We saw only a portion of the work, and feel the impossibility of describing even what we saw. The school is what its name implies, a child's garden. He is shown the various colors, names them, and exercises his powers in distinguishing them. Many a man is as good as color blind for a lack of such training. They play with the cube, and from it they understand the properties of surfaces and lines. The cube is cut up in various ways, and they observe facts which High School students have been known to be unconscious of. Architectural forms are built up from simple blocks and the ideas of symmetry and æsthetics are called into play which gray-haired grandfathers could not exhibit. Melody of voice and trueness of ear, the poetry of motion and the aroma of good manners, the clearness of the eye and the deftness of the hand, are all simultaneously developed in a purposeful play, by a skilful hand and an intelligent mind. Such is Miss Woodcock, of the Truro Kindergarten. How handicapped must be the child whose opening faculties are left to be expanded in the kitchen or on the street, under the influence of minds and manners never themselves properly developed! What we want now is a young lady of good family with tact and good manners from every

town in the provinces, to study the system under Miss Woodcock and introduce it at home. It would at first be supported principally by the wealthier people, who need it least. But its advantages would probably become so apparent that in due time it would be grafted on the primary school system for the benefit of rich and poor alike.

N. S. SUMMER SCIENCE SCHOOL, 1888.

At the last meeting of the Executive of the Nova Scotia Summer School of Science some changes were made in the staff of instructors. Prof. Smith, of the School of Agriculture, takes Chemistry; Prof. Eaton, Physics; A. Cameron, Esq., Principal of Yarmouth Academy, Astronomy; and Inspector MacDonald, M. A., Mathematical Field-work. Mr. MacDonald is an able and experienced surveyor. A couple of field demonstrations from him, showing how to use the theodolite in measuring angles, the level in leveling, the compass and the field-book, etc., will be an invaluable supplement to the trigonometry of Grade B teachers. A couple of surveys will be made and noted in field-book form, from which notes plans will be plotted. Principal Cameron, in addition to the study of the constellations, will show how to use the sextant in determining local time, latitude and longitude, etc. The opening address will be delivered by Professor Eaton, A. M., of the Normal School, in Convocation Hall, Pictou Academy, at 7.30 p. m., Monday, July 23rd. The school will close Friday, August 3rd.

A prize of \$10.00 is offered for the best set of *home made apparatus* adapted for use in common schools to illustrate the principles of physics and chemistry. A prize of five dollars will be given for the second best set.

ARBOR DAY.

We hope that teachers are keeping in view an Arbor Day for the spring of 1888. It is not too soon to begin a plan of work for that day. A flying trip through many towns and villages of Nova Scotia and New Brunswick last summer, gave evidence to the writer of what has been accomplished during the past few years in the improvement and decoration of school grounds. Let the improvement be steadily progressive. Do not let the school grounds lie fallow for many seasons yet. What has already been done has had an influence for good that cannot be estimated.

In the Manual of the School Law of New Brunswick there is a provision for the observance of this day, which is as follows: "Teachers are hereby authorized, with the sanction of the Trustees, to set apart any Friday that may be deemed most suitable during the months of May or June, for the purpose

of improving the school grounds and planting thereon trees, shrubs and flowers, such day to be known as 'Arbor Day,' and when duly observed credit to be given for it as a lawful teaching day." In another part of the Manual there are some excellent and practical hints on the improvement of school grounds, the selection of trees, etc., which are worthy of careful attention on the part of teachers and trustees. We hope that the forethought of the Board in making provision for the permanent observance of the day, with the excellent suggestions contained in the Manual, may meet with a ready and enthusiastic response from all the teachers of the province.

ON THE TEACHING OF HISTORY.

There are still some people who object to the inclusion of history in the common school curriculum. There are those who regard many of what are called the facts of history with considerable doubt and uncertainty; while there are others who, without any scepticism respecting the facts, consider that it is not possible to teach history so that it may be interesting, or become an instrument to call into exercise the higher faculties of the mind. To the former we need say nothing beyond the simple and indisputable fact that history abounds in materials about which there can be no question, and that even within the limits of the disputable, in consequence of the investigation of recent years, we can tread with a firmer step, and with greater confidence undertake the guidance of those who are committed to our care. With the latter we would acknowledge ourselves in perfect agreement were history to be regarded as consisting of the names of men and women, the dates at which they lived, the narratives of sieges and battles, leagues and treaties, and that the teaching of history is the memorizing of these facts. But if the history of a country is to be viewed as the life of the nation, the tracing of the gradual development of the people from a barbarous or semi-barbarous condition, the story of the early manifestation of those qualities which became their distinguishing characteristics, the recognition of these attributes as the special features of their most illustrious men, the indication of the sources of their weakness and strength, and the incidents of their periods of progress and misfortune, history becomes not only a fascinating study, but one of the most instructive which can occupy the mind.

It is a matter of little moment to the teacher whether the history of a country is the story of the lives of its great men, or that the men of "light and leading" are the product of the times in which they live. He will employ their names as convenient

guides to aid him in arranging his facts. They are interesting to him in as far as they are identified with and are leading actors in great national movements. He traces from their earliest beginnings the national impulses and the train of incidents which betray their presence, and notes how, as time passes, they gain momentum and carry the nation, after many vicissitudes, into a region of strength and repose. Or it may be that he indicates the direction of social and religious changes (silent they may be but not the less certain) and marks the various stages of the revolution by the names of the leaders who gave character to and influenced it. The history of a nation is the narrative of the changes through which it has passed till it becomes what we find it to be at the present day. As when, in the case of a distinguished man, whose influence upon his age renders it worth while to inquire respecting the incidents of his life, we trace the agencies that moulded his character, the effect upon him of existing forces, and the part he took in directing them; so in the life of a nation, we mark the various steps by which it has arrived at its present position. In Great Britain, for instance, we mark the existence of constitutional government, a well-regulated liberty,—political and religious,—a social condition of the people advanced and fairly ameliorated, and a dominant and masterful spirit, which is, in spite of all efforts to the contrary, yearly compelling additions to her vast dominions. If boys were induced to look at the history of Great Britain as the history of the progress by which these results have been reached, of the struggles through which she has passed, of the disciplinary ordeal she had to submit to, which has given strength and stability to the national character, and of the patriotic statesmen and men of letters who were the representatives or the exponents of the national spirit, who governed kings and moved the people, it ought not to be the dry, barren and uninteresting subject it often is. Boys would find that there is a charm heretofore undiscovered and undreamed of in the study of history when prosecuted on this plan, and when additional light is cast upon a period by the perusal of contemporary records or the results of modern enquiry.

But the lives of great men are always specially attractive to young people. Every intelligent boy has his hero, and every girl too. The boys generally select such a man as Henry V., Richard I., or Robert the Bruce, while the girls prefer Alfred or Edward VI. These are characters the most diverse, and taken not so much because of their great benefactions to the state, but because they strike the fancy and arouse the imagination, either by their war-like deeds or their

o'er-mastering control of circumstances, or win the sympathy by their misfortunes, their reflective cast of mind and devotion to the arts of peace. In a country where religious instruction is banished from its schools, what an admirable opportunity has the teacher during the history lesson, to inculcate high moral principles on the minds of his pupils! In king, statesman, or general, he has, prepared to his hand, characters in which he will find much to commend, and much to condemn; whilst he will have the opportunity of training the minds of the youth in tolerance and liberality of sentiment; in teaching them that times and circumstances greatly affect men, and that in forming our judgments of them, we must gauge them by the standards of their own times, and not by those of ours. Not that the great principles of truth, justice, and honesty suffer modification from time or circumstance, but that the conditions of birth, youthful training, and the environment of later years, demand for them a more charitable and generous judgment than is generally accorded to them. It is the duty of the teacher to place a lofty ideal before the minds of his pupils, but he must see to it that the illustrations or realizations of his ideal are true to fact, and that he has done his best in preparing for his portraiture, to procure from all sources within his reach, the most reliable materials which can be obtained. No lesson of the day will make such a deep and lasting impression on the minds of the pupils as a vivid and picturesque delineation of character, and none, we are sure, is more calculated to elevate the sentiments, ennoble the aspirations, and quicken and urge to vigorous and well sustained effort.

