THE EDUCATIONAL REVIEW.

FOR THE ATLANTIC PROVINCES OF CANADA.

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The Educational Review.

Devoted to Advanced Methods of Education and General Culture.

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CONTENTS:

Notice of Change of Address should be promptly sent to EDUCATIONAL REVIEW, St. John, N. B. The former as well as the new address should be given.

EDITORIAL NOTES.

SEVERAL articles unavoidably crowded out will appear next month.

THERE are a few who owe for the REVIEW. These amounts, to the individual, are very small. In the aggregate they are large, and would enable us, if promptly paid, to meet our liabilities promptly.

DR. TH. H. RAND has returned to Toronto from England, much benefitted in health—we are glad to learn. In a recent address to the students of the Toronto normal school, on "Character-building," there is proof that he has lost none of his old time force and earnestness. Here is one sentence: "Our distinctive greatness as a people is not going to depend upon our vast territory, material resources, miles of railways and canals, great commercial fleets, or even the price of land per foot in Toronto, but upon the sterling character of our men and women."

THE appointment of Mr. John Brittain, Principal of the Petitcodiac schools, to the chair of natural science in the New Brunswick Normal School is an excellent one. No teacher in the province has achieved more distinguished success, either in natural science or as a good "all round" teacher, than Mr. Brittain. It is with this record in his favor, we presume, that Mr. Brittain has secured the appointment, and it is a progressive step.

WE have received the first annual report of the Victoria School of Art and Design at Halifax, N. S., It has been most successful. Two hundred and eighty-two different pupils were enrolled during the first year 1887-88. The teachers of Halifax city enjoy a great privilege in having such an institution within easy access.

AN INSPECTOR who takes a deep interest in the REVIEW, regarding it as one means to benefit the teachers of his inspectorate, says: "The above (a list of twenty subscribers) is a small Christmas box from District ——— to the REVIEW. Is it exceeded "to any great extent" by other districts? We all wish it at the same time a happy and successful New Year. Wherever it is known it is heartily appreciated, and may 1889 spread its influence more widely."

We thank you and your teachers for the gift (which was *not* exceeded) and more especially for the hearty good wishes which accompany it.

WE have been requested to publish the following address by the committee appointed at the last convocation of the N. S. Summer School of Science to prepare and present it:

To A. H. MACKAY, B.A., B. Sc., F. R. S. C., President of the Nova Scotia Summer School of Science.

We, the undersigned, on behalf of the students of the Summer School of Science for the year 1888, desire to express our deep gratitude for the kind and zealous interest you have manifested in our progress in science, both personally and as a class.

The invigorating influence of your enthusiasm in this noble work has been a source of inspiration and pleasure to us. Beneficial results are already observable in the case of many who enjoyed the privilege of personal contact with you.

As a teacher, your methods of illustrating difficult subjects have divested them of tedium and imbued them with living interest.

The very successful record of the School of Science since its inception is due, we know, in a great measure to your indefatigable efforts, and we congratulate you on the excellent results attained at such an early stage in the history of the school.

Our hearty thanks are, likewise, due to Mrs. MacKay for her very kind endeavors on our behalf, which contributed to make our visit to Pictou so enjoyable as well as profitable.

Signed on behalf of the students of the S. S. of S.

IDA M. CREIGHTON,
W. T. KENNEDY, } Committee.
L. A. MCKENNA,

The address was cordially acknowledged by Mr. MacKay, who maintained that the credit was due rather to the zeal and tact of several individual fellow-instructors and students than to himself during the short but pleasant two years of the growth of the school.

McGILL UNIVERSITY.

The pre-eminence accorded to McGill among Canadian universities, its popularity among students of the Maritime Provinces, and its singular position as the chief educational institution of the Protestants of Quebec, who form only a very small fraction of the population of the province, would lead us to infer that our people would know something of its constitution and history. And yet of this most interesting chapter in the narrative of the development of education in the dominion, most people are absolutely ignorant; hence the necessity for such a lecture as that by Sir William Dawson, on "The Constitution of McGill University, Montreal," being the annual lecture in the session, 1888-89, and the obligation laid upon all who are interested in higher education to circulate it as widely as possible.

The publication of this university lecture at the present stage in the discussion of educational questions is exceedingly opportune, and in as far as it places before us a clear, concise and modest narrative of the incidents which mark the progress of the university, very satisfactory. The public spirit and foresight of the founder are only equalled by the skill, wisdom and zeal with which the governors have discharged the duties of their trust; and in nothing is this more noticeable than in the facilitywith which the university has adapted itself to altered conditions and has striven to satisfy new demands.

Perhaps one of the most gratifying features in the history of the university is its absolute independence of government assistance. It is solely a monument of the munificence and enthusiasm for higher education of the citizens of Montreal. Help from the state would have been welcomed, and was promised when the university "was embarrassed by pecuniary difficulty" and was at the point of extinction; but we question, if relief had come from that quarter, whether the citizens would have rallied around their university with the same spirit and have so thoroughly come to regard it as their own peculiar possession; at any rate, the retrospect would not now be so agreeable, and, annoyed by government interference, McGill would not hold the proud position of absolute freedom and public confidence which she enjoys at the present day.

1813-1884. This is the period that intervened between the bequest of the Hon. James McGill and that of Sir Donald Smith. The day of small things and struggle lasted from 1821 till 1852. When the amended charter was obtained, in the latter year, and Sir William Dawson appointed principal, in 1855, a bright period opened to the university. New chairs were founded, spacious buildings erected, museums established and a new faculty created; and to meet all these demands, Sir William says, "it seemed as if the liberality of the citizens of Montreal was forthcoming just at the juncture when some pressing want was staring us in the face."

The lecture proceeds to treat of the constitution of the university, the visitor, governor, corporator, etc., their powers, duties, obligations, and does so in a manner as explicit as it is interesting.

One thing strikes us as being a tower of strength to the university, and that is the Catholic basis, in respect of religion, on which it rests, and its liberal treatment of the students from the affiliated theological colleges who attend its classes. The same generous spirit is also manifested in the arrangement which has recently been made to admit students from the senior class of the normal school to the course in arts. Such enlightened action may be regarded, in relation to the community, as part of the return which is being rendered by the university for the benefactions of which it has been the recipient.

We have only been able to indicate some of the points treated of in this admirable lecture, but we would recommend every one who is interested in university education and the true welfare of his country, to procure the lecture and read and study it.

Of course, modesty forbade any but the merest reference to himself and his work in McGill, but everybody knows the narrative of the forward movement of McGill and its associate institutions is the history of the public labors of Sir William Dawson in Montreal in behalf of higher education.

EXAMINATIONS.

In the November number of the *Nineteenth Century*, there appears a protest, signed by many leading educationists and public men, against the mischief to which in Britain the practice of competitive examinations is leading. The systems of examinations which has been elaborated during the last thirty years, according to the terms of this protest, is productive of great physical injury to the constitutions of the young people who prepare for them; it tends to lead to uniformity in all educational processes, it destroys the best teaching by depriving the teacher of the power of intelligent self-direction, and by converting the pupil into a machine, it renders impossible a fair estimate of the values of different kinds of education in consequence of the monetary considerations which now cast their shadow over all educational work; it encourages an excessive cultivation of the "rote-faculties" and the power of cleverly skimming a subject, and it substitutes for the desire to obtain knowledge for the sake of understanding the world in which the student has to live, the marvellous forces among which he has to act, and the humanity of which he forms part, the ambition to secure a high place in an examination-list or some money reward. But a protest against a system productive of so much evil is of little practical value if it is not accompanied by a remedial scheme, which, while it avoids the mistakes of the system which is condemned, promises to retain all the advantages which it offers. Here, however, the protesters show that it is easier to find fault than to discover a substitute. The only suggestions which they can give are the appointment of a royal commission, the nomination of various committees, and a recurrence to the mode of preferment in use in the various departments of the public service, before the adoption of the system of open competition. Surely we can scarcely conceive of proposals more unsatisfactory, or less likely to lead to the removal of the evils complained of, and the inauguration of an era when education will not be sacrificed to examination.

In Canada—in the Atlantic provinces at any rate—examinations have not been organized to an extraordinary degree, yet we sometimes hear mutterings of discontent. It becomes, therefore, an interesting question to inquire in how far the mischief that is being done to the youth of Britain may possibly affect the youth of these provinces, and what means can be adopted to check it if it is already active.

As far as we can learn, examinations are not too frequent either at our universities or for teachers' licenses, and therefore it cannot be urged that in either case there is undue pressure. But it seems to be the tendency of examination to extend its influence and to embrace within the range of its operation every department of school work, from the highest to the lowest. In England there is scarcely a school but is reached by some process of examination. The government schools are examined by the inspectors to determine the amount of the grant to which they are entitled; all schools may send up pupils for examination at the Oxford and Cambridge "locals;" the College of Preceptors holds periodical examinations in all parts of the country, while the work in the grammar and high schools is tested by the universities in competitions for exhibitions and other prizes, and there is little doubt that, upon the whole, the stimulating effect upon school work, both on teachers and pupils, has been satisfactory. More activity has been evoked by these examinations than could have been produced by any other means; and yet the success that has attended this system, as not unfrequently happens, has led to results alike disappointing and disastrous. So long as examinations were reasonable in number and scope they were of admirable service to education, but since they increased to their present dimensions, and there has developed simultaneously with that growth a tendency in teachers to cram rather than to educate, they have been the master and not the servant of education. The sooner this tyranny ceases the better it will be for education.

