

PAGES

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The Educational Review.

Devoted to Advanced Methods of Education and General Culture.

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

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

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THE REVIEW is continued to subscribers until an order is received to discontinue sending it.

OUR subscribers who fail to send us their address when they change to another district, put us to serious inconvenience and sometimes loss. The paper is continued to their old address for some months after. This results in loss, and the trouble of correspondence with the postmaster or inspector of the district. Thus several persons are put to inconvenience on account of one. There are a few of our subscribers who fail in this respect, and also to remit when bills are sent. These should remember that there is a business side to the REVIEW. It cannot be published without money. The great majority of our subscribers do not need thus to be reminded. They are prompt and punctual in meeting their obligations, and this enables the REVIEW to meet its obligations promptly.

READERS of the REVIEW will not need to be introduced to Chief Supt. MacKay, whose portrait appears in this issue. His connection with the

NAMES AND CASH

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

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REVIEW since its establishment, and his able and unselfish efforts to extend its influence and widen its field of usefulness, have made him known to many beyond his native province. These will be glad to meet Mr. MacKay, face to face.

WE thank the correspondents who have so warmly commended the January issue of the REVIEW. If we published every month the words of hearty encouragement that are received, they would occupy several pages of the REVIEW; and mingled with the words of appreciation there come others of friendly criticism which are just as gladly received. If the REVIEW is to wield an influence, it must have the good will and co-operation of teachers, and in no way is good will and a desire for its success better shown than by a generous criticism of its faults, pointing out its requirements, bringing it slowly but surely to meet the needs of every teacher and every school district in the Atlantic Provinces. It is this influence that makes the REVIEW read by thousands today where it was read by hundreds a few years ago.

FEW teachers can boast of a period of seventeen years' continued service in one place, yet that is the experience of Principal Cameron of the Yarmouth Academy. Like every true teacher he creates in the minds of his students an overwhelming desire for knowledge which he fosters and encourages after they graduate, aiding them either to explore the wonders of the heavens or to search more deeply into the treasures of literature. A postgraduate class recently presented him with an address in old English, with a copy of the Variorum edition of Shakespeare's Othello.

IN the contributor's club of the *Atlantic Monthly* for January, reference is made to a triumph scored by the students of Volapuk. Not content with showing the commercial advantages to be derived from the new tongue, they have entered the realms of poetry. A Volapukist in New South Wales rendered in poetry Dr. Holmes' poem, "Under the Violets." The Volapukian version was without rhyme (perhaps an advantage) but it had reason; for a Nova Scotian, who had never seen the original poem by Dr. Holmes, coming upon the Volapukian version, turned it again into English with remarkable fidelity to the original. The name of the Nova Scotian is Mr. Geo. Creed, South Rawdon, Hants County.

MENTAL arithmetic is one of the best, if not the best, subject on the curriculum to produce thinking pupils. Fully one-half of the time given to arithmetic should be devoted to it. Accuracy, quickness and

reasoning power are developed by it. Many teachers do not give much mental arithmetic, because it demands from them too much activity on their own part; but such teachers do not rank among the best. Many consider that a mistake was made when mental arithmetic ceased to be a requirement for license in New Brunswick. Certainly, if it were a requirement, greater attention would be directed to it in many of the schools.

MANY complaints are being made by trustees concerning teachers who respond to advertisements, but who fail to take any notice to letters sent engaging their services. Even though these teachers may have engaged elsewhere, they certainly, as a matter of courtesy, should decline all other offers made, as they may cause serious delay and inconvenience by not doing so. Trustees complain that they might have secured other teachers, but that they were waiting upon some applicant to reply, or put in an appearance, and thus the chance slipped by. In this matter trustees themselves are much to blame. After securing a teacher they often take no notice of the applications of others. Teachers should know better, and trustees should be educated in the matter.

UNIVERSITY EXTENSION.

The first course of the University Extension Lectures in St. John, has been finished, and the result is sufficient to justify its promoters in endeavoring to make University Extension a permanent institution. About 240 students were enrolled, and a large number of these, with others, have joined the second course which opened on the first of February. The lecturers in the latter course are: G. F. Matthew, M. A., F. R. S. C., on geology; A. E. Macintyre, F. C. S. on chemistry; Prof. W. C. Murray, M. A., on political economy; Prof. W. F. Stockley, M. A., on English literature (Chaucer); I. Allen Jack, D. C. L., Q. C., Recorder of St. John, and A. A. Stockton, LL. D., D. C. L., Q. C., on law. Eight lectures will be delivered on each of these subjects, and the names of the lecturers in each are a sufficient guarantee that the subjects will be treated with ability and vigor.

Many teachers are enrolled among the students. A valued correspondent suggests that Prof. Murray be asked to deliver lectures on psychology in the second year's course, which it is hoped will begin early next autumn.

The professors of Mount Allison University have begun a course of university extension lectures in Moncton. Prof. Andrews has delivered the opening lecture in a course on biology.

PROMOTIONS.

There is no better criterion of a teacher's honor than the scrupulous care he displays in the promotion of his scholars. It is not uncommon to find pupils promoted simply to avoid the dissatisfaction arising from parents, on account of their children being too long, as they say, in one book. Yielding to this pressure works irreparable mischief to both teacher and pupil; to the former by the self-betrayal of his own act; to the latter, by an introduction to work for which he is not prepared. On the conscientious successor who undertakes to rectify the classification so falsely performed, falls a storm of abuse which may take months to turn, so as to gain as much popularity as his less deserving predecessor.

Most parents are keenly sensitive to their children's success or failures, hence the greater necessity for clear judgment in promotion. To do, in grading as in many other things, is much easier than to undo.

The important lessons of thoroughness and industry are seldom learned in a school where good scholarship as a condition of promotion, is not insisted upon. Nothing is more valuable in acquiring an education than that each step be taken well. It is a training for future years. If a boy be brought to overcome difficulties in early life, the practice becomes so fixed in his character that he will disdain everything that has the semblance of sham. Students who are kept back, naturally are annoyed at what seems to them a loss of time, but also feel disgraced by having a junior class overtake them. When it is once discovered that a pupil cannot slip in without he bears the merit of scholarship, it will have a good disciplining effect upon the school as a whole.