In the management of the details of history, the teacher ought to be and must be, systematic. In tracing the growth of the country, he should be able to represent, by maps, the country at different periods, the distribution of the population by noting the towns as centres of business or government, the cultivated and waste regions, and the opening up of its mineral resources. He must be able to follow upon the map, and present to his class all extensions, of territory, note the treaties by which they were ceded, and the resources which make such acquisitions valuable. Nor should he fail to make clear the course of every campaign, to point out upon the map, or, better still, mark upon the blackboard the battle-fields, and emphatically exhibit the causes of the wars, and their consequences upon the people and the country. And now and again it might not be amiss, on the occasion of some great and decisive battle, such as Bannockburn or Waterloo, to interest the pupils in the subject by describing minutely and illustrating by diagrams

the disposition of the armies, and the various movements of the day, from the first onset to the final charge of the victorious army.

But what must be insisted upon as absolutely indispensable, is careful and intelligent preparation by the teacher. The day, we trust, has gone, never to return, when the teacher would stand before his history class, with the book in his hand, not simply for reference as occasion might demand, but that from it he might derive every question, and to it he might repair to verify every answer. He must, however, not only know the lesson of the day, but have reflected upon the best and most attractive mode of presenting it. He must be able by allusion and illustration to interest and impress, by a free and ready use of the blackboard, to rivet the subject in the minds of his pupils, and by a frequent and judicious recurrence to matters already treated, to stamp the principle of continuity on their views and impressions of history.

Nor should historical study be confined to the history of our own country or of our own race. If the mind is to be benefitted by such a pursuit, the history of nations that have passed away ought to divide our attention with that of those that still flourish. The history of the earlier civilizations in Egypt and Assyria, and of the later in Greece and Rome is most instructive, and contributes to our understanding of phases of life and manners, and on systems of law and polity, still unexhausted in the dark ages, and even transmitted to our own times. And as there was at these distant times scarcely a form of government which was not tried, it becomes intensely interesting to follow the history of each experiment and compare it with the results which have been reached in our own day. Moreover, human nature was much the same in the people of these countries as it is in us at the present time. The principles in action, though in different circumstances, were identical. So long as the people remained simple, truthful and pious, and were uncontaminated by the grosser forms of vice, they prospered; but when they abandoned themselves to the indulgence of their baser natures, when drunkenness usurped the place of sobriety, when luxury displaced simplicity and frugality, when greed, injustice, haughtiness, falsehood and oppression became the predominant features of their character, they fell. What more important lesson can be learned by any individual or any people? And surely at the present time we require to multiply precedents, to enforce the great and clear principle that truth, sobriety and honesty are the safeguards of a people,—that "righteousness exalteth a nation."

FERNDALE SCHOOL.

No. IX.—THE HORSE BREEZE-FLY (*Oestrus equis*—Fab.)

MALE.



FEMALE.

TEACHER. Here are the male and female of the Horse Breeze-Fly, or the Horse Bot-Fly, as some people call them. It requires more skill than angling to take them with the net. Do you think so?

SCHOLAR. Yes, a good deal more, I should think.

T. Will you tell us why?

S. In hot days in July and August you may see them in numbers tormenting the horses in the pasture. They make the horses half crazy sometimes, so that you have to keep your eyes on their heels as well as on the fly.

ANOTHER S. It is quite easy to catch them sometimes when flying about horses in harness—that is, if your net won't scare the horse. They look hairy, something like small bees.

T. Well, let us describe its appearance. What is the color of its face?

S. Yellowish, with a whitish down.

T. Its eyes?

S. Blackish.

T. Its antennæ?

S. Rust colored, small and three jointed.

T. Its thorax?

S. Greyish, with fine hairs.

T. They belong to the class—

CHORUS. Diptera.

T. Their wings are whitish with a golden tint, having a wavy band across them of—

CHORUS. A blackish color.

T. The abdomen is reddish yellow, with—

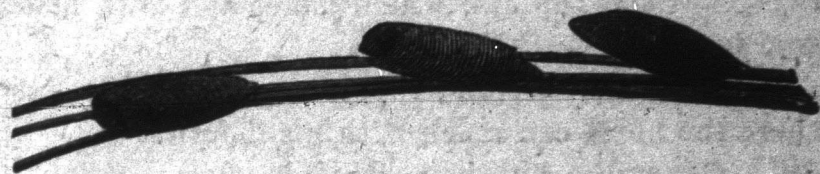
CHORUS. Black spots and very fine hairs. But one is roundish and the other longer and tapering.

T. Very good. The one with the long tapering abdomen is the female—the one which torments the horses. When it comes near a horse it makes an observation, buzzing in an upright position as in our drawing, and coming slowly closer to the horse's shoulders, breast or legs, all the time preparing with its ovipositor at the tip of its abdomen, a small white conical egg covered with a sticky fluid. It then suddenly dashes toward the animal, and touches the egg to a

hair, where it instantly sticks and hardens. The fly in the meantime goes away to get ready for another attack. How many of you have seen these little specks on the hair of the horse?

(Hands shown by a number of boys).

T. Here is a magnified drawing of two or three hairs with three eggs attached.



They are furnished with a small lid at one end. In a few days the eggs are ready to be hatched, and then the least warmth and moisture from the lips of the horse will take off the lid and bring out the—

CHORUS. Larva.

T. Which sticks to the horse's mouth and is eventually swallowed.

S. Wouldn't that kill the larva?

T. It would kill the most of larvæ. But the heat and character of the horse's stomach just suit these exactly. As soon as the little grub is swallowed, it attaches itself to the coat of the stomach by means of two minute hooks.



This drawing represents them growing on a portion of the wall of the stomach where they are called bots. They pass the winter comfortably here, and if not very numerous are supposed not to be very injurious to the health of the animal. They are now of a whitish or yellowish red, and show eleven rings or segments with very small bristle teeth as in the drawing.

S. It is a wonder they are not digested.

T. Perhaps so. But they evidently think the horse exists for their special benefit. For when mature, they let go their hold and pass through the body of the animal, fall to the ground and change into the chrysalis with a hard dark reddish brown

skin. After remaining torpid in this condition for some weeks, it comes forth as the perfect fly in June or July.

S. Are all the flies which trouble the horses breeze-flies?

T. Not by any means. There are others known as horse-flies and gad-flies, belonging to another division of the Diptera, which pierce and draw blood from horses.

S. Does the breeze-fly place its eggs only just where the horse can reach with his mouth?

T. Generally, but just as often on a portion of the shoulder, which a companion horse only can nibble at, as they generally do.

S. How can horses with great numbers of these bots be cured?

T. Well, what will kill the bots is likely to kill the horse, and a competent veterinarian should be consulted in such cases. The best plan is prevention. What would you propose?

S. To keep the eggs continually off the horses' hair, by combing, or scraping, or cutting the hair off.

T. Just what is recommended. Some use a wash of carbolic soap to kill the larvæ in the maturing eggs.

AMONG THE CONSTELLATIONS.

No. V.—TAURUS.

As bees

In springtime, when the sun with Taurus rides,
Pour forth their populous youth about the hive
In clusters;

So thick the aery crowd
Swarmed and were straitened.

—*Paradise Lost, Book I.*

Many a night I saw the Pleiades, rising through the mellow
shade,
Glitter like a swarm of fire-flies tangled in a silver braid.