But great care should be taken lest, in attempting to bring about a better state of things, what is useful is removed as well as what is mischievous. The objections to examinations which are raised in the protest are rather applicable to their abuse than to their legitimate employment. Some test of educational work there must be, and we cannot imagine any means so convenient, upon the whole so fair and satisfactory, and at the same time so stimulative, as examinations, under reasonable regulations, and conducted by men qualified by scholarship and experience for the performance of their duty. There is no method so easy and reliable by which a teacher can discover, in the case of his senior pupils, in how far they have benefitted by his instruction. If there be any subjects which have been misunderstood in the course of their treatment in class, an examination is certain to make this abundantly evident. Carelessness, inaccuracy and indolence are detected by the teacher, and readiness and conciseness of expression, together with definiteness of conception and the power of concentration of thought and energy, are acquired by the pupil.

Nor, if we look beyond the school-room, need we fear the results of rational examination. There is no plan which would yield such general satisfaction in the distribution of exhibitions, scholarships and

other university awards, or in the granting of licenses to teach. But it must be remembered that the requirements of these examinations go far to determine the curricula of the schools from which the candidates proceed. If the amount of work expected is moderate, and the questions of a nature to test the thinking powers as well as the extent of the information of the examinee, the effect upon the schools and their teachers must be beneficial. There need be no fear lest the individual characteristics of the teacher be so dominated by the outside influence of examining bodies that they will have no opportunity to assert themselves and give tone and finish to his work. But we do not deny that the future examination exerts an overmastering influence over many teachers. The work for it is repeated again and again; the memory is almost the only faculty appealed to; examination papers instead of text-books are studied; helps of all kinds are called into requisition, and the pupils are crammed for the special purpose of passing a successful examination on the prescribed books. Such a result is very unfortunate, and the pupils who are so prepared are the first to feel it. They are not long in observing that they cannot grapple with difficulties as successfully as those who have been trained on different principles, and invariably fall behind in the future race their better equipped and better disciplined classmates. This difficulty could be met successfully if, instead of examining upon prescribed books or parts of books, *subjects* were specified upon which papers would be set. If Latin, Greek, mathematics, etc., were announced as the subjects of examination, without mentioning books, but accompanied by a statement that the candidates would be expected to know each subject as thoroughly as might reasonably be demanded of matriculants, cram would be almost impossible, and a more healthful educational tone would prevail.

Moreover, great care should be taken in the selection of examiners. Scholarship ought not to be the only condition which they are expected to satisfy, but they should be men of experience as teachers—prudent, fair and prompt. Their questions ought not to be *cranky* or pursue certain grooves, but should be characterized by clearness, point, and the avoidance of all complexity. The purpose of examinations is to afford the examinees an opportunity of exhibiting their knowledge of the subjects upon which they are examined, and not to provide an occasion for the examiner to display his skill in constructing puzzling, obscure and doubtful questions. Examination is intended to discover what the pupil knows, not what he does not know.

Though we have been, in this part of the Dominion of Canada, thus far, free from the evil of excessive examination, we can not be too watchful, lest we may, in the end, suffer from the mischief enumerated in the protest. Already written examination has—and, we think, unnecessarily—provided the basis of classification in large graded schools, and we all know the feverish excitement which is produced by its approach on the minds of nervous pupils. Surely, except in the case of the eldest scholars, an oral examination by the grading master, conjoined with the report of the teacher of the class, would be quite sufficient. An expert examiner will test the proficiency of the class, in any one subject, in half an hour, by a skilful oral examination, more satisfactorily than by a written paper, which will take hours to examine. Let us, therefore, be warned by the results of over-examination in England, lest when it has here reached such gigantic proportions, we may find it impossible to relieve education from its constriction.

N. S. SUMMER SCHOOL OF SCIENCE.

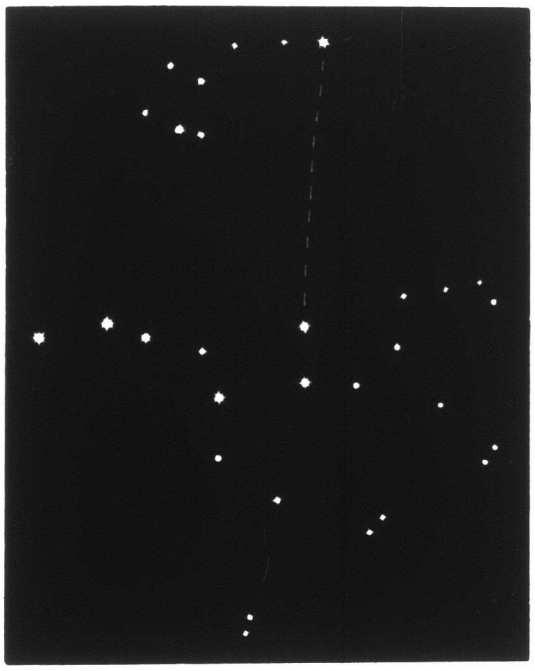
There was a good meeting of the directors of the Summer School, held in the Province building, Halifax, on January 3rd, President Eaton in the chair. The most important point of business was the definite fixing of the time and place of next summer's session, which were as follows: Time, from July 22d to Aug. 2d; place, Parrsboro, Nova Scotia. The public spirit displayed by the citizens of Parrsboro in the matter was highly creditable. At a meeting of its leading citizens it was agreed to specially prepare four good lecture rooms for the school, to pass a vote of money for chemical and physical apparatus, and to obtain board in its hotels and boarding houses at a rate not exceeding three dollars per week. Principal Craig of the Parrsboro High School was appointed local secretary.

Parrsboro is situated in the immediate vicinity of some of the most interesting and picturesque portions of the coast of the Minas Basin. Its minerals are found in all the important museums in the world; its scenery is borne away on numberless photographic plates of the tourists; the world-famed Joggins can be approached by railway from it, and the falls on the Moose river suggests further variety. Inspector Lay promises a large contingent of Cumberland teachers. There is every prospect that the third year of the school will have by great odds the largest attendance yet.

At a meeting of the executive of the Provincial Educational Association of Nova Scotia, in Halifax, on the 3rd of January, it was decided that the Association would meet at the usual time during the week preceding the teachers' examination in July. The dates will probably be July 10th and 11th; the place Truro.

AMONG THE CONSTELLATIONS.

No. IX.—The Northern Bears and their Neighbors.



"Thus some who have the stars surveyed
Are ignorantly led
To think those glorious lamps were made
To light Tom Fool to bed."

Rowe—A Song.

The Neighbors

Midway between the lesser and greater Bears winds, marked by a sinuous line of faint stars, the constellation *Draco*—the Dragon. It half encompasses *Ursa Minor*. We do not mark these stars in our present map, as we have not yet finished the interesting points in our two constellations of the Bears. Under *Ursa Major's* tail, nearly intermediate between the terminal star in the tail and the couple of stars in the lower paw, is the small inconspicuously starred constellations *Canes venatici*—the hunting dogs or greyhounds. It contains one star of the third magnitude, called *Cor Caroli*, not far from which is a star of the fourth magnitude. *Cor Caroli* can be easily found from this direction, as there is no other brilliant star in its neighborhood. It is interesting; first, because it is a double star, its companion of the sixth magnitude being only twenty seconds of arc from it—so close as to require a telescope to separate them. Secondly, a small circle, including *Cor Caroli* and its neighboring star of the fourth dimension, will include two and nearly pass through a third telescopic nebular star cluster.

Below the Greyhounds, and following the heel of *Ursa Major*, is a closely-packed constellation of about seventy stars of the fourth, fifth and sixth magnitudes called *Coma Berenices*—Berenice's Hair, or the Lady's Tresses.

Right below the two hind paws of *Ursa Major* is *Leo Minor*, the Lesser Lion; and below that, *Leo Major*—Leo of the Zodiac—a greater constellation, with the sickle-like configuration of stars in its breast and head.

In front of the Greater Bear is the inconspicuously starred constellation *Lynx*.

Cassiopeia, with its "W" outline of bright stars, and *Camelopardus*, with its absence of conspicuous stars, bind *Ursa Minor* on the upper side of the North Pole Star.

Ursa Minor.

Let us take the principal stars of this constellation in the order of our map:

Alpha (Polaris, or the North Pole Star) is of the second magnitude. It is at least so distant that light travelling from it to the earth at the rate of over 180,000 miles per second, would take forty-eight years to accomplish the distance. This is deduced from a parallax of 0.067″, measured by M. Peters. It is also a double star, the telescope separating from it a tenth magnitude star, distant 19″.

Delta is the second star and is of the fourth magnitude.

Epsilon is the third star and is of the fourth magnitude.

Zeta is the fourth star, of the fourth magnitude, and forms one corner of the rectangle.

Eta, at the other upper corner of the rectangle, is still fainter.

Gamma, at the outer lower corner of the rectangle, is of the third magnitude.

Beta, or Kocale, or Kochab, is at the fourth corner, is as bright as the Pole Star (of the second magnitude). It is a variable star of long period. It varies in brightness. *Gamma* and *Beta Ursæ Minoris* are often alluded to as the guards of the pole.

The small star about a degree from Kocale is a double star, which can be easily resolved with an opera glass.

Ursa Major.

Eta, or Alkaid, is the first star in the extremity of the tail of the Bear, or in the end of the handle of the Dipper.

Zeta, or Mizar, is the second. The three stars in the handle of the Dipper are of the second magnitude. But near *Zeta* is a faint star called *Alcor*, which can be seen separately by a good eye without a glass; hence it is called a "naked eye double." The distance appears large under an opera glass. It is 11″

(eleven minutes) distant, yet a powerful telescope shows a bluish companion star of the eighth magnitude within 14″ (fourteen seconds) of Mizar, which is therefore an interesting "telescopic double."

Epsilon, or Alioth, is the third star.

Delta, or Megrez, of the third magnitude, marks where the handle joins the Dipper.

Gamma, or Pheeda, of the second magnitude, comes first at the bottom of the Dipper.