It is true that some fall behind on account of ill health and immaturity. All cannot learn with equal facility, and not unfrequently a person whose mind acts slowly will prove to be capable of excellent attainments in the end. But this is the measure of an individual not of a class, and as the greatest good to the greatest number would require that a scholar who was not able to keep up should be set down to a lower class, no one should ask the standard to go to the scholar, but the scholar to the standard. Unfortunately for our schools the former is too often the rule. Pupils are advanced in the N. S. common school course on an average mark of 50, and even less in graded schools where the press of lower rooms necessitates it. This is lamentable if the pupils are asked to do the work of the higher room.

No system, however well graded, can avoid the congestion of grades at intervals. No school board would be warranted in employing sufficient teachers to meet the emergency of the case, as some other room

has a very small number for the very reasons that the other was overfilled. Consequently there is but one remedy for the block, this is—to give teachers different grades of work just as their classes increase or decrease.

THE WORLD MOVES.

On the 12th of October next year, the 400th anniversary of the discovery of America by Columbus, the railways of America will probably adopt the 24 hour notation. A Canadian, Mr. Sanford Fleming, has taken the lead in the introduction of improved time notation. In 1883 the hour zone system was adopted by our railway systems, and our cities. The rapidity and amount of railway travel, and the common use of the telegraph, calls for further advance. We now need world time to suit their interests. And world time will after a little temporary inconvenience be as simple as our old-fashioned local time. Every clock and watch in the world will, under the new order, show the same time at the same instant. If it will be agreed to take the sun's noon passage over the 180th meridian from Greenwich to make, say, the beginning of Monday, hour 0, then our Sunday midnight (Monday morning) here would occur at four o'clock world time. School would open at thirteen, noon dinner come at sixteen, five o'clock teas commence at twenty-one o'clock, and the old-fashioned eight o'clock evening prayer-meeting would open at twenty-four o'clock and close at one o'clock next day. The legal local day in different parts of the country would have to be specified as lasting from one given hour to another, depending on the longitude of the locality. We shall have much pleasure in noting, as soon as we get it, the full scheme of the American Society of Civil Engineers, who are heavily responsible for the proposed innovation,

SOME of the inspectors are complaining of the weather. Such a January is not remembered. In the southern part of the Province of New Brunswick there has been no snow to make sleighing at all, and the inspectors there have not been able to do any country work at a distance from their headquarters.

THERE is a prejudice in some quarters against married women teaching. This exists in some places to such an extent that local regulations have been passed excluding them. Why should married women not teach? There is nothing in the training of the home at variance with the qualities required of a teacher; on the contrary there is much in it to fit a woman for the fulfilment of a teacher's duties. This province owes much to the work of married women in its schoolrooms.

Superintendent A. H. MacKay.

A. H. MacKay is a name familiar in all educational and scientific circles in the Atlantic Provinces. It may not be amiss, however, at the present, in connection with his retirement from one of the editorial chairs of the REVIEW and his elevation to the highest educational position in his native province, to refer to a few of his more prominent characteristics and give with dates a few of the chief events in his career.

He was born on the 19th of May 1848. In his early boyhood he began his scientific investigations amid the scenery of a romantic mountain home in Pictou County, Nova Scotia.

Through the labors of Sir Wm. Dawson, then Superintendent of Education, the applications of science to agriculture were beginning to attract attention, and Johnson's Agricultural Chemistry, and other such works awakened and stimulated many youthful minds at that time, and his among the rest.

Assisting on the farm in summer and studying at school two miles distant in winter, he made rapid progress in building up a physical constitution which never failed him under the severest mental strain; and in acquiring so much knowledge that at seventeen years of age he became master of the district school, instead of being a pupil. The next eight years were spent in alternately teaching and studying, until at the age of twenty-five he graduated from Dalhousie College with honors in mathematics and physics.

For sixteen years he was principal of Pictou Academy and common schools, and for two years principal of Halifax Academy. During all this time he devoted himself most enthusiastically to the study of science. First he mastered our Nova Scotia flora. Then he turned his attention to insects and became an accomplished entomologist. He was the first and only authority on Nova Scotia fresh-water sponges, several species of which he discovered, and some of

which in their specific names will perpetuate the name of their discoverer.

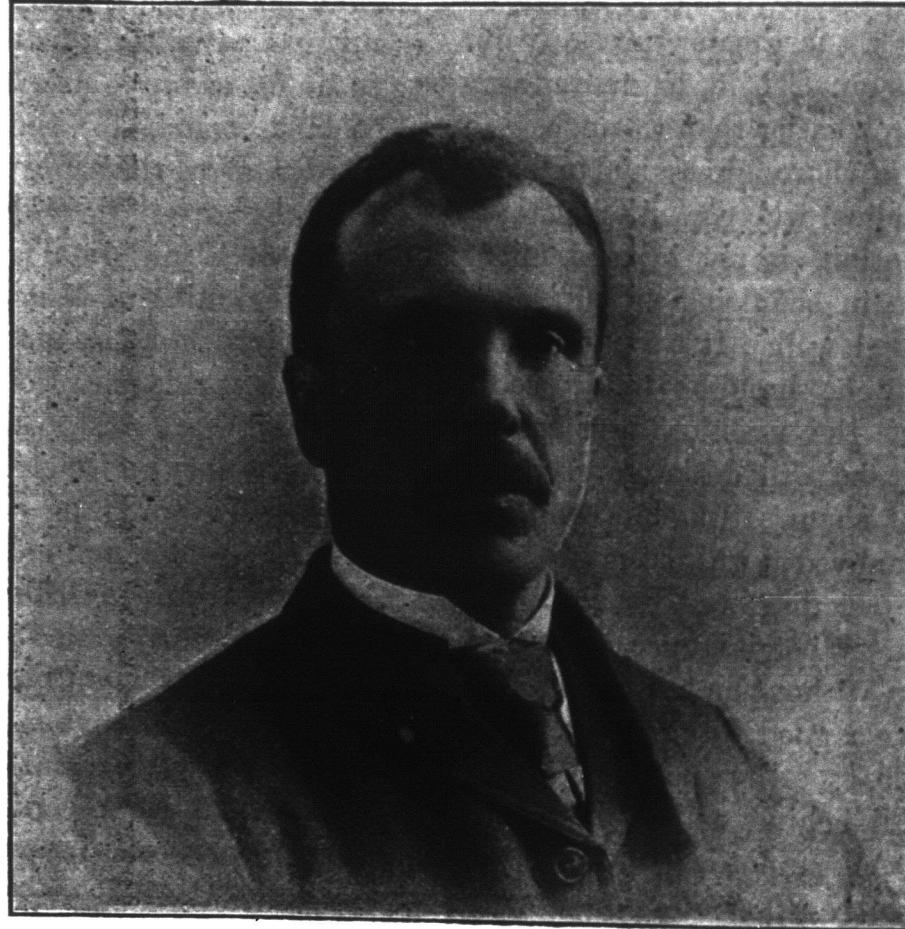
Although apparently so much engrossed in pure science, he seems to have had time enough for many other kinds of work. He was fond of military drill; investigated microscopically the causes of rinderpest; discussed theological questions with the kirk session; took lessons on the piano; mastered Volapuk; cultivated microbes; conducted a Sunday school, and took a leading part in many scientific and literary societies.