—*Locksley Hall, Stanza 5.*

The three stars in the belt of Orion are about one degree apart. It is therefore a good yardstick for the heavens. If produced upwards in the direction of the Pleiades the line will first pass through a group of Stars in Taurus called the Hyades. The brightest of these, which is of a red color and of the first magnitude, is Alpha, or Aldebaran. The group is on the face of the bull. The Pleiades, consisting of six stars generally visible, is on the shoulder or flank. Some persons can see seven stars in this group. On a moonless night even twelve or fourteen have been seen without glasses. But such sight is rare. M. Wolf, of the Paris Observatory, has measured the positions of no less than 625 down to the fourteenth

magnitude in this group alone. The brightest is called Alcyone, which by some astronomers has been considered the probable centre of our universe around which our sun and the fixed stars revolve. It is 150 times more distant from us than the nearest fixed star, light taking about 500 years to reach us from it. The probable time of the revolution of our sun and system around it has been put down at twelve million years. Beta of the second magnitude, and Zeta of the third, are near the tips of the horns, just on the border of the Milky Way. A vertical line drawn from Rigel through Bellatrix in Orion, produced its own length, will pass through Zeta of Taurus and a little east of Beta, which is three or four degrees further off. The sun will travel through this constellation in May, moving about one degree each day from west to east. It will pass between the Hyades and Pleiades, and between Beta and Zeta, about the end of the month and first of June. The zodiacal signs do not now correspond with the constellations, as they did nearly when first named about twenty-two centuries ago. A sign is exactly the twelfth part of the zodiac—thirty degrees. The sun enters the sign Taurus about the 20th of April, but it is then only in the constellation Aries, and will not pass within the boundaries of Taurus until sometime in May. This phenomenon is caused by what is called the precession of the equinox. This constellation is bounded on the north by Perseus and Auriga; on the east by Gemini and a portion of Orion; on the south by Orion and Eridanus; on the west by Cetus and Aries. The planet Neptune is at present in Taurus. Saturn is further east in Cancer, forming a triangle with Pollux and Procyon.

PLANETARY PHENOMENA FOR FEBRUARY.

Jupiter, Venus and Mars are morning stars, and are respectively in the following constellations about the first of the month, Scorpio, Sagittarius and Virgo. Jupiter rises about six hours before the sun near the end of the month; Venus about two hours and Mars about eight hours. Saturn is evening star, rising early in the evening in the east. It is in the constellation Cancer, and forms a triangle with the twin stars Castor and Pollux on the north-west and Procyon on the south-west. Mercury is evening star. He reaches his greatest eastern elongation on the 17th at 3 o'clock in the morning, and is then 18° 7' east of the sun.

The eclipse of the moon, January 28th, was seen only in glimpses through the clouds in Nova Scotia. The south wind breathed gently on the 31st January, producing a gorgeous display of feathery frost crystals on everything next morning—a fairy scene,

FERNDALE NOTES.

I.—NATURAL HISTORY OF COAL.

1. *Woody Matter.* Wood, plants, mosses, etc., exposed to the air decay, forming vegetable mold, brownish or dark colored. (*Examples*—Decomposed logs from the forest).

2. *Peat.* Under water or clays these woody substances do not decompose so completely. Were the whole country to be covered with vegetable matter, say three feet deep, on the dry land, this layer would soon be wasted by the air so as to be very thin, while in the swamps it would lose comparatively little of its bulk. The accumulations of vegetable matter in bogs or swamps, which consist principally of a moss called sphagnum, are called peat. The latest made on the surface shows its origin more plainly; deeper down, the older material looks more like *brown coal* or lignite. (*Examples*—A few small specimens dried from neighboring swamps).

3. *Lignite.* Very old peat taken from great depths where it has been under great pressure is hard and brittle like coal, but it often has the brownish color of peat, and has sometimes not lost all appearance of its vegetable origin. (*Examples*—Not easily found, probably).

4. *Bituminous Coal.* Found in still older deposits, under old layers of rock and more completely mineralized. *Cannel coal* when heated, melts into tar or bitumen and gas, and produces much flame,—will burn like a candle, whence the name. *Caking coal* softens when burning, producing much gas and flame. *Non-caking coal* burns without softening. Woody matter, in being changed into coal, becomes from ten to sixteen times smaller in bulk. (Specimens easily obtained. Fossils in neighboring rocks showing presence of vegetation).

5. *Coke.* Is made by heating the above coals, not in contact with air. *Cannel* gives off from *forty* to *sixty-five* per cent. as a volatile hydrocarbon or inflammable gas. The remaining carbon which will produce a glowing live coal when burned with plenty air, but no flame, as there is no gas to burn, is called *fixed carbon*. *Caking coal* has less of the volatile and more of the fixed carbon; and *non-caking coal*, still less of the volatile and more of the fixed carbon. *Coke* contains only fixed carbon, (specimens obtainable from Stellarton, N. S.).

6. *Anthracite.* Is natural coke, nearly all fixed carbon. Is generally hard, jet black and glossy in its fracture, makes a strong glowing heat without flame. The heat and pressure in its deep and ancient deposits distilled the volatile hydrocarbon from it. (Specimens easily obtainable from imported material.)

7. *Graphite.* Nearly pure fixed carbon in a powdery natural condition. The black lead of lead pencils, stove polish; found in still older rocks generally than anthracite.

PRODUCTS OF NATURAL DISTILLATION OF COAL.

1. *Gases.* Marsh gas or fire damp, and other similar gases. Sometimes imprisoned under gas-tight layers of rock extending for miles, and under tremendous pressure. When the rock is drilled through, it escapes sometimes with the force of gas from a gun.

2. *Oils.* Petroleum, kerosene, or mineral oils, generally found in the same subterranean cavities as the gases; a number of oils mixed in all proportions, some of them gaseous at ordinary temperatures. These have to be distilled off to make the oil safe for lamps.

3. *Paraffines.* Solid, wax-like, white and translucent. Found dissolved in the petroleums, etc., above mentioned. All mineral gases and oils do not necessarily originate from coal. Some are of animal origin and some of direct chemical origin, probably.

4. *Asphalts.* Called also bitumen, and mineral pitch. Found about Dead Sea, in Trinidad as a lake, in South America, California, England, Switzerland, Sweden, Caucasus, etc.

5. *Albertite.* Found first in and named from Albert County, New Brunswick. Is a solid asphalt, like cannel coal in its properties, only that it has a shining jet black glassy fracture, and is not dull black like cannel. Found in pockets into which it may have flowed from bituminous coal, distilled locally, perhaps by the subterranean heat from the tremendous volcanic furnace which poured out the huge ridge of mountains now ending at Blomidon.

SPELLING REFORM.

The *Halifax Critic* says: "It does not look quite so hideous as most illustrations of orthographical reform, and might furnish a hint here and there for brevity of spelling. But what is required is what the Spaniards have,—a revising college of the language, whose decisions would carry weight."

Spelling reformers must bear in mind that nothing can be gained by the present generation from reform. We can expect only some inconvenience and occasional twinges of sadness at the disappearance of expensive, eccentric, but well loved forms. Reformers are working for posterity; and a reformed spelling would save at least two solid years of useless and demoralizing cram for 100,000,000 English scholars in one generation, and soon make it the universal language.

For the REVIEW.]

EXAMINERS AND THEIR PAPERS.

"But for fear that every examiner who reads this may complacently suppose that these qualities belong, in an especial degree, to him, it may be said that quite another species of examiner is abroad, and a strong protest should be entered against the absurd and meaningless questions that are too often put forth as tests (?) of pupils' efficiency, both in the elementary and higher grades, by examiners who appear to think that it is their special function to puzzle and confuse the pupil," etc.—REVIEW, January.

Thanks, Mr. Editor, for your plain outspoken truths. A very strong protest should be made by all the teachers against the papers usually set for examinations. Almost every month papers are published in the daily press which call forth the execution of your suggestion. It is not to be wondered at that so many candidates are "plucked." We might select from almost any paper on every subject in the courses of study of every school or institution. We have at hand quite a number of examination papers for academies, the teaching profession, and for the civil service.