Beta, or Merak, next at the bottom.

Alpha, or Dubhe, next at the top. These last two are called the "pointers," because a straight line through them points nearly to the Pole Star.

The lower pair of stars, of the fourth magnitude, marking the hind paw of the Bear, are called respectively *Nu* and *Xi*. The last of these is a remarkable telescopic double.

The companion star is only 2″ (two seconds) distant, nearly as brilliant as its fellow, and they move around each other apparently in about sixty years. This appears to be a strong evidence that here we have two vast suns nearly of equal size revolving in a tremendous orbit around each other. Very many other doubles give indications of a similar connection. Sir Wm. Herschell observed 2,400 double stars, while Struve, of Dorpat, catalogues 3,063 of them.

But this constellation has another double star. Join *Delta Ursæ Majoris* with *Alpha*, and produce the line as far again. This points out "h 23" of the Great Bear, a star of about the fourth magnitude, with a companion of about the fifth magnitude, 23″ (twenty-three seconds) apart. It will require a telescope to separate them.

The extreme star of the third magnitude, in the direction of the nose of the Bear in our map, is *Omicron*. The pair in the highest paw are respectively *Iota* and *Kappa*. The pair in the intermediate paw are *Lambda* and *Mu*. The lower pair, as already said, are *Nu* and *Xi*.

Star Drift.

The wonderful accuracy of astronomical measurement of the position of stars show us that the stars are drifting in various directions. In a hundred thousand years the constellations which Abraham and Moses studied, under nearly the identical forms of today, will become unrecognizable. Eta and Alpha of the Great Bear are drifting easterly, as seen in the early evening of January. Zeta, Epsilon, Delta, Gamma and Beta are drifting westerly at different rates and in different directions. The motion is slow, so slow that thousands of years will be required to make it perceptible to the ordinary human sense—so slow do they cross athwart our vision, only from ten to forty miles per second. Swifter than the fieriest bolt from earth's most tremendous artillery do these Titan sun-world's fly across the calm blue northern vault. The Chaldean astrologers watched their flight in the far distance, but died before they became conscious of their change of position. Generations after generations have since grown up to watch and have passed away, but the flying orbs appear yet nearly in the same position as they did to the eyes of Job. What a speck in the duration of human life, when considered in relation to the dynamics of the skies!

But the spectroscope in the hands of Huggins shows that these motions are not all athwart our line of vision. Some of these stars are approaching us with these tremendous velocities, while others are receding from us. Beta, Gamma, Delta, Epsilon and Zeta of the Great Bear are receding from us at the rate of about seventeen miles per second, as well as drifting westerly. Stars larger than ten thousand worlds, throbbing with liquid lava, shrouded in whirlpools of flame and circled with rabbles of satellites, have been flying towards us from before the time of Adam with a velocity to which that of a cannon ball is but the motion of a snow-flake. And they are yet coming on with unslacked speed. We need hardly fear them. Human life is fleeter still.

Where shall we be
Long before the Dipper's dinted
Or the Great Bear coils its tail?

When it is the astronomer who looks up into the calm blue abysses of the sky—the very emblem of silence—how overpowering the sensation must be of the magnificence of heaven's flaming and dark-orbed artillery! Man lives a life-time ere the distant balls are even seen to change their places, and the awful depths of space swallow up the continued roar of nebular tornados and the thunder of storm-wrapped worlds.

ASTRONOMICAL NOTES.

Venus and Mars were in conjunction on the 2nd inst., and with the moon on the 4th; they presented a brilliant sight to star-gazers. They are in the constellation Capricornus, and will set from 8 to 9 p.m., towards the end of the month.

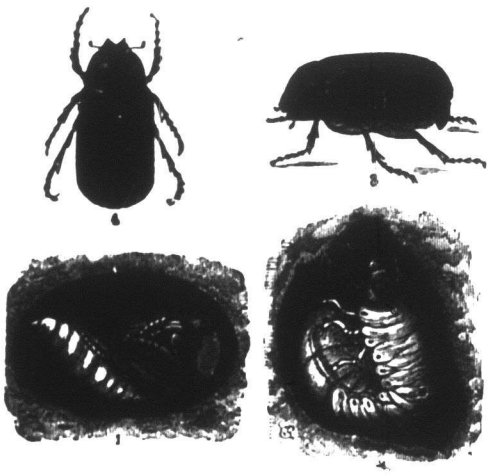
Saturn is in Leo, and rises shortly after seven in the evening about the middle of January. Half an hour later, Regulus, a star of the first magnitude, in the handle of the Sickle, rises. Saturn is now about the point of the Sickle, while Regulus is in the end of the handle, in which positions they may readily be found with a little search.

Jupiter is morning star, rising two hours in advance of the sun, in Sagittarius.

January 18th, Saturn will be in conjunction with the moon. January 26th, occultation of Theta Libræ. January 28th, moon in conjunction with Jupiter. Moon in conjunction with Mercury, February 1; with Mars, February 2; with Venus, February 3; with Saturn, February 15.

FERNDALE SCHOOL.

No. XVIII.—The June Beetle.



Lachnosterna Fusca (Fröhl).

Teacher.— What is this?

Chorus.—The May-beetle—the June-bug—the Cock-chaffer—the May-bug.

T.—Is it a bug or a beetle?

S.—It is a beetle, because it has two hard wing-covers, which are raised up when it goes to fly in order to let the thin flying wings be used.

T.—At what time of the year may we expect it?

S.—About the first of June. In the evenings they fly against the windows, and if the window is open they come in with a great buzzing and fly about, hitting whatever may be in the way, and sometimes get entangled in somebody's head-gear, causing a great sensation, especially if ladies are present.

T.—Very good. It is a beetle, and in this country it generally makes its appearance about the first of June. June-beetle is, therefore, its most appropriate name. Let us describe it. Its length is—

Chorus.—Nearly an inch.

T.—Its color—

Chorus.—Blackish—brownish; its wing-covers are shining brownish black, and its legs tawny yellow, with yellowish hairs.

T.—It flies about—

Chorus.—At night.

T.—They feed upon—

Chorus.—Leaves of trees—the cherry, the plum, the lombardy poplar, the oak.

T.—Now, let us follow its life-history. The female is supposed to place its eggs—which are small white specks, smaller than the head of a pin—between the roots of the grass. When the egg is hatched, what do you suppose the grub feeds upon?

S.—Upon the roots. They turned up ugly white grubs when they were ploughing our pasture land. Were the bugs the larvæ of the June-beetle?

T.—Very probably, but they live in the ground for at least two or three years before they are mature. Figure 2 shows the full-grown larvæ in its burrow beneath the sod, eating the rootlets coming within its reach.

S.—It must live on its back if it is going to browse on the ceiling of its room.

T.—Quite true. Sometimes they are driven out of their burrows by a rain storm, and it is a very strange sight to see them making their way over hard, smooth ground on their backs. They move along by the successive contraction of the rings of the body.

S.—Some of them eat holes in our potatoes in the field.

S.—Some of them were eating the roots of our strawberry plants. The white grub was turned up with the spade just where the roots were eaten.

T.—Very likely; all true. I have heard of a ten-acre pasture having the sod withered and nearly completely severed from the soil below by this grub. But they are not often so numerous.

S.—Won't the frost kill them?

T.—They go down deeper into the earth in winter, and when mature they pass into the pupa stage, figured at 1. This oval little cave is nicely lined with silk. The warmth of May causes the pupa to develop, so that about the first of June the *imago* comes out, and when they are numerous the buzzing noise made by the beetles is something astonishing.

S.—What can be done to prevent their increase?

T.—Man can not do very much more than to turn up the soil and expose the grubs to the view of insectivorous birds, etc. But in addition to the action of wet and freezing weather in destroying them, there is a small four-winged, wasp-shaped fly called *Tiphia*, which places its own eggs in the body of the grubs, which are thereby destroyed.

A fungus looking like two whitish roots or horns are often found growing out from near the head, one on each side, of unequal length generally, and sometimes three, four or even more inches in length. This vegetable parasite appears sometimes to be very destructive to them.

[Note.—At the last meeting of the Institute of Natural Science of Nova Scotia, Mr. Harry Piers exhibited several specimens of the larvæ of *lachnosterna fusca*, from Arichat, Cape Breton, which were affected with this fungus. The two fungous horns were not so long as the dimensions given above. The fungus is probably *Torrubia Melolonthæ* (Tulasne). *Torrubia Taylori*, which grows from the caterpillar of a large moth in Australia, is probably one of the finest examples of the genus. There are several insects known to be affected by certain species of this genus in Central America, South America, West Indies, New Zealand, etc.—Ed.]

HINTS FOR THE SCHOOL ROOM.

A Few Language Devices.

1. Read an easy story and have pupils reproduce it upon their slates.

2. After the difficult words of the reading lesson have been written upon the board and thoroughly pronounced, spelled, and used in statements, allow the pupils to write short stories, using the new words. This is a good test of their ingenuity, and words thus learned are rarely forgotten.

3. Write ten lines, telling how you spent Christmas, New Year's day, or your last birthday.

4. Hang a large picture before the class and call for oral descriptions of the same. Offer suggestions that will cultivate perception and reason.

5. Write sentences upon the board, omitting action words, and have pupils supply. Later, have similar work with other parts of speech.

Receiving Visitors.

1. Receive a visitor politely, and offer him a seat.

2. Make no explanation concerning your work, but go right on just as you would do if no one except your scholars were present.

3. Give your visitor a book, and be certain that he is in such a place that he can see what is going on and hear what is said.

4. Unless on special occasion do not call upon him to make a speech.

5. If you have occasions to introduce him to the school, be certain to have your pupils rise for a moment. This is showing but ordinary respect.