Being possessed of the true scientific spirit, he is somewhat slow in arriving at conclusions—particularly in matters outside the physical sciences. Long ago he discovered that one of the highest results of true culture is the power to put oneself in the place of another, to see and feel as he does, to look at things from his standpoint, and to know all the facts relating to the subjects, before coming to a conclusion. In cultivating this faculty, characteristic of the truly great, Mr. MacKay has been remarkably successful. Hence his broad and generous sympathies with every one he meets, and with all classes and creeds. What he may

lose in intensity and immediate results he will gain in the correctness and abiding qualities of his work.

One point more. For his present position he has had an ideal training. Compelled to work his way up from the ranks, he has practical knowledge and experience extending over twenty-three years of every grade of educational work, from the small country school to the biological classes of Dalhousie University. He has met and studied all classes of our citizens in country and city. The gentle Acadian farmer need not fear that he will be neglected, nor may the dominant Pictorian expect to wrench undue favors from his hands.

His life as a whole illustrates the proverb: "Seest thou a man diligent in business? He shall stand before kings."



DATES OF PRINCIPAL EVENTS IN SUPERINTENDENT
MACKAY'S LIFE.

- 1848 19th May, date of birth.
- 1865 Began teaching in Dalhousie, Pictou.
- 1866 Studied at the Normal School, Truro.
- 1868 Entered Pictou Academy.
- 1869 Matriculated into Dalhousie College.
- 1870 Appointed an editor of the Dalhousie Gazette.
- 1873 Graduated from Dalhousie College a B. A.
- 1873 Appointed principal of Pictou Academy.
- 1874 Elected president of the Provincial Educational Association of Nova Scotia.
- 1876 Visited leading schools of the United States.
- 1880 Took the degree of B. Sc., Halifax University.
- 1881 Built the new Pictou Academy.
- 1882 Married Maude Augusta Johnstone, only daughter of Dr. G. M. Johnstone, M. R. C. S.
- 1884 Elected member of the Biological Section of the British Association.
- 1886 Appointed Fellow of the Society of Science, Letters and Arts, London.
- 1887 Started the EDUCATIONAL REVIEW with G. U. Hay,
- 1887 Elected president Summer School of Science, N. S.
- 1887 Elected Vice President N. S. Institute of Science.
- 1888 Elected member Natural History Society, Montreal.
- 1888 Appointed a Governor of Dalhousie College.
- 1891 Appointed lecturer on Zoology, Dalhousie College.
- 1891 Appointed Secretary Dominion Botanical Club.
- 1891 Appointed lecturer in Bacteriology, Halifax Med. Col.
- 1891 Appointed Superintendent of Education for N. S.

TALKS WITH TEACHERS.

When you apply to an inspector for a school, be sure and notify him if you accept another. Do not fail to answer courteously the applications of trustees, even though you are not in a position to accept their offers. Courtesy on the part of trustees is no excuse for it in a teacher. Where trustees advertise for a teacher, they should invariably answer all applications. In the case of a teacher writing a district, regarding a possible vacancy, she should enclose a stamp for a reply. It is a good rule to enclose a stamp in every case when writing on your own private business.

Keep your room well ventilated. It is for your own benefit as well as that of your pupils. You can always do this at recesses by means of doors and windows. If more attention were paid to this there would not be so many pallid teachers. Take plenty of exercise. The effects of exercise in the schoolroom are far different from that obtained out of doors, partly because the conditions are so different. Do not be content with walking back and forth, to and from your boarding place. Exercise systematically, either in walking, skating,

tobogganing, snow-shoeing, curling, or anything to keep you in the fresh air.

Have some object in view to interest parents as well as pupils in school work. Improve the building, furniture, premises, or anything needing improvement in connection with your school. The effort will benefit you as well as the district. Be alive and take an interest.

If you are asked to prepare a paper for your County Institute, do not refuse to do it, because it involves some work. The work of preparing it will benefit you far more than anyone else. Many teachers have first been brought into notice and their reputation made by papers read at institutes. It is certainly very complimentary to a teacher to be invited to address a body of teachers, and so it should always be regarded.

Do not appeal to your principal oftener than actual necessity requires. Manage for yourself when you can. Petty references to principal and trustees hurt a teacher's influence.

When a school official visits your school do not begin to make apologies. It is an old story to him and only weakens you at the start. If, at the end of his visit, he mentions any defects, then is the time to explain, if a good reason exists for the deficiency. Do not excuse yourself, except on the strongest grounds.

Teachers, encourage your pupils to read! You can do this in various ways. Begin the reading of some desirable book on Friday afternoon. Excite the pupil's interest and the rest will be easy. Question your pupils upon what they have been reading. Get them to compare ideas. They will first be interested in the story. You can then interest them in the manner in which it has been told. The pupils will soon learn to note excellence in style and literary merit and distinguish authors by them. In all cases try to have a small library in connection with the school, and have an interest in and an oversight of the pupils' reading.