Let us take the following: "Write the plural of the following nouns: loaf, life, strife, wife, echo, grotto, potato, negro, piano." We are taught that, with a few exceptions, the plural in English is formed by adding *s* to the singular. The above do not belong to the general rule. Some belong to the exception, "That nouns ending in *f* or *fe* change *f* or *fe* into *ves*." Some belong to an exception to this exception, all of which is contained in very fine print in most text-books, as if less prominent than the general rule; yet these words are trotted out to test a pupil's knowledge of number as applied to nouns. Again, take the words "negro" and "piano." One of these follows the general rule, the other follows a rule which was formed so as to facilitate its pronunciation, and takes *es*. Now why should any examiner select such words as these? Certainly, as you say, to confuse the pupil. But will any examiner inform your readers why the plural of *negro* should be spelled *negroes*, and *piano* *pianos*, or that *grotto* be spelled *grottos* (which is the most sensible method) and *echo* *echoes*? Will he explain why there should be any exception to the general rule of adding *s* to the singular save where the pronunciation demanded it, as in such words as "match," "box," etc.? Will he also inform us why nouns ending in *y* preceded by a consonant, change *y* into *ies* to form the plural. Surely it is not for pronunciation. Bain, in speaking of those words ending in *o* that take *es*, also of nouns ending in *y*, says, "This is a mere caprice of spelling and not a proper inflexion or modification of the

word." Then, in our humble opinion, the above question is not a test in English grammar as intended, but a test of the pupil's memory of a "mere caprice of spelling." Perhaps the "Spelling Reform Association" will improve this part of our text-books in grammar.

Again, here is another: "Define grammatical gender." Is this of so much importance as a test of a pupil's knowledge of this inflection of a noun? Are we expected to speak of a noun in the *grammatical* gender when we are parsing it? In old English, as in Latin, gender was often determined by *the form* of the word and not by *its meaning*; but is there any necessity of dragging needless forms into our modern English, simply because they belonged to ancient times? This, too, might properly come under the head of spelling, as it has to do with the form of spelling these words. Why not ask the pupil to define "poetical" gender?—to define "grammatical" case? With the exception of the possessive case nouns have no variation in the nominative case from that of the objective case, each being distinguished by its grammatical relation to other words in the sentence.

Take another example. "Youth is sometimes called the *springtime* of life,"—parse "*springtime*." A rule generally given in our text-books is "transitive verbs in the *active voice* govern the *objective case*." Pupils are continually drilled in this rule until by inference they begin to think that verbs in the *passive voice* have nothing to do with the case of nouns related to them. There is no rule to explain the case of nouns positioned as 'springtime,' and the word John in the following, "He was called John," but in some fine print, being perhaps the last exception to some general rule, the case is explained. Now, are such sentences a *fair* test of a pupil's knowledge of grammatical rules, or is it only a test of their memory of exceptions couched in very fine print? As a rule, it is acknowledged that the fine print of most any text-book is not to be studied so thoroughly as the coarser print, which is supposed to contain the more important points. The above sentence was given in a pass examination to pupils from eleven to thirteen years of age, where seventy per cent. was required to *pass*, and "springtime" was the only word governed by a verb required to be parsed. But, we would like to ask if it is the design of those who make out the papers that in parsing *every word* should be parsed in all of its ramifications; if so, then sufficient time should be given. Is it really necessary that such be required to test grammatical knowledge or skill in writing good English? In our paper before us are eight questions, the last one contains fourteen words to parse. To do this in full and correctly, according to the usual

forms, would take at least more than half the time given to the whole paper. What was the object in view in this case? Another point frequently complained of is this: An examiner declines to accept, on equal terms, the parsing of two candidates, one of whom uses the ordinary paradigm, where the other simply parses each word correctly on the page of his paper, as if he were writing a definition; the latter's papers are marked low, because the examiner has a preference for the ruled forms, where, as in every other respect, the papers are equal. But this marking or per centage business is no reliable standard of any pupil's knowledge; neither is it, as some think, a proof that teachers are not doing good work. Judging from some leading educational papers, it would appear that to pass examinations was the highest aim in education, and when a candidate failed to pass then his teacher was to blame, as if the pupils had nothing to do for themselves. The fact is that teachers do too much to urge their pupils through the prescribed course, and the result is that too many of them have very hazy ideas of the work gone over.

If examiners would adapt their questions to the age of the pupils, and not give children work that would demand the more developed minds of young men; also to give either fewer questions or more time, then there would be less ground for complaint and more encouragement to do good work. Too often examiners exceed the limits required by the syllabus, and thus both teachers and pupils are disappointed. Written examinations should never be made the sole test for promotion from a lower to a higher grade, or from the common to the high school or academic department. Many of the leading schools in the United States have been modified in this respect—the pupil's record is now being taken into account. Seventy per cent. was the standard to pass for promotion in an examination; a diligent, hard-plodding, study-loving pupil made 69 $\frac{1}{2}$ per cent., and was plucked on questions more difficult than most papers for license D, with this difference: candidates for academies, as a rule, are from eleven to thirteen years of age, whilst candidates for the teaching profession, are, if females, sixteen years; if males, eighteen years. Age seems to be lost sight of when papers are being set for juveniles.

We have some very good specimens of questions for high school entrance recently given. In history there are seven questions for English, and four for Canadian history, only *four* of the former and two of the latter are required. This gives the youthful candidate a chance to succeed, but when he thinks he is required to answer *all* the questions he is worried into a nervous state, which too frequently is the real cause of his failure.

For the Review.]

A NEW TEXT-BOOK OF CHEMISTRY.

A good indication of the increasing interest taken in scientific study, and of the increasingly important part which the latter plays in our modern educational systems is the number of text-books prepared for the use of *beginners*. The methods, moreover, adopted in the preparation of such text-books are beginning to show more and more the recognition upon the part of their authors of the true aim of studies of this kind, viz.: not so much to store the mind with multitudes of facts, however useful, as to lead the mind to see for itself how facts are gathered, to estimate their relative bearing and value, to test their accuracy, and then to give to students such powers, both of thought and observation, as will enable them to consider intelligently the manifold problems which our modern life is continually presenting to them.

A text-book in which this feature is somewhat markedly seen, and which has recently been brought to our notice, is that of the elements of chemistry, by Prof. Ira Remsen, of the Johns Hopkins University. Though written by one connected with what is justly regarded as one of the most advanced institutions of the continent, and one especially devoted to original investigation, it is just what it professes to be—a work for *beginners*—and as such, is at once clear, simple, attractive and systematic; not attempting to cover too much ground, but yet bringing before the young student all that is essential for a correct general appreciation of the subject. But the volume has another merit quite as important as any of these, viz.: its *suggestiveness*. Without telling everything, it leaves much to be inferred from the facts observed, and by the mere asking of questions leads the student to experiment and find out for himself what it is desirable for him to know. Similar questions scattered through the text but not answered, suggest comparisons between the subject in hand and others which have gone before, and perhaps been forgotten, and so the student is constantly reminded of what he has previously ascertained, and led to test for himself the extent and accuracy of the knowledge he possesses. Moreover, he can hardly fail before long to acquire the *habit* of questioning for himself, and this questioning habit is the one upon which all true progress in knowledge rests.

We have been led to make these remarks because the advent of such books seems to mark a new era in the methods of science teaching, and hence, can hardly fail to be of interest to those, who, in the future, may be called upon to undertake work of this kind. To all such we would heartily recommend the little volume in question. It is of small size and very

B.

neatly printed, being simultaneously published in London and New York by MacMillan & Co.

L. W. BAILEY.

Fredericton.

For the REVIEW].

BANDS OF MERCY.—S. P. C. A.