6. If anything is said commendatory or instructive, thank him in the name of the school. It is a poor service, indeed, that does not deserve a simple "Thank you."

7. Don't be fussy, or anxious, or impatient for commendation. Don't ask him how he liked this or that, or fish for a compliment. If you really want to know anything, and have confidence in your visitor's ability, ask him after school is through. Listen patiently and attentively, but do not controvert or oppose. You can do your own thinking and acting. Arguing will do no good.

8. Secure the presence of visitors as often as possible, and let your pupils be accustomed to talk with them on all proper occasions.

9. If a visitor is so impolite as to interrupt a class, and seems disposed to get up a discussion or controversy, stop, wait patiently until he is through, answer politely, but go on yourself. Keep the class in your own hands. If you are driving, hold the reins. Never let a class get beyond your own control. *You* are teacher, and no examining board, county or city superintendent, or president, no one, not even the President of the United States, has any more right to interrupt you than you to interfere or meddle with them.—*School Journal.*

For Friday Afternoons.

The work for this, the last afternoon, may be varied; but avoid getting into ruts. A part of the afternoon may be devoted to an interesting lesson on chemistry, with experiments. A monthly programme like the following, which we take from an exchange, may be used with good effect for several months in succession:

First Week.—Studies and readings in natural history and physical science, with conversations, experiments, songs, and "memory gems."

Second Week.—Health and temperance. Suitable songs and readings; "Bands of Hope," with exercises and conversations.

Third Week.—History studies; readings in local and general history and current events; patriotic songs and recitations.

Fourth Week. Humane education; readings and conversations illustrating deeds of mercy and kindness to men and animals; "Bands of mercy," with suitable exercises.

Ten Rules For Losing Control of a School.

1. Neglect to furnish each pupil plenty of suitable seat-work.

2. Make commands that you do not or cannot secure the execution of. Occasionally make a demand with which it is impossible to comply.

3. Be frivolous, and joke pupils to such an extent that they will be forced to talk back. In this way they will soon learn to be impertinent in earnest. Or be so cold and formal as to repel them.

4. Allow pupils to find out that they can annoy you.

5. Promise more in your pleasant moods than you can perform, and threaten more in your cross moods than you intend to perform.

6. Be so variable in your moods that what was allowable yesterday will be criminal today, or *vice versa.*

7. Be overbearing to one class of pupils and obsequious to another class.

8. Utterly ignore the little formalities and courtesies of life in the treatment of your pupils in school and elsewhere.

9 Regard the body, mind, and soul of a child utterly unworthy of study and care. Let it be a matter of indifference to you whether a child is comfortable or uncomfortable. Regard it unimportant

why a child enjoys one thing and dislikes another, and that it is not your business to aid him in forming a worthy character.

10. Let your deportment toward parents and officers be such as will cause a loss of their respect and confidence.

One or more of these rules carefully executed will secure the end in view.—*From "Shaw & Donnell's School Devices,"* last edition.

Lessons on Common Fungi.

The teacher instructs the class to get specimens of mushrooms, toadstools, or any thing like them, and bring them to school in the afternoon or next morning. In country places, the scholars coming from a distance of one or two miles, sometimes through patches of woodland or forest, will have a grand opportunity of picking up specimens on the way, and bring them in quite fresh. The specimens are all arranged on the teacher's desk, or other convenient place.

AGARICS (Latin, *Agaricus*).

First, those having caps, with a great number of thin, soft plates on the under side, running out like rays from the top of the stem, are selected. They will include the mushroom and what are called toadstools. There are a great many different kinds of them, but they may be all called *agarics*, or mushroom fungi. Several kinds are good food when properly cooked, but the greatest numbers are good for nothing, or poisonous. The word toadstool may be used for indelible species of mushrooms, but it has no definite meaning. Notice the following points:

1. The stems rise from earth matted together with fine white mold threads. This is called the *mycelium*, or spawn, and is really the body of the fungus. Towards autumn it sent a stem with a cap, which really corresponds to the blossoming and fruiting of flowering plants.

2. The stem may be solid or hollow, and may have the remains of a ring around it, this *ring* being in the early stage a thin *veil* connecting the edge of the cap with the stem.

3. The under part of the cap has hanging from it a great number of ray-like plates or *gills*, called *lamellæ*. The gills are lined with a thin membrane called the *hymenium*, which produce on their surface millions of minute bodies, so small as to be invisible singly—so small that in the most of species it would require four or five thousand to make a row one inch long. These are called *spores*. They are finer than ordinary dust, and millions of them can float in the air without our seeing them. They are the seed.

4. To see the spores without a microscope, in which they appear as very beautiful objects, each different fungus having its own particular size and form, just as definitely as the different kinds of apples and pears.

This plan may be adopted: Cut off the stems close to the caps, and let them rest until next day on white paper. When the caps are lifted off, it will be seen that millions of spores ripened during the night and fell down from the *hymenium* and rested on the white paper in radiating lines. Minute ridges of spores were formed under each gill.

5. It will be noticed that the spores from some species are *white;* from others, *rosy* or *salmon* color; from others, *brown* or *reddish brown;* from others, *purple* or *dark brown*; and from some, *black*. In classifying these fungi, we find that they are conveniently divided, first, into these five groups, distinguished by the color of their spores.

6. The spores are carried away by the wind sometimes to great distances. Very few of them grow to be fungi. If they all did, the world would long ago have been covered with one solid mass of them. But the spores which find a vacant, suitable place, with proper moisture and protection, grow, first producing the mycelium, afterwards the spore-bearing caps or *hymenophore*. (The teacher should never use a strange technical word with the pupil when an English equivalent can be used. Occasionally we use *very common* technical words for the benefit of the teacher who may wish to read up.)

7. Notice that the gills is an arrangement to make the surface bearing the spore-producing membrane (hymenium) as extensive as possible.

BOLETUS (Greek for Mushroom).

1. These are soft and perishable, like the *agarics*, but instead of having gills, the under side of the cap is one mass of minute, vertical tubes. Cut the cap in various ways to prove this.

2. Place the cap on paper for a day, as in the former case, and it will be seen that these tubes are lined with a *hymenium*, which produces spores as abundantly as in the *agarics*. A few of these are edible; some very poisonous.

POLYPORUS.

This word means having many pores. The spores are produced on a *hymenium* lining minute, vertical tubes, as in *boletus*, but the substance is not soft and perishable. They are hard and corky. Very few grow umbrella-shaped. The short stalk is at one side, and they grow generally fan-shaped or horse-hoof shaped. They grow on decaying trees and logs commonly. One common species in woods has a surface

like varnished mahogany. Over thirty species are known in Nova Scotia. They keep without any care, and are therefore very good for a beginner's collection or a school room.

Hydnum.

Possibly a mushroom-like cap may have, instead of gills or porous tubes, soft teeth, spines or tubercles hanging from the under side of the cap. This shows a third way in which the surface bearing the spore-producing membrane is increased. This kind is called a hydnum.

The Agarics may be called *Soft Gill-Caps.*
The Boleti " " *Soft Pore-Caps.*
The Polypori " " *Hard Pore-Caps.*
The Hydna " " *Soft Spine-Caps.*

The teacher must remember that these are only a few of the forms of fungi, but in the autumn their abundance makes them specially conspicuous.

The scholar will also notice that the common edible mushroom belongs to the *purple* or *dark brown* spored gill-caps. The gills are pink and flesh-colored when young, but become brown when older, something like the color of their spores.

A teacher committed a great sin the other day. It was in the chemistry class. The subject was "Oxygen." The book read: "Take a slender watch-spring, bind a piece of match to one end of it, set fire to the match, and slowly lower it in a jar of oxygen. The burning wood heats the iron until it takes fire and burns with surprising brightness." A pupil recited it *verbatim*. The teacher said to another pupil: "You may recite what is said about the burning watch-spring?" Pupil recited. "Next may recite what is said about the burning copper wire." Next recited. "Next recite about burning phosphorus." Next recited. "Next tell how oxygen is obtained." Next told how oxygen is obtained, and so on. "Next." "Next." "Next," to the end of the recitation. "Good recitation; you may take Chlorine next time. Dismissed." Did it occur to those pupils that they would like to obtain oxygen and try these experiments for themselves? Yes, in a far-off way, just as they have a dim thought that some time they may see Jerusalem, but it is only a thought, a hope, a feeble expectation. What sort of a teacher is this? One among ten thousand members of the same great army. Some one whose eyes are opened says, "Is this possible?" Yes, my friend, it is not only *possible*, but *actual*. Chemistry is recited—not taught—his way in this country, *and it is a sin.—N. Y. School Journal.*

[We hope there are few, if any, such sinners in chemistry among our teachers.—Ed.]

THE INTERPROVINCIAL CONVENTION.

The Primary School Section of the Interprovincial Convention met in the hall of the Centennial School, St. John, on Thursday, July 19th, and was attended by about 250 teachers. Miss Lewis, of Truro, read a paper favoring the kindergarten methods in primary schools. The introduction of such methods is the soul of the new education. To train the hand as well as the head; to give beautiful surroundings to the child, and to teach from these; to unfold the nature of the plant from growing plants in the room; to teach the beauties of literature from simple extracts committed to memory day after day; to draw from objects, to give pleasant and profitable employment to busy fingers and brains, are alike kindergarten and primary school methods. Modelling in clay, taking part in games and other kindergarten methods should enter more largely in primary school training.