A correspondent writes to us an eloquent plea in favor of the celebration of October 12, 1892, by the school children of Canada. That day is the 400th anniversary of the discovery of America by Columbus. In the United States, in 300,000 school houses the flag of the country is to be hoisted in honor of the occasion. Our friend proposes that every school in Canada should that day fling to the bracing breezes the flag of Canada—the British flag with the fitting Canadian emblems. The suggestion is a good one and has our cordial concurrence. A flag will cost but little. The British flag means more of manly bravery, love of liberty, law and order, and practical Christianity than all other flags put together. Let our young friend push his happy idea with all his energy.—*Hx. Witness.*

For the REVIEW.]

Astronomical Notes.

Mars, Saturn and Uranus are morning stars at present. Saturn will be so until mid-March, Uranus till after mid-April, Mars till the beginning of August.

A correspondent proposes to try how late in the season he can see Mars and Saturn as morning stars. This is quite an unnecessary task. These planets do not—as Mercury and Venus do—finish their morning-star career by swinging back towards the rising sun and disappearing in his rays. Mercury and Venus do this because their orbits lie inside the earth's. But the orbits of all the other planets are outside our orbit, and after one of these *exterior or superior* planets once begins to show itself as morning star, it draws farther and farther away from the sun until it gets right round to the side of the earth *opposite* to that on which the sun is. Then it is in *opposition* and passes our meridian at midnight, and looks its best, and is therefore most easily seen. And then is the time that our almanacs stop calling it a *morning-star* and begin to call it an *evening-star*. The distinction is a merely technical one, and is of no importance whatever to the star-gazer. In the case of any of the exterior planets, he can see them in the evening long before they are "evening-stars," and in the morning long after they have ceased to be "morning-stars." With Venus and with Mercury try by all means how early and how late you can see them both during their morning-star seasons and their evening-star seasons. But with the others, it is only necessary to try how early they can be seen as morning-stars and how late as evening-stars. During the next month or two Jupiter will be a good one to practice this on.

* * * * *

Mercury has been morning star since the end of December and will be so until March 6th. The best part of this season was between the middle and end of January. Even the best was not very good, however, and by the middle of February it won't be worth while looking for him. But when he comes out to the left of the Sun in March we shall have a grand season of evening performances from him. If carefully looked for, he may be seen as early as the middle of March, perhaps even as early as the evening of the 12th, when he will be in conjunction with Jupiter. It is quite a close conjunction, less than half a moon-breadth. Your best chance to see it will be to watch Jupiter's place in your sky every clear evening as long as you can see him.

* * * * *

Venus is now bright enough to be seen in a clear sky any time from one hour or two before midday until she sets. And she is getting brighter every day. She is also coming nearer us. ("Also" isn't exactly the proper word to use here, but sometimes it is better to let the reader find the right word for himself). Between the middle of February and the middle of March she will decrease her distance from us by eighteen million miles. In mid-February she will set three hours after the sun; in mid-March, three and a half hours after.

If you don't manage to get a daylight glimpse of her before the 1st of March, try on the afternoon of that day. She will then be about 4° north of the moon.

* * * * *

Mars, our nearest neighbor on the other side, is also coming nearer and growing brighter. In the middle of March he will be twice as bright as he was in the middle of January, and more than fifty million miles nearer.

As seen from the earth he is now strolling leisurely through Scorpio. In mid-March he will be over in Sagittarius, near

the handle of the Milk Dipper. This is his first visit to Scorpio since he was in opposition there in the summer of 1890. Those who watched him then will remember what a sorry figure poor Antares (*Anti-mars*) cut by the side of his much bigger and brighter and ruddier rival. Turn out on some of these February mornings and look at the two again. Make an estimate of their relative brightness now. Note it down and keep it for six months. Then make another estimate and compare the two.

On February 15th, Mars will rise at 2.40 a.m.; on March 15th half an hour earlier. At rising on the morning of March 1st he will be 3° north of the moon.

* * * * *

Jupiter has abdicated his sovereignty of the evening sky in favor of Venus. Long before their conjunction on February 6th it was plain to even a careless eye that the King of Gods was outshone by the Queen of Love. The only interest the star-gazer has in him now is to see how late in the season he can still pick him out in the glow of the sunset sky. If you can hold him until after the beginning of March you will do well; if you can hold him until his conjunction with Mercury on March 12th, you will have earned the right to pronounce a glowing eulogy upon your own perseverance and the excellence of your eyesight. The intervals between sunset and Jove set on the following dates are: February 16th, two hours; February 26th, one and a half hours; March 5th, one hour; March 16th, fifteen minutes. On February 28th he will be near the moon.

* * * * *

Saturn may now be seen in the evening, although he still ranks as a "morning-star." In the middle of February he rises a little after eight, in mid-March at six. On February 15th and again on March 18th he will be near the moon. (If you are particular about accuracy of expression, read "the moon will be near him" instead of that last clause). He is in the west end of the constellation Virgo, between the stars Eta and Beta, and is moving slowly in the retrograde direction, that is from left to right. This planetary motion of his may be easily seen by noting from night to night his position with respect to the small stars near him. To see his rings and his family of satellites one needs a telescope; quite a small one, however, will serve to show the ring and the largest satellite, Titan. It was only last autumn that the ring closed up and disappeared from sight, and as yet it has opened out only a very little. Last winter it was the south side of it that was turned towards us; this year—and for the next fourteen years—it is the north side.

* * * * *

Uranus is also in Virgo, in the east end, close to the star Lambda. At the beginning of the year the planet was so close to the star that the two seemed joined together. Since then Uranus has been moving off to the east and south. He stops this motion on February 9th at a distance of only $40'$ from Lambda. Then he turns back to have another interview with Lambda. The closing up of the sky-gap between them will proceed slowly, but surely, until the two come together again after the middle of March.

Uranus rises on February 15th at 11.30, on March 15th at 9.30.

* * * * *

Neptune is still in good condition for observation. He does not set in mid-February until two hours after midnight; in mid-March he will set at midnight. For some time about the middle of February hardly any change of position among the stars will be noticeable in him. When next it is noticed he

will be found moving from right to left, that is in the opposite direction to that of his motion since September last.