Teachers often become discouraged in dealing with a certain class of pupils whom it appears difficult to interest in ordinary branches of study; there is a dullness of perception and perhaps often a lack of interest in their work. That this does not proceed from want of intelligence is shown by the fact that when their minds are awakened by some new and interesting object of study we frequently find them developing powers, the existence of which was little suspected.

What will best tend to arouse these dormant abilities? Some branch of natural science is eminently adapted for this purpose, and this can be most easily done by directing the attention of the scholars to habits and peculiarities of various animals, and this will not only develop a love for God's creatures, which is of great value in refining the character, but will also be of benefit in arousing general intelligence and quickening the mental powers when required to grasp other subjects of study.

The "Ferndale School" gives admirable lessons about the insect world, and it is impossible to say how much good has already been done by awakening an interest in the varied forms of insect life by which we are surrounded. The study of birds and animals in their native haunts, though delightful, is not within the reach of any large number of students; but to observe intelligently not only the habits but the character of the domestic animals is within the reach of all. It has been found that a great impetus has been given in this direction by the formation of Bands of Mercy, which, apart from the primary object of binding children to show kindness to animals, tends to develop an interest in and love for all living creatures, and the voices and gestures of "animated nature" thus become an open secret to all who observe closely and reason intelligently on the subject.

Eastern legends delight to chronicle the wonderful achievements of King Solomon, and among these there are few that are more fascinating than those which relate his ability to interpret the speech of beasts and birds. In the later years of this world's history we may, in this respect, emulate the wisdom of the wisest of kings. If we will—but listen, beast, bird and insect may speak to us in ever clearer and more intelligible tones.

Cowper tells us of one, doubtless himself, to whom

Birds of all feather, beasts of every name,
Who serve mankind or shun them, wild or tame,
The looks and gestures of their griefs and fears
Have all articulation in his ears;
He spells them true by intuition's light,
And needs no glossary to set him right.

This thought was suggested to his mind by a very simple incident. He observed a flock of timid sheep, startled by a sudden sound, rush wildly round the field, and were apparently just about to precipitate themselves into an old quarry to escape the threatened danger, when they were arrested in their headlong course by a wise old ram who stationed himself directly in front of the pit and appeared to be expostulating with them on the absurdity of rushing into certain danger to escape a fancied evil.

Many stories have been written illustrating the nobility and devotion of what we call the *lower* animals, but perhaps we are too prone to overlook the manifestations of the finer feelings which, no doubt, they share with the human race.

All will recall Landseer's well-known picture, "The Highland Shepherd's Chief Mourner," where the utter abandonment to grief and despair shown by the dog, as he rests his head on the rude coffin containing the form of his beloved master, forms a noble subject for the painter's art. Edgar Quinet, in his *Journal*, relates a striking incident which shows that the power of sympathy, one of our noblest gifts, is not confined to mankind alone. He thus describes a visit to the Jardin des Plantes, accompanied by the naturalist, M. Geoffroi de St. Hilaire. "In one of the cages were a lion and a lioness standing quite motionless, not even seeming to see us. Presently the lion, lifting up his great paw, placed it slowly and softly on the forehead of the lioness, and both continued in the same attitude as long as we remained before them. What was intended by the gesture? A painter who desired to represent calm grief and the deepest compassion could not have invented anything more striking. 'What does it mean?' said I to Geoffroi. 'Their lion cub died this morning,' replied he. Then I understood what I saw; pity, good-will, sympathy, all those sentiments might be read in those fierce countenances."

It is not necessary to visit a menagerie to witness such exhibitions of feeling; our own domestic animals would show the same tender love and sympathy, but we check the manifestation of it by our utter indifference.

I have seen a spaniel, who, though not allowed in the house, would watch till his invalid master was

able to sit on the veranda, then keeping as close to him as possible, would every little while raise his paw and lay it gently on his master's knee, gazing lovingly into his face, expressing as plainly as if in words, sorrow for his changed countenance and wasted form.

A little girl who possessed a very sensitive nature, possessed also a very sympathizing cat. Whenever her little mistress, wounded in spirit, retired to weep in secret, pussy would search till she found her, and nestling close to the hidden face, she mewed in sympathy, till the grieved little soul was comforted, and with peace in her heart and pussy in her arms, the child returned to the family circle.

The interpreters of nature,—the poets—have not overlooked this aspect of the truth. Mrs. Browning tells us of the soothing influence of Cowper's pets, on the mind of their unhappy master.

Wild, timid hares were drawn from woods to share his home
caresses,
Uplinking to his human eyes with sylvan tendernesses!

Wordsworth finds his joy increased by contemplating theirs.

“Ye blessed creatures, I have heard the call
Ye to each other make,
My heart is at your festival,
The fulness of your bliss I feel—I feel it all.”

With what fine effect does Coleridge in his “Ancient Mariner” bring before us the bond that unites man to the lower animals. The Ancient Mariner cruelly and in contempt of the laws of hospitality, kills a huge bird of the southern seas, which had taken refuge on the ship. A mysterious vengeance follows, which is prolonged through unmitigated horrors, till he is left

“All, all alone,
Alone on a wide, wide sea;
And never a saint took pity on
My soul in agony!”

The spell begins to break when he beholds the bright creatures of the deep, and there springs up in his heart a sudden sympathy with the happiness of the animals floating in his sight.

With what a thrill do we read of the melting of the heart that was as ‘dry as dust.’

“Oh happy living things! no tongue
Their beauty might declare;
A spring of love gushed from my heart,
And I blessed them unaware;
Sure my kind saint took pity on me,
And I blessed them unaware.”

He is now able to pray, and with the prayer comes

“The gentle sleep from heaven
That slid into my soul,”

and with lightened penance he is at length brought safely home to “his own countree,” where he wanders about telling his terrible tale, the burden of which is—

He prayeth well who loveth well
Both man and bird and beast,
He prayeth best who loveth best
All things both great and small,
For the dear God who loveth us,
He made and loveth all.”

St. John.

E.

SCHOOL AND COLLEGE.

Work on the new building of the University of Dalhousie College is still going vigorously on. The magnificent accommodations provided for scientific teaching will place this University ahead of many of the famous older universities of the world. The physical and chemical laboratories and lecture rooms are most admirable in design and arrangement, and even sumptuous in general aspect.

The Halifax Ladies' College under the energetic and able direction of President Laing and Secretary McKay, has risen with nearly the speed of magic. The location is one of the most beautiful and convenient in Halifax. The dormitories are perfection for neatness and comfort. Heating and ventilation are effected by the latest and best approved methods and are very efficient.

The attendance at St. Francis Xavier College is quite large during the present term. It is ahead of many of our colleges in looking after the good of the physical man, as its new gymnasium building attests.

Acadia College is making preparations for the due celebration of its jubilee year. Professor Coldwell writes to the provincial papers correcting the ascription of the honors of the Star of Bethlehem to Venus.

The School of Agriculture is keeping agricultural thought in motion. A “Farmers' Institute” was held in Truro last month. Col. Wm. Blair, the President, Gen. J. W. Laurie, M. P., R. C. H. Starr, Esq., W. D. Dimock, B. A., Jas. Norrie, Esq., and F. A. Lawrence, Esq., took a prominent part in the proceedings, as did Principal J. B. Calkin and Dr. Hall of the Normal School, and Professor Smith of the School of Agriculture. Professor Smith is the Secretary and efficient mover in this important work.

PERSONAL NOTES.

Mr. W. J. Wilson, of St. John, who is a student in the Illinois Wesleyan University, recently received word that his herbarium of one hundred New Brunswick plants, recently forwarded, was the best collection received in five years.

Mr. N. W. Brown has been appointed to the Principalship of the Milltown, N. B., High School. We congratulate Mr. Brown on his promotion, and the people of Milltown in securing the services of an energetic and capable teacher.