The ends which the kindergarten seeks—namely: The education of the senses; the training of the faculty of speech; the exercise of the creative powers; the development of manual skill, delicacy and power; the promotion of bodily health by physical activity; the stimulation of imagination and reason; the formation of habits of attention, concentration and obedience; the gentle insistence upon good manners, kind words, generous deeds; the reverent thoughts of God, and God's universe. In which of these is the ideal school wanting? Not one. Then why draw the line between kindergarten and school? It must be evident that the principle of the kindergarten system, which so admirably combines thinking and working, is not limited to infant education. The structure reared must rest upon and accord with the foundation laid, and as the child advances from seven to twelve years of age and upwards, the teacher has but to supply the means of progress in knowledge suited to the requirements of the children; books are then used by them with intelligence and interest, and in the development of their growing capabilities they will be successfully taught to teach themselves.

Miss S. J. Sullivan, of the Morris street school, Halifax, read a paper on "Social Instincts as a Factor in Character Building." It was an admirable presentation of the qualities and disposition that make up the child's nature, with thoughtful suggestions how to best mould this nature and make the individual what he ought to be. A child should be taught to distinguish right from wrong by precept and example. But teaching alone will not suffice. His moral training must go deeper than that. That which is done for a child does not educate him, but that which he does for himself. Proper exercise of any power of

the mind strengthens that power, and the entrance of evil is more effectually prevented when a child has been taught to know the right and do it, resisting temptation, than where he has been shielded in every possible way. We have a right as teachers to take satisfaction in the progress made of late in methods, and the consequent improvement in the popular sentiment towards the public schools. Our calling affords us unbounded opportunity for investigation and study and makes us influential in moulding human character. In seeking to make a good school, we should seek with all our energies to make good men and good women.

Character Building, on its moral side, was treated in a skilful and comprehensive manner by Miss McPhail of the Davies street school, Summerside, and by Miss Murphy of Portland, St. John.

Miss H. Adam, of the Victoria school, St. John, read a valuable paper on "Faults of Temper and How to Deal with Them." As teachers, said Miss Adam, we should remember, in dealing with the moral character of our pupils, that each child is subject to certain faults of temper, which, if not subdued, will become a barrier to all success and happiness in after life. Then, should it not be the first duty of every teacher to ask himself or herself the question, "Are my own faults of temper and disposition sufficiently controlled to enable me to help the children, by my example, to conquer their various moral weaknesses? For precept, unless accompanied by example, goes very little in guiding and shaping the young life. There are several faults of temper which are noticed particularly among children, and sometimes in those of riper years; but those most frequently met with are obstinacy, violence, peevishness and querulousness. The characteristic of obstinacy we must be careful to distinguish from that of firmness of purpose. The latter denotes that we are not easily swayed by the opinions of others, while the former causes us to ignore entirely the advice of others who know better than we do. Where obstinacy is shown by a scholar in defying the rules of the school, and trying to lead the other pupils to do the same, the teacher's best plan is to gain the respect and love of the scholars as a body, and thus make the offender feel that he cannot continue in his opposition. But, if the pupil seems obstinate, when really his trouble is rather mental weakness, then the teacher's sympathy and kindness will be the best means of gaining control over the child. Violence or hastiness of temper should be treated with calmness and earnestness on the part of the teacher, and the child should be led to see that he may have serious trouble in after life if his quick temper is easily allowed to become his master on every slight provocation. Peevishness may arise from a weak constitution, and, if so, the child should be kept from provocation as much as possible; but if he is strong and healthy, his peevish nature will be best overcome by associating with others, and seeing how much more happy he may be by showing an agreeable disposition than by being peevish and discontented. To help the children to overcome a querulous or complaining disposition, the teacher should not listen to every little complaint brought to him by his scholars; and, unless there is real cause for complaint, the children should be taught to bear little trials bravely, so that they may be more able to bear the greater trials of after life. But, in trying to shape the character of our pupils, there is a power, without whose help all our efforts fail. The children should be taught from their earliest years the truths of God's word, and that the commands of their Heavenly Father are far more to be held in reverence than those of earthly parent or teacher. If the child has in his heart the influence of God's spirit, and the teacher seeks to be guided, at all times, by the great Teacher of teachers, then the true foundation of moral character will be laid, and faults of temper be fully overcome.

The Receptions.

In response to the invitation of His Worship Mayor Thorne, a number of prominent citizens, including Sir Leonard Tilley, attended at the city building between 11 and 12 o'clock on Thursday, July 19th. They were there presented to Sir William Dawson, Dr. J. G. Fitch, Professor R. G. Huling and Colonel F. W. Parker, and the leading educationists of the Atlantic provinces. A pleasant half-hour was spent in conversation.

In the afternoon, between 4 and 6 o'clock, a reception was given to Sir William Dawson by the New Brunswick Natural History Society. The ample rooms of the society were beautifully decorated for the occasion, and were filled to their utmost capacity by a thoroughly representative audience, embracing visitors from abroad as well as ladies and gentlemen from nearly every city and town of the three provinces.

Mr. Geo. F. Matthew, president of the society, called upon Sir Leonard Tilley, governor of New Brunswick, as patron of the society, to preside. In doing so, His Honor spoke in terms of warm approbation of the society and its work. He also paid a heartfelt tribute to the high character of Sir William Dawson and the distinguished services he has rendered to science. Sir William gave an interesting address, in which he reviewed the work of the society and its results.

[For the REVIEW.]

A Visit to the Five Points House of Industry and its Kindergarten.

We arrived just as school was let out, and watched from an upper window the frolicsome play of the children—several hundred—in their large, paved playground. Remembering what this part of New York was when Rev. Mr. Pease founded the institution, in 1850, our heart swelled with gratitude as we contemplated the results. First, a refuge, furnishing a home and work to wretched, sinful women who wished to live honest lives, it soon became a day-school and asylum for children. It began with thirty or forty women; to-day, over *four hundred* adults and children form its large household. Its average cost is one hundred dollars per day, and, while it receives a share of the school funds of the city, it is largely dependent on voluntary contributions. Thirty-nine thousand children have enjoyed the privilege of its well graded school, and there have been over twenty-six thousand inmates. Nearly three hundred children sat down to a comfortable dinner the day we were there. Not all belonged to the large family, for they feed destitute ones who are only day scholars. Those who enjoyed the privilege of the home were quite easily picked out, from their superior cleanliness and more healthful looks, the result of systematic care, diet, bathing. The children, when old enough, take their part in useful work, the girls learning to perform skilfully domestic offices. We accepted the cordial invitation to dine with the superintendent and teachers. The table was well set and the cooking good. The girl who set the table and the one who made the pudding, neither over fifteen years old, were introduced to the stranger, and received blushingly the compliment fairly earned by their skill. After dinner we visited every department of the school. It was a two-fold pleasure to visit the kindergarten, for it was not only delightful to see the little creatures made happy and deft-handed, but it was such a triumph for Froebel's principles and methods, because you felt that nothing else *could* do so well the work of training and instruction that these little waifs and strays needed; taken so early, treated so tenderly, and helped in the all-embracing atmosphere of love and purity, native to an efficient kindergarten, you could reasonably hope that any avoidable heredity being neutralized, these children will become good citizens profitable to the state. Their manners were as nice and their handiwork as neat, and they were as friendly and confiding as any curled darling of fortune. They sang "Thumbkin says I'll Dance and Sing," and other little songs with evident enjoyment, making the appropriate motions. One class, with little sticks, was laying the farmer's house, his barn and fowl house, and then telling about the creatures on the farm, how they acted, what their color and what their uses. One made a pigeon-house and showed the movements of the birds, their swift flight and pretty little odd ways in childish mimicry. Some drew on the black-board, some on slates, others made geometric patterns with colored paper, cut in different shapes, gummed on white sheets of paper. Some very little ones had a play with the ever-pleasing balls of the First Gift. The furniture was good, the material abundant and the teacher competent. As a foundation, conceded to be indispensable to manual training, the kindergarten occupations are also taken in the primary grades, with the usual happy results of making the pupils observing, careful, industrious and thoroughly in love with their work. Some little children in more favored localities, pining in weariness for suitable employments, might well envy the contented, busy children, who, in this well-conducted institution, enjoy the benefit of Frœbel's "latest thought," —the kindergarten.

C.

THE DISTRICT AND SCHOOL.

Before leaving the subject of the "School District' and taking up that of the "Teacher," it may be well to briefly deal with one or two vexed questions which are continually arising in country districts. It is very advisable that teachers should give some attention to these matters, as in any case in dispute the teacher's opinion is very often asked and trustees' action is frequently based upon the nature of the advice thus given. The teacher's influence should always be exerted in the direction of allaying contention rather than in stirring up strife.

What steps should be taken to cause a secretary or other person to give up school property improperly withheld?—This is a very common and oft-recurring difficulty, and one that has been the cause of many an action at law. It often happens that the secretary, out of pique at his removal from office, or having some real or imaginary claim upon the trustees, refuses to give up the books, money, etc., belonging to the trustees of the district. In a case like this, the trustees, or a majority of them, should either go in person and make a formal demand for the papers or send a written order. If this demand is not complied with, any ratepayer can make affidavit to the facts and send it to the inspector, who is required to summon the party improperly withholding the school property to deliver it to the trustees within a certain time. If a refusal is still given, the matter passes into the hands of a county court judge, who, on proof

of the facts alleged, may either deal summarily with the case or make such order as may seem to him proper, with or without costs. It may be that the secretary has a well-founded claim against the district. If so, he is in no way justified in offsetting it by illegally holdiug the school property. He has his remedy after giving up the papers, just the same as before. At any time, save after the annual meeting, when the accounts are supposed to have been audited, it is advisable for the secretary, before giving up the books, to have them audited.