A correspondent who is delighted at having made the acquaintance of Neptune by the help of a field-glass and the map in the January REVIEW, asks: "What are the chances of a star-gazer on Neptune seeing this earth of ours?" Hm! rather slim. The most favorable time to try will be the 25th of February, when Neptune is in "quadrature" to us and we are at "greatest elongation" to him. If our querist can get aboard a sunbeam on that day it will take him to Neptune in about four hours and he can try for himself. Failing that, he can do some figuring with distances and diameters and albedos and other things, and he will probably arrive at something like this result: That the chance of seeing the earth from Neptune under the most favorable circumstances is about equal to the chance of our seeing a sixth magnitude star when it is only three moonbreadths from the edge of a full moon—not our full moon, but another one seven hundred times as bright as ours. If there are any star-gazers on Neptune, they may consider themselves very lucky, indeed, if they get an occasional glimpse of Jupiter, and they have, perhaps, never yet even suspected that there is a Mars or an earth.

Yarmouth, N. S., Jan. 30th, 1892.

A. CAMERON.

For the REVIEW.]

NATURE LESSONS.

SCHOOL-BOY ZOOLOGIST—No. II.

The upper arm bones and thigh-bones of man have joints which allow them to move in every direction. The head of the bone is somewhat ball-shaped and fits into a socket, in which it moves freely. Such joints are called "ball and socket joints." But these bones cannot move so freely in every direction in other mammals,—the cat, dog, horse, or cow, for instance. Why? One good reason is that those bones are more within the bodies of these animals, while they are completely outside of the body proper in us. Anatomists call the upper arm bone by the Latin name *humerus*, and the thigh bone, *femur*.

EXERCISES: Move the humerus in every direction you can. Feel it through the muscles which cover it. Move the femur likewise. Point out these two bones in the cat, the dog, the horse, or any other mammals which can be examined at school or at home. Does the humerus always incline backward and the femur forward in them, and are they within the general contour or round of the body?

Next consider the second bone—that of the fore arm and the leg. The joints between these and those first considered allow only of a forward and backward motion like that of an ordinary hinge, and they are therefore spoken of as "hinge joints." The one in the arm, or fore limb, may be called the "elbow joint;" the one in the lower, or hind limb, the "knee."

EXERCISES: How does the elbow joint in man bend? Backward. How does the knee joint bend? Forward. Where is the elbow joint in the cat? Up,

right close to the breast. Is it the same with all the other mammals given in our list so far as you know? Yes. Tell me the different animals in which you noticed it to be the case. Now where is the knee joint in the cat—the joint in the hind limb that bends forward? Right up close to its body. So the cat's elbows and knees are barely outside of the body? Yes. Is it the same with the dog, the horse, the cow, the pig and other mammals you have been looking at? Yes. Are all the mammals the same in these points? No, the seals and whales have much more of their limbs within the general outline of the body; and the bats, on the other hand, have their elbows and knees as far outside of the general outline of their bodies as in the case of men.

The second bone of the limb extends from the elbow joint to the wrist joint in the fore limb, corresponding to the leg bone extending from the knee to the heel joint. But it is not correct to say fore-arm bone and leg bone, because there are *two* bones side by side. In the leg these two bones (*tibia* and *fibula*) are immovably fixed together beside each other; but in the fore-arm these two bones (*ulna* and *radius*) are movable.

EXERCISES: Open your right palm before you. Feel your right fore-arm near the elbow with the left hand. Then slowly turn your palm face downward watching all the time your fore-arm near the wrist. The *radius* bone on the thumb side of your wrist describes a kind of a circle around the *ulna* which runs up from the elbow to the little finger side of the wrist and is stationary; that is why we are able to turn the hand so easily. Can we turn our leg bones right above our heels as we do our arm bones right above our wrist? No. Why? Because the two bones are not free to allow one to move around the other. Are the *ulna* and *radius* of the cat movable as in man? Yes, the cat can catch a thing with its paws and turn its paw as we do the hand to look at it. Can the cow or the horse do the same? No. Why? Because the *radius* and *ulna* are not separate and free to move as in our arms; they are fixed something like the *tibia* and *fibula* in their own and our legs.

Eight little bones all closely knit together with tough white ligament, form our wrist. The bones are too small to be felt by the finger. You can feel one little pea shaped bone of them, at the base of your palm on the little finger side. If you fall on the ice with your palm open, you will be sure to hurt it, together with some prominent ones near the base of the thumb. They are in two rows, of four each and are covered when you put your left index finger across the back of your wrist, close in front of that prominent knoll on the end of the *radius*, on the little

finger side of the wrist. The joint here is a hinge joint. In like manner the two bones of the leg rest on a bunch of seven bones, from the heel to the top of the instep. The eight small wrist bones are called the *carpus* or wrist; the seven small foot bones, the biggest being the heel bone, are called the *tarsus*. The wrist joint with most mammals bends forward, and the heel joint as with man, bends backwards.

EXERCISES: Where is the wrist joint in the cat, dog and horse? Up so high that it looks like a knee joint. Where is the heel joint? Up half ways their hind limbs. Do you see any bone standing out like our heel bone? Yes, but much longer. So dogs, and cats, and lynxes, and foxes, and wolves, and rats, and mice, have their heels all in the air, have they? It looks like it. Do all mammals have their heels high up? No, the bears, for instance, have their heels on the ground like man, and so have the racoons. Most of the mammals walk on their fingers and toes. But we shall leave fingers and toes for our next lesson.

Write down in two columns the names of the bones in man, of the fore and hind limbs; but we must remember that all the mammals have not exactly the same number of bones in the *carpus* and *tarsus* as men have.

<i>Fore Limb.</i>	<i>Hind Limb.</i>
1 Humerus (upper arm)	1 Femur (thigh bone)
1 Ulna } (fore arm)	1 Tibia } (leg bones)
1 Radius }	1 Fibula }
8 Carpal bones (wrist)	7 Tarsal bones (heel)

LESSONS ON MINERALS—II. AND III.

The object of these lessons is to explain and illustrate more carefully the meaning of the words used in Lesson I. so that pupils can write out correctly what is required in the second and third lessons in the "Scholar's Note-book on Common Minerals," as it will be necessary to refer to those lessons frequently in determining the properties of minerals.