The death of Miss Addie Hanson, of Bocabec, N. B., an estimable lady and teacher, will be heard with regret.

Principal Grant, of Queens College, Kingston, who recently undertook to raise a quarter of a million for his college, has already secured the amount to within a few thousand dollars.

Frank M. Kelly, M. A., who was for two years principal of the Sunbury County Grammar School, died on Jan. 27th. He graduated from Acadia College in '84, and took the M. A. degree in '87. He was a young man of scholarly attainments and good ability.

Mr. Archibald Troop, son of the late Hon. J. C. Troop, of Annapolis Co., N.S., a fourth year student in the Pictou Academy, has received the appointment of English Master in the *Instituto De Chili*, Santiago, South America. Rev. Duncan Cameron, of Canisto, New York, a Pictovian also, held the same position with credit some years previously.

D. A. Murray, B.A., late Munro Mathematical Tutor in the University of Dalhousie, has been awarded a fellowship in the Johns Hopkins University.

Professor Lyall of Dalhousie University, author of "Intellect, the Emotions and Moral Nature," has broken his left arm and foot by falling on the ice. His place will be taken for the remainder of the college year by Professor Seth.

Professor Asa Gray of Harvard, the greatest American botanist, died at his home, Cambridge, Mass., U.S.A., January 30th.

Rev. Dr. Brock, President of Kings College, has returned from a five weeks' visit to the United States in the interests of the University. He has received from the friends of Kings in Boston, New York and Brooklyn, about \$5,000.

The *Colchester Sun* publishes a good cut of W. D. Dimock, Esq., B. A., President of the new Truro Temperance Society. Mr. Dimock was formerly principal of the Truro High School, and later Commissioner for Canada at the Colonial and Indian Exhibition, London.

David Allison, Esq., LL.D., Superintendent of Education for Nova Scotia, has read a paper before the Historical Society on the early census of the Province, which has elicited high praise from the press.

Sir Hugh William Hoyles, ex-Chief Justice of Newfoundland, died on the first inst., aged 73. Sir William was a native of St. John's, but was educated at the old Pictou Academy and was a classmate with Sir William Dawson. In 1838 he was called to the bar. In 1854 he was appointed acting Solicitor General of Newfoundland, and in 1865 became Chief Justice until he retired in 1880. He was knighted in 1869.

Inspector Lay, of Amherst, has been presented by the teachers of his district with a complimentary address and a valuable silver tea service consisting of a large number of pieces. The teachers of Cumberland and Colchester are to be congratulated on their having so energetic and successful an Inspector; and the Inspector is to be congratulated in having teachers who can appreciate such work and signify it in so very handsome a manner.

Mr. George Frost died at his native place, Argyle, N. S., on the 25th of January. He was well known as a successful teacher, having taught in the rural districts of Yarmouth County for the past forty years. In 1874 he published a small volume of very pleasing verse, entitled, "Man and Nature, or Evening Thoughts."

Mr. Colin H. Livingstone, M. A., of New York, has offered a series of prizes, to be competed for in the schools of St. John and Portland; the chief of which is the Coster Memorial Prizes, open to pupils in the Grammar School and the Girls' High School. Mr. Livingstone's interest in the schools of his native county should be an incentive to ambitious students to follow in the footsteps of one who gained such high honors in his university course.

Mr. Peter Jack, cashier of the Peoples' Bank, Halifax, whose death is announced, was a gentleman of considerable literary and scientific attainments, and was especially a diligent and enthusiastic student of ferns, devoting considerable attention to their cultivation.

UNIVERSAL LANGUAGE.

We have received some letters in Volapuk; but we wish to say that *we* correspond much more fluently in English.

So simple is this wonderful language in structure, and so familiar are its roots, that it is very easily and quickly acquired. Already it has gained wide favor upon the continent, and is rapidly proving its practical usefulness. In many business houses in Paris a placard bearing the word "Volapukon" (here they speak Volapuk) is diligently displayed, while its professors and teachers are numerous and enthusiastic.—*Hartford Times*.

But English is undoubtedly susceptible of modifying simplifications which would easily and perfectly fit it for international use. Let a committee be appointed, consisting of one British and one American member, to investigate the subject, and suggest such changes as would remove anomalies, and I feel convinced that they would readily create a new and simple tongue in the form of what may be called "World English." This seems to be the most hopeful direction in which to look for universal language.—*Alex. Melville Bell, in Science*.

EDUCATIONAL OPINION.

Compulsory education, which, while nominally recognized, is a dead letter, should be enforced, as the state as a matter of self-protection should educate her children into intelligent citizens. The rod is necessary, and will be until the millennium. The demand for an increased number of studies is another evil. We are getting away from the ideal of education, and as a result, are getting admirably informed men and women instead of comprehensive thinkers; tools of society, instead of its masters and guides. The cry of the age is "teach us how to make a living," instead of "teach us how to live."—*Supt. F. H. Clark, before Kansas State Teachers' Association*.

No live teacher will allow a winter to pass without doing some work for his own growth. *What* work each should do will depend upon what he needs. He who is backward in language should make that a study; so, also, with all the common branches.

All teachers should read more or less each week, in a book or books on teaching. The manner of reading these books is very important. It is not wise to simply read a book through consecutively, and then lay it aside. Better to read it topically. If

some light on class recitation is required, look up that subject and test what is taught by putting it in practice. If your plan of teaching geography is not satisfactory, look the subject up in your books on teaching, and *put in practice* what you find suitable. In this way books will be read with interest and profit.

BOOK REVIEWS.

AN ELEMENTARY TREATISE ON KINEMATICS AND DYNAMICS: by J. G. MacGregor, M. A., D. Sc., F. R. S. E. and C., etc., Professor of Physics, Dalhousie University, Halifax. London and New York, MacMillan & Co., 1887. This is a work of over 500 pages, of good typographical appearance, and of rather more advanced character than the student of our average provincial college would suppose it to be from its title. It is divided into two parts: (1) Kinematics (184 pp.), which treats of Position and Motion, Translation, including Paths, Displacements, Velocities, Accelerations, Motion under given Accelerations; Rotation; Motion of Rigid Systems; and Strains. (2) Dynamics (320 pp.), which treats of the Laws of Motion; Dynamics of a Particle; of Simple Systems of Particles; of Flexible Inextensible Strings; of Extended Bodies; of Rigid Bodies; and of Elastic Solids and Fluids. The special characteristics of this work, as it strikes us, is its accuracy and conciseness of definition, its severe unrepeating logical progression, and the neat symbolic notation or expression of abstruse mathematical conceptions. It is a book to captivate the amateur or professional physical mathematician, though its fascination might prove to be negative to the simple degree hunter. Its use as a text-book in Dalhousie proves that in this department at least the Nova Scotian university can rank with some of the most famous in the world. Professor MacGregor, whose works are better known in British and Canadian scientific circles, is well known in this country as a forcible writer, a well read and all round scholar, and an able advocate of educational reform. The present work marks him out as one of the ablest scientific thinkers which our Dominion has produced, and will reflect no little lustre on the university in which he is a professor.

INTRODUCTION TO PHYSICAL SCIENCE, by A. P. Gage, Ph. D., Instructor in Physics, English High School, Boston, and author of "Elements of Physics." Published by Ginn, Heath & Co., Boston. This is a re-written and very much improved edition of the "Elements" already prescribed for the high schools of Nova Scotia. The motto of the work is "Read Nature in the Language of Experiment." The laboratory is the place in which to study physics, and we have seen no work so well designed to introduce the student to the science in the only proper—the practical—way, as this one of Dr. Gage's.

THE ELEMENTS OF CHEMISTRY. A text book for beginners, by Ira Remsen, Professor of Chemistry in the Johns Hopkins University. MacMillan & Co., London and New York. This work of 260 pages contains a course in inorganic and organic chemistry adapted to the wants of pupils in our

high schools and academies. Theory is subordinate to experiment, and the aim constantly and persistently followed throughout the work is to teach students to reason and observe, to lead them from step to step, to make the study of value as mental discipline as well as to teach them practically the elements of a most important subject.