Can the district school house be used for any other purposes than school purposes?—This is a much debated question. It is thought by many that a majority of the people in the district can rule in this matter, and by others that the consent of the trustees, or a majority of them, is sufficient. The best informed in this matter concur in the opinion that the school house is held in trust by the trustees to be used for school purposes only. Any other solution of the matter would be fraught with danger in many districts where sectarian feeling is strong and where the house is used for religious purposes. At the same time it often happens that the school house is the only available building for holding religious services and other meetings, and any deprivation of its use would entail hardship and cause discontent. Where there are no objections raised in the district to so using the school house, it is perhaps not advisable to depart from the usual practice prevailing in the past; but it is always advisable that the trustees should obtain the names of parties willing to become responsible in case of any damage being done to school property.

The former articles on this subject have been very interesting, no doubt, to many of your readers. In the next issue a series on the "Teacher" will be begun.

[To be continued.] C.

Inspectoral Notes.

Inspector Carter will visit the schools in the western part of St. John County and the eastern portions of Charlotte County, N. B., during the months of January and February.

Inspector Smith will enter upon his inspection of the schools of Albert County, N. B., this month, beginning with the parish of Alma, thence to Harvey, Hopewell, Hillsboro and Coverdale.

Mr. E. L. O'Brien, of the N. B. Normal School staff, has been appointed Inspector of District No. 2, embracing the counties of Kent, Victoria, Madawaska and a portion of Carleton, N. B., in place of Mr. Boudreau, resigned.

Means to Ends.

Every one who has given any attention to the work of the common district schools of his country, if no course of study has been followed, knows that they are wofully deficient in gradation and organization, due to the fact that they have been without any systematic plan of work, and that no record has been kept of the standing or advancement of the pupils.

One of the greatest evils in our country schools is the constant change of teachers. In the absence of any course of study in the schools, each teacher is free to arrange a course of study to suit himself, and each change of teachers brings also a change of plan in the school; pupils "are turned back" to pass over the same ground, term after term, until they lose all interest, and not infrequently contract a positive dislike for school and school work—hence this great irregularity of attendance in our country schools.

These evils may, in a large measure, be avoided—by placing in the schools a carefully arranged course of study, and requiring a record of the progress and standing of each pupil. The defective work in the country schools is not so much due to the incompetency of teachers or to neglect on their part, as it is to the absence of any *system, incentives, or end in view.* The Course Study provides for a number of years' work for each pupil (who can be promoted as he progresses), *and, as an incentive for faithful work, presents a definite end to be reached.*

A Gifted Mayor.

The Hon. Charles D. Jacob, Mayor of Louisville, Ky., has enriched English literature by the issue of a legal document, that is the most original and unique ever published. In the course of his duty as mayor, it devolved upon him to issue a proclamation announcing to the public the passage of an ordinance by the City Council, prohibiting under specific pains and penalties, the running at large of horses, mules, cows, sheep, hogs and goats in the city of Louisville. Not being familiar with the legal phraseology that is usually employed in the drawing up of such documents, he wrote out one which he considered most suitable for the occasion, and here it is:

"No more, as the 'curfew tolls the knell of parting day,' will be witnessed the poetic, but unbusinesslike procession of 'lowing herds winding slowly o'er the lea,' marching steadily and triumphantly upon the green swards and parterres of brilliant flowers belonging to defenceless citizens. A thing of the past will be the insolent goat that, stalking with odorous tread, has bidden defiance to trembling mortals. Nevermore, 'fleece as white as snow,' will Mary's little lamb follow her to school, but, as 'a tender grace of a day that is dead,' will it linger, a sad, sweet idyl in the mind of the 'oldest inhabitant.' Henceforth the exotics of the rich will 'flourish as a green bay tree,' and the poor man will not have to lessen his already scanty means by building stockades to protect his little ones from roving bands of beasts."

We doubt whether there is to be found in the

English language another official document that for poetic vigor and picturesqueness of expression can be compared to it. The people of Louisville should be proud of their mayor who has shown that he is well able to draw up a republic proclamation that will afford them both pleasure, amusement and information to peruse.

Importance of Attention.

It ought, indeed, to be absurd in these days to spend time in saying one word about the importance of attention. Never before in the history of education has there been half the interest among teachers in the study of psychology as at present. To say to a farmer that he must prepare his ground if he expects a crop of corn, to a merchant that if he expects to get a living at his business he must have goods to sell, ought to be no more absurd than to tell any teacher who has the most rudimentary knowledge of psychology of the pre-eminent importance of attention. But so long as we hear of teachers violating every law of attention—talking to their pupils in a dull monotonous way without looking at them—seating them during recitation where only a part of them can see the teacher—conducting a recitation so as to give to pupils no motive to attend beyond the interest naturally excited by the subject—giving explanations without taking any pains to see that their explanations are comprehended—as long as we hear of these things our readers must give us the liberty to insist on the importance of attention. GET THE ATTENTION OF YOUR PUPILS. IF YOU CAN'T DO IT, CHANGE YOUR OCCUPATION.—*Journal of Pedagogy.*

MANY of the evils complained of in examinations, says the *School Guardian*, might be easily remedied by more judiciously framed questions. Too frequently examiners encourage the very evils which, in their reports, they are foremost to complain of. They ask for "cram," and they get it; they demand universal knowledge, and such a knowledge is affected; they ask for "the three causes" of this and the "six phases" of the other, and the "causes" and "phases," neatly disentangled, numbered, and lettered, are supplied. The proper remedy for "cram" is to set questions that "cram" will not answer. It is much to be regretted that persons are often appointed as examiners who know little about either the science and art of education, or about the conditions under which the candidates are prepared. An examiner ought to know what may be reasonably expected from candidates, and the best ways of gauging real knowledge and real power. As a rule, we would advocate the testing of power, in preference to the testing of knowledge.

READING.

A Charlottetown correspondent, "A. B. W." whose initials are already known to readers of the REVIEW, sends us some timely remarks on the value of good reading. We regret that we can only find space in this issue for a portion of the letter of our esteemed correspondent:

. . . The learner must thoroughly understand the passage he is practising on before he can read it intelligibly. The application and exercise of the thinking faculties necessary to obtain this understanding are in themselves a first-rate means of gathering knowledge and of developing the mental powers. The pupil who has carefully thought out all the meaning to be found in a fine passage from a good author, has taken a long step towards acquiring an education, and, what is of greater moment, has done much towards developing and disciplining the mind, and so fitting himself or herself to fight life's battle in future years. Moreover, the taste for work of this nature very rapidly grows; it soon ceases to be a labor, and becomes a pleasure. In time the mind, trained to think in this way, is able largely to follow the eye, and as the words of the printed page strike the sight, the understanding grasps the meaning and the cultured voice naturally and clearly conveys it to others. Some having greater natural gifts than their fellows will excel, but almost all can attain to a respectable degree of proficiency. It is just as in music The trained eye catches the notes on the printed sheet even when seen for the first time; the skilled fingers transfer them to the instrument, and the result is melody varying in beauty with the skill of the performer.

Does this branch of learning receive sufficient attention in our schools and colleges? In how many is any careful and systematic training given? Would it not be profitable, both to teachers and taught, even in the most elementary schools, to devote to it considerable time? For my own part, I think one, or, better, two days in the week specially set apart for this class of work would be time well employed, and in the higher seminaries of learning I see no reason why degrees in this art should not be conferred as well as in kindred subjects.

Walking on the Water.

C. W. Oldreive lately accomplished the task of walking on the water of the Hudson River, from Albany to New York. Distance about 150 miles, wager $500. His average progress was twenty-four miles a day. He always went with the tide.

The shoes he wore are made of cedar, lined with brass. They are five feet long and a foot wide. Each is air tight, with a space in the centre for the foot. On the bottom are three fins, so arranged that when the shoe moves forward they are pressed up against the bottom, and when the shoe is at rest they hang downward, like paddle wheel buckets.—*Scientific American.*

INSPECTOR LAY TO THE TEACHERS.

[Continued from Inspectors' Department, pp. 152, 153.]

Teachers will please remember that the work in physiology begins after vacation with Section 26. I will again repeat the proposed division of the work, beginning with first week after vacation:

1st	week	26, 27.	2nd	week	28, 29.
3rd	"	30, 31.	4th	"	34, 35.
5th	"	36, 37.	6th	"	38, 39.
7th	"	40, 41, 42.	8th	"	43, 45.
9th	"	46, 47.	10th	"	48, 49.
11th	"	50, 51.	12th	"	55.
13th	"	56.			

In the second week's work put the diagrams on pages 59 and 65 on the board, and make the pupils thoroughly familiar with them. Illustrate shape of valves of heart by cutting paper diagrams, and their action by the valves of a pump. Confine water in a rubber vessel (the sleeve of waterproof will do), and show the effect of pressure on it to illustrate the force that moves the blood from the heart, then let pupils apply this illustration to a hollow vessel, the heart filled with a liquid, and squeezed by the muscles. I think you will find no difficulty with the help the test gives to show how the contractions of the heart are repeated in the arteries and the result. You might try the experiments with salt, sugar, etc., in a bag of fine silk, if you cannot get animal membrane. In a future issue of this paper I will give some hints on lessons of 5th and following weeks. Give ten-minute lessons three times a week. Give simple lessons on health for the remaining days, abridging and simplifying those in 5th reader. Begin with Sec. 26 in Primer, whether previous work is completed or not.

Your friend,

E. J. LAY.

We clip the above from the Amherst *Gazette*. It illustrates what appears to be a very effective method of working up the schools of an inspectorate in any particular department.

THE EDUCATIONAL INSTITUTE OF NEW BRUNSWICK.

The Executive Committee met in the Library of the normal school, Fredericton, on Thursday evening, 3rd January, inst., for the purpose of making arrangements for the next meeting of the institute. More than two-thirds of the members were present.

It was decided to convene the institute on the last three teaching days in June, the first session to open on Wednesday, June 26th, at 2.30 P. M. The last three meetings having been held in St. John, the Chief Superintendent has named Fredericton as the place this year.