1. Tell the pupils that window glass is number five in the scale of hardness.
2. Ask for the color of the slates (grayish-black), curtains (yellowish-brown), paint on the walls (bluish-gray, pinkish-white, etc.), and other things according to circumstances, and write those names on the board as a part of a spelling lesson. Pupils are taught to write the names of decided colors correctly enough, but, as a rule, they are left in ignorance of the spelling of mixed colors, not to say anything about the recognition of the colors themselves.
3. Mark on the blackboard, with chalk, and ask for the color of the mark. Mark on the slate, with pencil (mark bluish-gray, or bluish-white), mark on paper, with lead pencil (mark grayish-black). Add these words to those already on the board, and make it clear that the pupils have been finding streaks of minerals.
4. A polished bell has a metallic lustre. Ask for the

names of other things that have the same lustre,—a ring, a silver coin, a watch case, a knife blade, a door knob, etc. Glass has a *glassy* lustre. Things having a glassy lustre,—ink-well cover, bottles, quartz; *dull* lustre,—chalk, slate, pencil earth; *resinous* lustre,—resin, gum arabic; *pearly* lustre,—pearl, inside of various shells; *silky* lustre,—silk, hair.

5. *Fibrous* structure may be illustrated by asbestos, satin-spar, rope; *granular*,—sandstone; *compact*,—slate, quartz, iron; *laminated*,—feldspar, calcite; *scaly*,—mica.

6. Glass is *transparent*, because objects can be seen through it. Ground glass is *translucent*, because light will pass through it, but objects cannot be seen through it. Things *opaque*,—wood, iron, paper; *elastic*,—whalebone, steel, wood; *flexible*,—paper, cloth, leather; *brittle*,—chalk, glass, candy; *malleable*,—lead, copper, gold (gold-leaf), tin (tin-foil); *ductile*,—gold, copper, iron; *light*,—chalk, slate, quartz; *heavy*,—lead, iron, quicksilver.

Illustrate by objects as far as possible, and have the words used spelled correctly by the pupils. The proper spelling and use of words expressing qualities of objects form a very important language lesson. As a rule, too little attention is given to such words, and they are used very loosely and inaccurately in consequence. The scholar's note-book contains a plan for testing the results of Lessons II. and III.

More than twenty-two years ago, Mr. Froude, the historian, in his address to the students of St. Andrews, insisted on the necessity, above all things, of raising the superstructure of education upon the solid basis of character. The Ten Commandments and a handicraft, he then maintained, made a good and wholesome equipment to commence life with. At a recent prize distribution to the pupils of a Devonshire Grammar School, the historian enforced the same lesson. Two kinds of education, he said, were always going on together,—that of the ordinary learning, and, what was far more important, the education of character. In order to be generous and high-minded character had to be constantly educated, and the learning had to be acquired, just as Greek, Euclid, and other subjects, and was just as difficult; we would say ourselves it was even more difficult. Mr. Froude very justly laid great stress on the sort of language boys used. He said that in his young days boys were not all at careful of what was said sometimes, being very profane and impure in their talk, although they might not think very much about it, perhaps. Bad language was liable to grow up with them, and leave a taint which would always remain with them. He also impressed on the boys that they should not indulge in habits of cruelty, and the importance of always telling the truth. Every one could not get a prize, but every one could be true and honest, and in those ways they would be able to shine in the world.

For the REVIEW.]

Practical Chemistry.

J. BRITTAI^N, NORMAL SCHOOL, FREDERICTON.

LESSON VII.

Make a loose spiral, four inches long, of iron wire, by coiling a piece about ten inches in length around a lead pencil. A spool of fine wire may be bought for a few cents, but broom wire will answer. Tie to the wire, close to the end, a very short piece of coarse cotton thread, and then dip the thread in melted sulphur. Straighten the other end of the spiral and pass it through the middle of a piece of cardboard three inches square. Bend it down upon the upper side of the card so that the spiral will hang vertically below.

Fasten a piece of charcoal (which may be got from a tinsmith or blacksmith), a little larger than a bean, at one end of a piece of fine brass wire, by bending the wire around it two or three times. Pass the other end of the wire through a needle-hole in a cork large enough to fit one of the wide-mouth six ounce bottles in your set. Draw the wire through till the charcoal is three inches from the cork and fasten.

Take a piece of soft glass tubing, one-quarter inch diameter, eight inches long. Soften it at about two inches from the end, by holding it in the flame of a spirit lamp, and bend it slightly at that place. Round the sharp edges of the glass at the ends by holding them in the flame till the edges become red hot. Select a good cork which will tightly fit a five-inch test tube when half-way into the tube. Make, with a small round file, a hole through the middle of the cork a little less than one-quarter inch in diameter. Pass the end of the glass tube which is farthest from the bend through the hole. If it should not fit tightly, seal it, or prepare another cork.

Fill a two ounce bottle, two six ounce bottles and a pickle bottle with water, and invert them in the water in the pneumatic trough, which should reach three-quarters of an inch above the shelf. Pass one end of a piece of rubber tubing, one-quarter inch in internal diameter, fifteen inches long, up through the hole in the shelf of the trough, and prevent it from slipping down by putting a needle through its end and across the hole.

Heat a little black oxide of manganese (manganese dioxide, MnO_2) in a spoon, over the flame, until all the moisture has been expelled. Take a "heaped" teaspoonful of chlorate of potash (potassium chlorate, $KClO_3$). If any of the crystals are very large, break them, but do not powder it. Put it in a dish with about one-fifth its bulk of the dry MnO_2 and mix them thoroughly. Pass the mixture through a paper funnel into the test tube until it is nearly half full. Insert the cork which has the glass delivery tube and twist it in until it fits the test tube *tightly*. Experiments often fail on account of loose corks. Insert the glass tube into the rubber delivery tube. Hold the test tube in a slanting position and heat the mixture with the spirit lamp held in the other hand. Move the flame slowly backward and forward along that part of the tube which contains the mixture. Soon a gas will begin to bubble up through the water in the trough. At first it will be mixed

with the air in the tubes, so you may let a little of it escape. Your assistant will then slide one of the small bottles upon the shelf over the mouth of the delivery tube, and as soon as it is filled with gas, will slide it off into a saucer or other shallow dish full of water. Remove it from the trough and slide another bottle upon the shelf. When the small bottles have been filled and removed, fill the pickle bottle with gas down to the shoulder. While your assistant has been attending to the bottles, you will have been keeping the gas going constantly. Sometimes you may take the flame away from the tube for a little while, but never allow the gas to cease flowing, else the pressure of the air may drive the water into the hot tube. If the gas looks smoky, reduce the heat.