THE SOUVENIR, published by A. S. Barnes & Co., New York, illustrating their system of penmanship, is a marvel of beauty and skill.

UNIVERSITY DEGREES, their meaning and how to use them, is a valuable little pamphlet published by C. W. Bardeen, Syracuse, N. Y.

A TREATISE ON COMMERCIAL LAW, by Williams & Rogers, publishers of commercial text-books, Rochester, N. Y. This excellent work, to which we have referred in a previous issue, is admirably adapted not only for commercial schools and business men, but for teachers of arithmetic in the common schools. With this book of reference constantly at hand, an intelligent teacher can invest the ordinary business rules of arithmetic with an interest and value which will be of the greatest importance to pupils as a preparation for their occupations in life.

A QUIZ-BOOK ON THE THEORY AND PRACTICE OF TEACHING, published by C. W. Bardeen, Syracuse, New York. This is an altogether unique book on practical teaching. It is made up of a series of questions and answers on every conceivable subject with which the teacher is called upon to grapple. The almost numberless plans and suggestions made in this excellent work for the government and conduct of a school are worthy the attention of educators.

MONOGRAPHS ON EDUCATION. The continuation of the series of monographs on education by D. C. Heath & Co. of Boston, so admirably begun, will be cordially welcomed by teachers. The two recently published—"English in the Schools" and "English in the Preparatory Schools"—are admirable little works, stimulating and directing to a better understanding of the English language and newer and more improved methods of teaching it. We shall have occasion to refer to these again.

Other books received will be noticed in next number.

EXCHANGES.

The Microscope, an illustrated monthly journal devoted to microscopical science, edited by W. P. Manton, M. D., F. R. M. S.; Frank W. Brown, M. D.; George Duffield, M. D., and Charles G. Jennings, M. D.; and published by the Microscope Publishing Co., 25 Washington Avenue, Detroit, one dollar per annum. Nothing better ever published in microscopy for the price. . . . *The Health and Home Library* is published quarterly at \$1.00 per annum by the Health and Home Library Publishing Company, Chicago, Ill. The initial number is at hand and takes high rank as a family magazine. The several departments, -- literary, health,

home and editorial, -- contain valuable and instructive reading matter for the family circle. . . . *St. Nicholas* for February is at hand, and is brighter and more interesting than usual for children. "The Story of an Old Bridge," (Old London Bridge) is finely illustrated, and gives a series of brilliant scenes and pen sketches from history. . . . *The Swiss Cross* for January and February are excellent numbers. In the latter, Prof. W. W. Bailey commences an interesting sketch of Linnaeus. *The Swiss Cross* is the monthly magazine of the Agassiz Association. The only Chapter for the lower provinces from which we have seen reports is that at St. Stephen, N. B., whose Secretary, Mr. J. E. Ganong, reports a healthy and increasing interest in objects of the Chapter. . . . *The Illustrated London News* has added to its attractions for the New Year by publishing an illustrated serial story by Wm. Black, entitled, "The Strange Adventures of a House Boat." In the last number (Jan. 31), there is a finely illustrated sketch of "Penshurst," the home of Sir Philip Sidney. . . . *The Century* for February has a portrait of Walter Savage Landor. "Ranch Life in the Far West," is an interesting and readable sketch. The series of war articles, "Pictorial Art on the Stage," "Abraham Lincoln, Premier or President?" are other noteworthy articles of the mid-winter number. Published by the Century Co., New York. . . . *The Bookmart* for January, published by the Bookmart Company, Pittsburg, Pa., is filled with interesting matter on literary men and letters. . . . *Wide Awake*, published by D. Lothrop & Co., Boston, is proving that it is one of the best magazines for young folks, by offering prizes aggregating \$2,000, for essays, stories, poems, etc., open to anyone connected with American (including Canadian) schools and colleges. Send for a specimen number of the magazine for five cents.

COURSE OF INSTRUCTION FOR N. B. SUPERIOR SCHOOLS.

IN TOWNS, VILLAGES OR DISTRICTS WORKING UNDER REGULATION XXXV., 2, 3, 4.

(To follow Standard IV. of the Ungraded Course or to be adapted where necessary to follow Standard VI. of the Graded Course.)

STANDARD V.

READING. Reader V.; the pupil to give an intelligent account of the lesson read. Spelling. Dictation exercises. Derivation of words—if the derivatives would add force to their meaning.

LITERATURE. Repeating from memory poetry and rhetorical selections from Reader with clear knowledge of meanings and allusions.

COMPOSITION. Written narratives in answer to questions in reading lesson. Paraphrasing passages from Reader. Dalglish's Introductory Text-Book, Chap. I.

GRAMMAR AND ANALYSIS. Text-Book completed.

LATIN. Bryce, Book I. to the Verb (optional).

FRENCH. French-English Reader No. I., and Elementary Grammar (Duval), (optional).
HISTORY. Canadian History, Parts I and II. British History in Reader No. V.
INDUSTRIAL DRAWING. Books I. and II. (revised edition).
WRITING. Copy Book. Neatness and legibility required in all written exercises.
SINGING. (Optional).
ARITHMETIC. Elementary Text-Book completed. Commercial Forms.
GEOMETRY. First ten Propositions of Book I. (Hamblin Smith), with the introductory part.
ALGEBRA. Signs, Definitions, Addition, Subtraction.
GEOGRAPHY. Review of Dominion of Canada; general geography of the United States; British Isles in detail. Map drawing from memory.
USEFUL KNOWLEDGE. Minerals (Bailey's Elementary Natural History). Chemistry of Common Things, Part I.

STANDARD VI.

READING. Reader V., as before, with spelling, dictation and derivation.
LITERATURE. As in Standard V.
COMPOSITION. Dalgleish's Introductory Text-Book, Part I. completed, with application of principles to original exercises.
GRAMMAR AND ANALYSIS. Exercises from Reader and Text-Book reviewed.
LATIN. Bryce's First Book completed. (Fables omitted). (Optional).
GREEK. Bryce's First Book, to the Verb (optional).
FRENCH. French-English Reader No. II., and Elementary Grammar or Telemaque Book I. (optional).
HISTORY. Outlines of British History in Reader completed, and supplemented by Thomson's History of England. History of Canada completed.
INDUSTRIAL DRAWING. Books III. and IV. (revised edition).
WRITING. Copy Book. Neatness and legibility as before.
SINGING. (Optional).
ARITHMETIC. Compound Interest, Discount, Insurance, Assessment of Taxes, Square Root with applications, Commercial Forms.
GEOMETRY. Book I. completed.
MENSURATION. Mensuration of Surfaces.
ALGEBRA. Multiplication and Division, and Chaps. XIX. and XXI.
GEOGRAPHY. The Great Oceans, from Reader. General Geography of Asia, South America and Africa. Map drawing from memory. Problems on terrestrial globe.
USEFUL KNOWLEDGE. Bailey's Elementary Natural History completed. Chemistry of Common Things completed. Health of the Body, from Reader. Physics, as in Hotze's, to be given orally with illustrations.

STANDARD VII.

READING. Reader VI. Special vocal and elocutionary exercises to secure just expression.
LITERATURE. Reading and critical examination as respects language of one of the prescribed English Classics.

COMPOSITION. Elegant written paraphrase of passages from the English Classic under study. Dalgleish's Introductory Text-Book completed, with application of principles to original exercises.

GRAMMAR. Occasional exercises from Reader.

LATIN. Nepos and Cæsar from Bryce's Book II. Parsing and Syntax. Imitative exercises from Reader. (Optional).

GREEK. Bryce's First Greek Reader completed (optional).