On the first evening there will be a public meeting for platform speeches by prominent persons. During the six sessions on the Wednesday and Thursday, it is expected that papers will be read on the following subjects:

1. Compulsory attendance at Schools.
2. The Superannuation of Teachers.
3. Composition and Critical Reading, *vs.* the Formal Teaching of English Grammar.
4. Public School Education—its relation to the political social and moral tendencies of the times.
5. Is the Common School meeting the Demand for Practical Education?
6. What Provision might be made for Technical Education in this Province?
7. The Common School Teacher—his qualifications, his duties and his rewards.
8. A Programme of School Work for Friday afternoons.

Persons were appointed to prepare papers on these subjects, and others to open the discussions thereon. The details of the arrangements for the institute were delegated to a sub-committee.

SCHOOLS FOR MINERS.

An effort is to be made to give practical scientific instruction to such of the workmen now employed in the coal mines as are anxious to improve their condidition, and are willing to avail themselves of such facilities as may be afforded. For this purpose the Nova Scotian government have decided to establish seven schools of instruction in the various coal mining districts of the province. The places at which these schools are to be established and the teachers who are to conduct them are as follows:

1. Chignecto Colliery, Maccan, Cumberland county; teacher, Mr. James Baird.
2. Springhill Mines, Cumberland; teacher, Mr. Robert Redpath.
3. Thorburne, Pictou county; teacher, Mr. A. D. McKenzie.
4. Sydney Mines, C. B.; teacher, Mr. Robert Robson.
5. Gowrie Mines, Cow Bay, C. B.; teacher, Mr. Robert Anderson, councillor.
6. Victoria Mines, C. B.; teacher, Mr. John Weir.
7. Bridgeport, C. B.; teacher, Mr. Robert Campbell.

Schools will be opened at other places if it is found that the workmen require them. The instruction will probably be given as a rule in the evenings, so that the work of the men may not be interfered with. The teachers are to receive an allowance from the government for conducting the schools, and a further allowance for each person prepared by them who successfully passes the board of colliery examiners as an underground manager or overseer. No fee is to be charged to the men. There is much need of more

skilful workmen in the mines, and there can hardly be a doubt that, if the colliers avail themselves of the facilities that are to be offered, the results will be beneficial to them and to the companies as well.

MEETING OF THE FRŒBEL INSTITUTE.—The annual meeting of the Frœbel Institute of Nova Scotia was held in the Province building on the 3d inst, the president, Mrs. Condon, in the chair. Among those present were Inspectors Condon, Roscoe and Lay, Supervisor McKay, Principal McKay, Dr. Hall, Dr. Hibbert Woodbury and Principals Kennedy and Congdon. Several ladies interested in kindergarten culture were also in attendance. Dr. Hall gave an account of the lectures on Frœbel's system delivered to the normal school pupils by Miss Woodcock, and expressed his satisfaction at the deep interest shown by the pupils in their visits of observation to the kindergarten, and augured the happiest results. Mrs. Patterson and Miss M. A. Hamilton have completed the course, but are still, with laudable ambition, working in connection with the kindergarten. Two other ladies, also teachers, are now taking the full course. The school board of the city of St. John sent Miss Orr, of Victoria school (a very able teacher in the primary department), to take a month's training and observation in the model kindergarten. This lady is illustrating in a marked manner the practical benefits of the short course specially designed for teachers engaged in active work. Principal Hay writes that she is introducing Frœbel's practice into her department most efficiently, so that those who sent her feel amply repaid for the expense they incurred. Principal McKay hoped soon to see the kindergarten established in every town in Nova Scotia in connection with the public schools. A general discussion took place as to the best means of bringing this about, and it was shown that much had been done towards this and by the arrangement entered into by the government, whereby regular instruction in Frœbel's principles and systematic observation of the well-conducted kindergarten forms part of the training henceforth of every pupil-teacher at the normal school. It was felt and expressed that the people of Truro deserved great credit for the spirit and determination with which they had supported the kindergarten at a large pecuniary outlay.—*Hx. paper.*

THE scholarships vacant for the next year of the N. B. University will be those for Restigouche, Gloucester, Kent, Westmorland, St. John, Queens, Albert, York. Teachers of superior and grammar schools throughout the province should keep this list as well as the advertisement of the university, printed in another column, posted up where their scholars may see it. It will stimulate to effort in the direction of the higher education.

EDUCATIONAL OPINION.

"It is strange to observe how indifferent the public generally is to the best and soundest work being done in its midst."

This is what the Rangoon *Gazette* says of the work of missions in Burmah. But the same may be said, for instance, of our common school work. While politics and trade receive every attention the formation of educational habit, of moral tone, of practical skill in the great mass of children who are to be the people of our country, awaken but little enthusiasm. The papers of a city like Halifax, being unable to see outside of Halifax, are ready to devote any amount of space, to use any means, fair or unfair, to aid a Halifax college, but they seldom try to arouse the public to the far greater importance to the country of the common schools of the province. It is encouraging to know that the teachers themselves are interested in the work, as is seen by the holding of their conventions, of their school of science, their support of educational periodicals, and in other ways. At the late convention in St. John the minister of finance urged that the teachers should receive larger salaries as a fair return for their important services, and that a longer vacation should be given in the summer, both to give opportunity for self-improvement in the teachers, for rest and recuperation, and for the advantage to the health and vigor of the pupils. All these recommendations are in the best interests of the country at large.—*Windsor Tribune.*

"It ought to be that as young men grow in the knowledge of literature and science they should form those habits which contribute to their happiness and usefulness, and which tend to strengthen the state. A collegiate or any other education which fails in this is faulty at the most critical point ... The lives of Arnold and Thring were devoted quite as much to the making of men as of scholars. The results have justified the wisdom of their plans, and should be a model for more general imitation."—*Woodstock, N.B., Press.*

"We make the statement emphatically that there is no portion of the Dominion more favorably situated for the development of manufactures than the Maritime Provinces; and this being the case, the education of our youth should be so conducted as to develop the love for industrial pursuits, and to properly train those who have the natural abilities to become skilled workmen in any industrial calling.—*Hants, N. S., Journal.*

EDUCATIONAL NOTES.

By a recent resolution of the Board of School Trustees of Moncton, N. B., only those who hold a first-class license can be appointed to positions on the teaching staff of that town.

More than 12,000,000 children attended the public schools of the United States some part of the last fiscal year, and of those nearly 8,000,000 were in average daily attendance. In both respects the southern states have made greater progress than other parts of the country.

The Nova Scotian government are not neglecting educational interests. The fine normal school building has been thoroughly freshened up with paint; the walls and ceilings of the class-rooms, assembly-room and halls are things of beauty. The electric light has been introduced for evening lectures.

Evening lectures once a month by prominent educationists is in contemplation for the current term in the Provincial Normal School of Nova Scotia.

Miss Griffin, of Massachusetts, has been engaged as teacher of music and elocution in the same institution. She will teach sight-singing and musical theory in accordance with the Mason system, so called—viz., that system used so generally throughout the U. S. A.

The faculty of the N. S. Provincial Normal School gave a charming "at home" to the students of the school and invited guests from Truro and elsewhere just before the vacation. Dr. Allison, superintendent of education, was present, as was also Miss Jennie McGarry of the Ladies' College, Halifax.

AMONG THE COLLEGES.

The students of the University of Dalhousie have presented the venerable Dr. Lyall, professor of logic and psychology, and author of "Intellect, the Emotions and Moral Nature," with a horse and carriage to carry him to and from lectures.

The Dalhousie *Gazette* pays a very high tribute to President Forrest of Dalhousie, as the founder and persistent financial support of the gymnasium, which now, after eight years' heavy indebtedness, is more than self-sustaining. A university of athletes gives promise of future common school physical training.

Acadia College closed for vacation with the "annual rhetorical exhibition of the junior class" in College hall before a large audience.

Truro Academy has made an average of 70 since the beginning of the present term. This is by far the largest attendance in its history. A number of the pupils are taking up advanced work preparatory to matriculating into college. Already the standard of work being done there has been recognized by Dalhousie University, and hereafter students who have completed a full academy course will be admitted to that university without further examination. Truro is thus placed on the same level with the best academies in the province.

The General Council of Medical Education and Registration of the United Kingdom has decided that the examination for a degree in Arts of the University of Mt. Allison College, New Brunswick, be recognized and added to the list of preliminary examinations accepted by the council. This will admit Mt. Allison graduates in the future to all medical schools in the United Kingdom without passing any preliminary examination.

Pictou Academy closed with the "annual Xmas concert" in Convocation hall before an audience of four hundred.

It is not generally known throughout the provinces that St. Francis Xavier College, Antigonish, has lately moved into new, extensive and elegant quarters. The new building is spoken of as being very commodious and attractive and in keeping with the advance in educational accommodations in the most progressive centres.

PERSONAL NOTES.

Mr. E. M. Brundage has given up the school at Grand Harbor, Grand Manan. Mr. Moore succeeds him.

Miss Annie Adams, late of the Grammar School, Shediac, and Miss Ella Veazey of St. Stephen, both Class I. teachers, have been appointed to positions on the Moncton, N. B., school staff.

Thos. McGarrigle, A. B., Principal of the Lower District Schools, Chatham, N. B., has resigned his position, and leaves for Vancouver, B. C., this month. Mr. McGarrigle received many testimonials expressive of the esteem in which he was held by his pupils and their regret at his departure from them.

In the October number of *Mind* is an article on "A Basis for Ethics," by Dr. S. W. Dyde, of the University of New Brunswick.

J. S. Trueman, B.A. (Dalhousie), of Carleton, N. B., has been awarded a classical fellowship at John Hopkins University, Baltimore.