You will notice that the gas you have collected is transparent, colorless and odorless.

Take a piece of window-glass, three inches square, and slide the pickle bottle off the shelf upon it. Press upon it while you turn the bottle with its mouth up. The water you left in it will sink to the bottom. The glass plate will prevent the escape of the gas while you ignite the sulphur at the end of the spiral iron wire. Then remove the piece of glass and insert the wire promptly into the bottle until the card rests upon the mouth of the bottle. The iron will burn with a white glow. Hot globules will drop to the bottom, where they will become black and hard. The water will cool them sufficiently to prevent the fracture of the bottle.

Take one of the dishes containing a bottle of gas and immerse it again in the water of the trough until the mouth of the bottle is below the level of the water in the trough. Then remove the dish and put the flat glass plate under the mouth of the bottle, and turn the bottle up as you did the pickle bottle. Plunge a dry hardwood stick, which retains a red tip after being ignited, into the bottle of gas. It bursts into flame again. Withdraw it promptly and cover the bottle again with the glass plate to prevent the escape of the gas. Blow out the flame and plunge the stick in again. It re-kindles as before. This may be repeated several times.

Turn up the smallest bottle of gas. Pour into it a test tube full of clear lime-water. Press the palm of the hand quickly upon the mouth, and, lifting the bottle with the other hand, shake well. The lime-water will remain *clear*. (The lime-water should have been prepared two or three days before by slaking a piece of lime with water, and then mixing it with a large bottle of water). Hold the piece of charcoal which was fastened to the brass wire into the flame till the end of it begins to glow. Plunge it into the remaining bottle of gas until the cork stops its mouth. The charcoal will burn rapidly till nearly consumed. Take the cork out, bringing with it the wire and remaining charcoal, and cover the mouth of the bottle with the glass plate. The bottle will then contain nothing but an invisible gas. Pour in a little lime-water and shake as before. The lime-water will become as *white* as milk. You will infer that the gas remaining in the bottle after the charcoal was burnt in it was different from the gas you collected in the bottle. What this gas was, and whence it came, we shall find out in our next lesson.

For the REVIEW.]

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

Continue to keep before the pupils and more fully develop the mental effects of the tones *doh*, *me*, *soh*, the strong tones—the pillars—of the scale. These notes in the central column of the modulator are printed in bold, upright type. The *doh* is firm, triumphant; *soh* grand, bright; *me* quiet, peaceful. All the three are strong, and more or less restful. This will be felt more when contrasted with the two new tones, *te* and *ray*, which are expectant. These effects of repose and expectancy are most felt when the notes are approached stepwise; the more particularly distinguishing effects come out better when approached by leaps. The expectancy of *ray* and repose of *doh* is felt in such phrases as the following :

s m d m r m—r—d. *d m d t₁ m r m r—r—d.*

When the *m r* is repeated several times the expectancy of *ray* and the repose of *doh* is felt more strongly. The expectancy of *ray* is made more prominent by leaving out the *doh*.

The pretty effect of *ray* is illustrated by the leap from *soh*, as in the following :

d m s r m d. *d s r m r d.*

When *ray* is taught stepwise, it is easiest approached from *me*. The upper *ray* (*r'*) is best taught by leap from *soh*.

When *te* is taught stepwise it must be approached from *d'*, but is more easily and more correctly taught by the leap from *soh* and its effect is more felt, the piercing, keen, nature and its expectancy of *d'*. It will often be found that when a pupil cannot sing *d' t d'* he will sing *s t r' r' d' t d'*.

The bright incisiveness, the urgency of *te* is brought out in such a phrase as the following :

d m d s s t—d'.

The strong expectancy will be felt by leaving out *d'*.

Lower *te* is easily approached from *s* or *s₁*.

d m s t₁ d. *d m d s₁ t₁ d.*

Use the hand signs in teaching these phrases in addition to pointing them on the modulator, both in giving a pattern and also when they are copied by the pupils.

In the voluntary on the modulator, or with the hand signs, teach all the intervals that may be in the tune about to be taught to the class, and only after these have been mastered point the new tune on the modulator. At this stage it will be well to use a second step modulator, which includes only the five tones, with their replicates (*i. e.*, upper or lower octaves).

Modulator voluntaries are (1) to impress what has been taught. (2) To give freedom in using what is known. (3) To test skill. These should have variety in rate of movement and in phrases. Tuneful phrases are much better than others. A class will sing a beautiful voluntary, though difficult, better than one much easier which lacks beauty. The teacher who has not had much experience should commit tunes to memory and use phrases for these, or in some other way prepare voluntaries for the class.

In teaching *Time* the following order should be observed : Pattern the rhythm to one tone. Tell the class to describe accurately what has been sung. Repeat until the class answer correctly. Next carefully sing again the pattern, and get the class to copy without the aid of the teacher's voice. The same form may then be sung to different tones in succession. After this can be done well by the class give the notation. Let the pupils think out the notation. After this has been done the class may sing it once more without looking at the notation, and last sing it looking at the notation. The greater number of tune forms in which it is sung, the rhythm will be the more firmly impressed on the ear and minds of the pupils, and it will be the more easily sung when met in the school songs.

Ear Exercises.—In the lowest grade, or standard, these are largely confined to imitating phrases sung by the teacher or examiner. The teacher should frequently get these imitated by small sections of the class, and even by individual pupils. Do not allow the bright pupils to give all the answers, or imitate the phrases, and the others just follow them. The teacher should train the pupils to copy in this way. Point a phrase on the modulator and pattern it carefully. Then point and let the pupils copy. Try the same with a different key. Next let the class sing the same phrases from the hand signs. When these can be sung well with the syllables, the teacher can then pattern with *laa*. The backward pupils should often be asked to sing alone, and be encouraged and helped till they gain confidence.