FRENCH. French-English Reader No. III. Telemaque continued. Grammar. (Optional).

HISTORY. Outlines of General History, Swinton.

INDUSTRIAL DRAWING. Books V. and VI. (revised edition.)

WRITING. Copy Book, if found necessary; but legibility and neatness required in all written exercises.

SINGING. (Optional).

ARITHMETIC. Cube Root, with applications. Commercial Rules completed.

GEOMETRY. Books II. and III. **MENSURATION** of Simple Solids.

ALGEBRA. To end of Simple Equations, with that portion of Text omitted in Standard VI.

GEOGRAPHY. Geography in all Reading lessons and in History. British Colonies. Map drawing as before. Problems on terrestrial globe continued.

USEFUL KNOWLEDGE. Physiology and Hygiene. Physics (oral) as in Hotze's, with illustrations.

STANDARD VIII.—(Supplementary).

READING. As before.

LITERATURE. As in Standard VII.

COMPOSITION. Dalgleish's advanced Text-Book.

LATIN. Bryce's Second Book completed. Parsing and Syntax. Imitative exercises. (Optional).

GREEK. Bryce's Second Reader. (Optional).

FRENCH. Telemaque continued. (Optional).

HISTORY. Greek and Roman History, Collier; or Outlines of the World's History, Swinton. Geography of places named.

INDUSTRIAL DRAWING. Drawing Book No. VIII. (revised edition).

WRITING. Neatness and legibility in all written exercises.

SINGING. (Optional).

ARITHMETIC. Review and the solution of any Arithmetical process.

GEOMETRY. Book IV. and review.

ALGEBRA. Quadratics and review.

USEFUL KNOWLEDGE. Gray's How Plants Grow, studied at such time as the season is suitable.

NATURAL PHILOSOPHY. Wormel.

N. B.—The above Course was framed by the Chief Superintendent and the Inspectors, and was ordered by the Educational Institute to be published in the EDUCATIONAL REVIEW, as well as the Grammar School Course which appeared in the October number. Both courses have recently been authorized by the Board of Education to be used till a High School Course is prescribed. The Grammar School Course is to be taken as the Superior School Course in cities and incorporated towns.

COMMON SCHOOL COURSE.

At the meeting of the Executive Committee of the Educational Institute of New Brunswick, held on the 5th inst., a communication from the Chief Superintendent was read, relative to the resolutions passed by the Institute in June last and transmitted to the Board of Education. It was therein stated that the Board had been pleased to approve the resolutions relating to a Course of Instruction for Grammar Schools and Superior Schools, and to make the following order thereon:

"Ordered, That the schools specified in the resolutions be authorized to adopt the respective Courses of Instruction designated therein, until the close of the term ending June 30th, 1888, or till such time as a Course of Instruction shall be prescribed."

A copy of the resolution is hereto annexed, and also a copy of the report of the committee to revise the Course of Instruction for Common Schools. The latter was not adopted by the Institute, but its consideration was deferred till the next meeting; and meanwhile the Executive Committee was authorized to have it printed in the EDUCATIONAL REVIEW for the information of teachers generally.

HERBERT C. CREED.

Sec'y. Treas. to Executive Committee.

Fredericton, January, 1888.

Resolution Passed by the Educational Institute of N. B.
(Referred to in above order).

Resolved, That this Institute recommend the Board of Education to make the following order, viz.:

That for the next two terms,

1st. All High Schools of the Province working only in Standard IX. and upward shall adhere to the Course of Instruction to-day submitted by the Committee for Grammar Schools, called here the *High School Course*;

2nd. That all schools of the Province working only in Standard VIII. (or VII. and VIII.) and upwards, shall also adhere to the before-mentioned High School Course, so called, and the teacher may, if the circumstances of the school require, modify either Standard VII. or VIII., or both, according to his best judgment, subject to the approval of the Inspector;

3rd. That all Superior Schools in villages and country districts, not holding the rank of those referred to in the two preceding sections, shall adhere to a Course of Instruction framed by the Chief Superintendent and Inspectors,

Amendments in the Course of Instruction Recommended to the Educational Institute of N. B., June, 1887.

GRADE I.

NUMBER. To use *strokes* during the first term, but *figures* in the last.

WRITING. To use print-script from the beginning, the slates to be ruled.

SPELLING. Spelling words in Primer to be added to the year's work.

GRADE II.

WRITING. Common writing to be taken up during the latter part of the year.

READING. Royal Reader No. 1, Part II.

GRADE III.

ARITHMETIC. To include numbers up to a million.

READING. Royal Reader No. 2, to "Metals."

GEOGRAPHY. The roads of the county to be omitted from the map.

GRADE IV.

READING. Royal Reader No. 3, to page 145.

GEOGRAPHY. North America only to be treated with respect to its great physical features; productions and industries omitted.

GRADE V.

READING. To page 142.

GEOGRAPHY. Maritime Provinces in detail. Latitude and Longitude.

GRAMMAR. Parts of Speech. Subject and Predicate. Gender, Number and Person.

PHYSICS. The Physics of this Grade to be omitted.

GRADE VI.

ARITHMETIC. Vulgar and Decimal Fractions. No Scales.

GEOGRAPHY. Remaining Provinces of the Dominion. North America. Newfoundland. Outline map.

PHYSICS. Substitute the Physics of Grade VII.

GRADE VII.

CHEMISTRY. To end of "The Plant and what it yields us."

COMPOSITION. Omit Transposition from poetical to prose form. Continue Narrative Composition of V. and VI.

HISTORY. Outlines to end of Stuart Period.

GEOGRAPHY. United States. Change of Seasons.

ARITHMETIC. Add Ratio and Simple Proportion.

PHYSICS. The Physics of Grades V. and VI.

GEOMETRY. Definitions, etc., to end of Prop. C.

GRADE VIII.

GEOGRAPHY. Omit list of Colonies.

HISTORY. Outlines of British History completed and reviewed.

COMPOSITION. Introductory Text, to end of Synthesis of Compound Sentences. Narrative as in VI. and VII.

GEOMETRY. To Prop. 32 of Book I. Exercises.

GRAMMAR. Text completed. Analysis of sentences of four clauses.

MENSURATION. Rectangles, Squares and Triangles,

ARITHMETIC. Omit Compound Interest,

TIME TABLE.

THE FOLLOWING TIME TABLE FOR MISCELLANEOUS COUNTRY SCHOOLS, IS PUBLISHED WITH THE HOPE THAT IT MAY BE OF ASSISTANCE TO MANY TEACHERS IN ADAPTING TO THEIR WANTS.

	10	60	35	15	40	20	60	60	25	20	15	40	20
MONDAY.....	Roll Call and Opening.	Reading Spelling and Comp.	Arith. Num. and Algebra	SCHOOL	Geog.	Gram.	DINNER.	Arith. Num. and Algebra.	Canada History.	Writing.	SCHOOL	Reading &c.	Draw'g.
TUESDAY.....		65	30		20	40		50	40	15		30	30
do.		do.	Arith. and Num.		British History.	Nat. Sc. and Comp.		Arith. and Num.	Reading &c.	Writing.		Chem.	Geom.
WEDNESDAY...		60	35		40	20		55	30	20		40	20
do.		do.	Arith. Num. and Algebra.		Geog.	Gram.		Arith. Num. and Algebra.	Canada History.	Writing.		Reading &c.	Draw'g.
THURSDAY....	65	30	20	40	50	40	15	30	30				
do.	do.	Arith. and Num.	British History.	Nat. Sc. and Comp.	Arith. and Num.	Reading &c.	Writing.	Chem.	Geom.				
FRIDAY.....	60	35	20	40	55	20	30	40	20				
do.	do.	Arith. Num. and Algebra.	Geog.	Gram.	Arith. Num. and Algebra.	Canada History. (Review)	Dict'n.	Recit'n. and Singing.	Spelling Match.				

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