Miss Clara E. Bridges, of Fredericton, has been appointed to a position on the staff of teachers in the St. Stephen, N. B., schools, caused by the resignation of Miss Sands.

Prof. M. Ingres has established a branch of the Berlitz Schools at Woodstock, N. B.

The Grammar School at Woodstock, N. B., under the principalship of R. P. Steeves, M.A., is steadily increasing in efficiency.

Mr. Walter A. Taylor, A. B., of Carleton, N. B., (Mt. Allison) has recently gained a fellowship at Harvard University, worth $300.

Mr. W. H. Matheson has retired from the school at North Bedeque, P. E. I., and has been succeeded by Mr. A. D. Fraser.

Inspector Bridges will visit the parishes of Stanley and Douglas, in York County, during January.

QUESTION DEPARTMENT.

W. J. W., St. John.—In the question department of your issue for December, I notice you state that "*Gordius* belongs to the family *Gordiacea*, to the order *Celemintha*, to the class *Annulata*, to the province *Articulata*." While Packard, in the last edition of his *Zoology*, (1888,) states that *Gordius* belongs to the family or sub-order *Gordiacea*, to the order *Nematodes*, to the class *Nematelminthes*, and to the branch *Vermes*. He places *Vermes* below mollusca, while in Cuvier's division, *articulata* is higher than mollusca, in the scale of animal life. It is puzzling to a beginner to find authorities differing so widely. Perhaps the Review can throw some light on the subject.

Ans.—The classification of *gordius*, given in the last number of the Review, is that of the first edition of Sir Wm. Dawson's Hand-book of Zoology. In his last edition he simply breaks up Cuvier's province, *Articulata*, of his first edition into the two provinces *Arthropoda*, (spiders, insects and crustaceans,) and *annulata* (worms and worm-like animals). Nicholson's Manual of Zoology, a standard text-book in the leading British universities, depresses *gordius* even lower than Packard, and places mollusca at the head of the invertebrata. We quoted Dawson's hand-book as it is, specially adapted to our Canadian fauna, and is more elementary in its outline. It is the text-book adopted by the N. S. Summer School of Science in Zoology, and we presumed the one most likely to be generally used by young Canadian students.

The cause of this disagreement in classification which is so puzzling to the student who refers to more than one system, is due to the fact that Zoologists attempt to put in a *linear* series, organisms, which stand related in a manner which could be better expressed in a series of *three dimensions*, or in a zoological tree. Attenuate this tree into a line and you will have to toss for the precedence of the articulata and mollusca. While some of the mollusca are very complexly organized, some of the insects are, in many respects, apparently nearer the vertebrata, and the worms are placed next them on account of their close resemblance to the larval forms of the insects, although the worms generally are very conspicuously of lower organizations than the mollusca. Nicholson would classify *gordius* as follows: *Genus*, gordius; order, gordiacea; division, Nematelmia; *class*, Scolecida; sub-kingdom, annuloida. When not otherwise specified, the Review will use Sir Wm. Dawson's classification, not on account of any supposed superior merit in his system of classification, which, nevertheless, has the support of some of the greatest of zoologists, but on account of its elementary and concise form combined with its special reference to Canadian forms of animal life.

W. M. G., Jedidore.—Please find some specimens marked W. M. G. in a parcel, and please determine what they are. They came from the top of a rock named Gibraltar, about 600 feet high, at the extreme north of Meagher's Grant. It is a scrub about ten feet high.

Ans.—It is *Pinus Banksiana*, Lamb., which is *Pinus rupestris*, of Michaux. The French, in Quebec, Gallicize Michaux's name into *Pin des rochers*—the "the pine of the rocks." It is generally known in English as "Banks' pine," the "Gray pine" and the "Scrub pine."

J. M. C.—Correct. The white, *Arsenopyrite;* the variegated, *Bornite;* the black, *Cassiterite*, (Tin ore—the oxide). "Sulphurous" fumes in latter, if present due to some extraneous matter.

LITERARY NOTES.

A Compliment for the University of Dalhousie, Halifax.—Professor MacGregor's lately published text-book on "Kinematics and Dynamics" has been adopted as the basis of a course in the University of Cornell.

Professor Alexander, of Dalhousie, is reported to be preparing a volume for publication. It is said to be an introduction to the study of Browning.

Teachers of English literature will be glad to learn that Mr. A. J. George, who edited *Wordsworth's Prelude* so acceptably, has in preparation to be published early in 1889, Selected Poems of Wordsworth, comprising lyrics, sonnets, odes and narrative poems, such as are requisite for a thorough understanding of the genius of the great poet. It will be published by D. C. Heath & Co., Boston.

THE STORY OF A SCHOOL" is the simple title of an article by the late Prof. James Johonnot, to appear in the February *Popular Science Monthly*. It is an account of the remarkable success achieved in conducting a normal school according to natural methods, arranging the subjects of study in their order of dependence, teaching science by observation, language by using language, mental and moral philosophy objectively without books, and with no marking system, rules of discipline, or distinctive religious exercises.

BOOK REVIEWS.

We are indebted to Prof. A. B. Seymour, of Harvard University, for the report of the Section of Vegetable Pathology for 1887, and Bulletin No. 7, both from the Department of Agriculture, Washington. Both contain valuable illustrated articles, descriptive of fungi injurious to vegetation.

MANUAL TRAINING, No. 1.—Thompson. D. C. Heath & Co., Boston, New York & Chicago. Every teacher having primary pupils should have this little work. It is altogether practical, and just what is required to lead the teacher.

AN ILLUSTRATED PRIMER. By Sarah Fuller, Principal of the Horace Mann School for the Deaf. D. C. Heath & Co., 1888. This little volume of some 100 pages contains several hundred outline drawings, illustrating words and sentences. It was prepared specially for the use of the deaf; but we have found it most interesting and useful as a general primer. It also serves as a capital guide for outline drawing of the most familiar objects, and is also a fascinating and valuable book for the tyro reader.

EARLY TRAINING OF CHILDREN By Mrs. Frank Malleson. Boston: D. C. Heath & Co., 1887. A volume of some 120 pages. It is well printed in large clear type. The subject is plainly and forcibly treated. Mothers, nurses and all having the control of young children, will find the work very suggestive.

HISTORIETTES MODERNES, by C. Fontaine, B. L., L. D., Professor of French, Washington, D. C. Publishers: D. C. Heath & Co., Boston. This is a collection of interesting stories and sketches, accompanied with notes, well adapted to familiarize young students with modern French literature.

METHODS OF TEACHING ARITHMETIC IN PRIMARY SCHOOLS, by Larkin Dunton, LL. D., Head Master of the Boston Normal School. Boston: Eastern Educational Bureau, 1888, pp. 165. Sent by mail for $1.00. This work seems admirably adapted for laying an excellent foundation in arithmetic. Any child that does the work indicated by this book will learn numbers first, and then figures as the signs of the numbers. The subject matter is broken up into easy stages; first, numbers from one to ten, then from one to twenty, one to one hundred, one to a thousand, and higher numbers. The explanations of the fudamental processes of arithmetic, notation, addition, subtraction, multiplication, and division are clear and complete. Every possible operation and combination of numbers from one to ten, ten to twenty, twenty to one hundred, are here given. The systematic development of numbers has not heretofore been fully given in English. This work covers that ground. Whoever takes a class over the line of instruction indicated in this book will give a thorough course in number work. The book is beautifully printed on fine paper and is tastefully bound.

BOOKS RECEIVED.

ALLEN & GREENOUGH'S LATIN GRAMMAR, revised and enlarged. Boston, Mass., and London: Ginn & Co., 1889.

TESTA: A Book for Boys. Published by D. C. Heath & Co., Boston.

EXCHANGES.

The *Century* for January contains a very thoughtful and timely article in its Topics of the Times on "Annexation or Federation?" suggested by the article of Mr. Geo. R. Parkin in the December number. The *Century* begins the new year well, its illustrations being especially noteworthy.... *St. Nicholas* for January is a fine number and ranks wel with its many beautiful predecessors..... *The Scientific American*, referred to in another column, is the very best publication in this country for those interested in science, engineering, mechanics, inventions, etc... The *Popular Science Monthly* for January has, among other excellent articles, two timely ones on educational topics, "The Sacrifice of Education," and an editorial on the "Abuse of Examinations".... The readers of the *Illustrated London News* were delighted beyond measure by its elegantly finished Christmas number. ...The *SackvilleArgosy* and *Fordham Monthly* (N. Y.) published beautiful Christmas numbers.... *Garden and Forest* (D. A. Munro, publisher, New York) began its second volume Jan. 2d. Some of the interesting and important features of this new volume will be a series of articles upon the elements of "Vegetable Physiology," by Dr. G. L. Goodale of Harvard; by Prof. Sargent, a series of articles on the "Native Trees of North America," with others of the greatest value to students of nature..... *Science* (M. D. C. Hodges, publisher, N. Y.) of Dec. 28th contained 20 pages, with map supplement. This excellent weekly, containing a review of science, art, education, may be had for $3.50 per annum....The New York *School Journal* contains in its last December issue a splendidly illustrated description of the great Pratt Institute, Brooklyn, New York, showing the main building, the free library, free reading room, the foundry, the trades room, the machine shop, the smith's shop, the school of art, dress-making, cooking, millinery, the museum, etc.... *Volapuk*, 150 Washington Street, Boston, Mass., is just the periodical required for the young student in Volapuk....The January number of *Wide Awake* is a second beautiful holiday number. The serial stories and other bright stories are all very charming....We have received the first number of *School Work and Play*, a semi-monthly Canadian children's paper, published by the *Grip* Publishing Company, Toronto. It is excellently printed and illustrated. Only 50 cents a year....The January *Bookmart* (Pittsburg, Pa.,) is a fine number of an excellent literary magazine.