The following might be considered satisfactory for Grade or Standard III.:

1. Sing sweetly, with due expression, in good time and tune, any one of five prepared tunes.

Sing from the examiner's pointing chordal exercises, also easy passages in the Major diatonic scale, moving stepwise, and also by easy leaps, to any note of the scale.

3. Sing to one tone, or easy tune form, tests including half pulse tones, pulse-and-a-half tones; and pulse rests on weak part of the measure. Examples :

(1) | *d* :—| —: *d* | *d* : *d* | *d* :—| *d* :—. *d* | *d* :—||

(2) | *d* :—| *d* : *d* | *d*. *d*: *d* | *d* :| *d*:—. *d* | *d* :—||

4. To imitate to *laa* and afterwards name any three consecutive tones of the scale, after the examiner has sung them twice to *laa*, each time first giving the *doh* chord.

JAS. ANDERSON.

Truro, N. S.

For the REVIEW.]

Color in the Schoolroom.

One of the most marked features in the Chicago Kindergartens is the admirable work done in color.

Froebel himself laid great stress upon the education of the sense of color, and demanded that children be taught to represent objects in their natural colors.

The occupation of *mounting* and *pasting* of different colored papers affords a wide field, not only in the kindergarten, but also in the school, for the development of the sense of color. The results of ordinary care, in observation and manipulation, are so pleasing that even the little one in the kindergarten, charmed by success, is led on to a tasteful discrimination that is truly surprising.

The various-colored disks, of different forms, are supplied so cheaply that this occupation ought to be carried on as an amusement in the home as well as an educational exercise in the kindergarten and school. Just as *stick-laying* and *tablet-laying* are so helpful in design and drawing, so this employment of colored paper leads naturally to painting and decorative art.

Thus it will be seen that this favorite occupation, if taught *scientifically*, with a *special reference to color*, may be made fruitful to the future artist or artisan. But the mere hap-hazard use of *pretty-colored* paper will not materially advance the education of the color-sense in the school, which must now take up this work seriously if it is to do justice to our future designers and workers in decorative industrial art. Science demands two conditions: *First, A standard to which all color can be referred. Secondly, A nomenclature by which colors can be known and referred to.*

"The six children of light in the rainbow." Those six colors of the spectrum, which are unchanging in their relation to those mysterious lines, known as *Fraunhofer* lines, give us a natural standard absolute and unchangeable. Professor A. H. Church, in an address before the "Society of Arts," London, Eng., recommends an international conference in which artists, manufacturers and scientists shall be represented, to agree upon the names to be assigned to certain colors. Then indestructible examples are to be reproduced in enamel, and, like our standard of weights and measures, to be placed in every educational institution. Our teachers must now prepare themselves, by a knowledge of what science is doing for the study of color, to give to even the youngest children a knowledge of colors and ability to combine them, which shall be in strict accordance, as far as it goes, with scientific truth. No better material offers than colored paper, imitating as nearly as possible the red, orange, yellow, green, blue and violet of the

spectrum, colors absolute and unchangeable. With these should be given enough of the *tints* and *shades* to convey some idea of *scales of color*.

Mr. Milton Bradley, the enthusiastic and intelligent manufacturer of kindergarten material and school aids, has taken in the situation and has brought out an outfit for the teaching of color in the school. This is accompanied by an admirable little book, entitled, "Color in the Schoolroom," in which a well-written account is given of the present state of scientific knowledge in relation to this important subject of color. The essay by a successful teacher on "Colored Paper in the Schoolroom," will be most helpful to any teacher, or intelligent mother, who will read it and apply its clear and eminently practical teachings. To the readers of the REVIEW in the United States, and there are many, let me, from experience of myself and friends, cordially recommend to those in the Eastern States Mr. Milton Bradley, of Springfield, Mass., as headquarters for this color outfit and kindergarten and school material; to those in the Western States, Thos. Charles & Co., Chicago, and Wm. Selby & Co., of Toronto, for the Dominion. The latter two firms are Milton Bradley's agents, respectively, for the Western States and Canada, and will supply, *promptly* and *honestly*, all kindergarten material and school aids, manufactured at the headquarters in Springfield, Mass.

A box of sample papers may be procured, post-free, for sixty cents, and will afford scope for many pleasing arrangements in color. The work is so fascinating that once begun it will be eagerly carried on. Begin with a standard color and a *tint*, or *shade*, first, and see what an almost endless variety of beautiful color effects may be produced. Aim at simplicity and do not overload yourself or the children with two many colors in the earlier lessons, as that will confuse and impede real progress. Let the laws of arrangement that obtain in the "gifts" and "occupations" reign in this one, and do not allow mere *pretty* work to crowd out orderly development of intellectual ideas. Knowing our ignorance of color, let us be modest and conscientious, resolved, if we teach but little, for a time, that little shall be consistent and truthful, so that nothing need be unlearned.

CATH. M. CONDEN.

Lincoln, Nebraska, January 9th, 1892.

The man should be greater than the teacher. When school officers aim at making teachers subservient, do they not undermine manhood and debase the character? If you would have teachers inspire your children with noble purposes, see to it that they be treated as royal helpers. Like begets like.—*American Journal of Education.*

For the REVIEW.]

The Educative Value of Stories.

Very few people of the present day attach any importance to the use of stories at home or in the school. They fail to see that they are in any way educative. Let us ask ourselves the question—what is education? We will find that it is the complete and natural development of every faculty existing in the child. Now, it has been noticed that one of the first mental faculties to reveal its presence in the mind of the child is the aesthetic. Therefore the training and cultivation of this faculty should receive special attention on the part of the educator. We must not question whether it will be of any material benefit to him in after life. Its presence is enough to show that it is essential to the perfect growth of the child's nature.

And what can the school contribute towards the development of this faculty? A great many things. It is for that purpose that we have lessons on form, combinations of colors, drawing, flowers, music, poetry and imaginative literature or stories. It is with the special use of the last named that we will now deal. Stories must not be regarded as only a source of amusement—a mere holiday gratification—as many seem to think them. Let us glance at some of the chief uses of them and try to dispel this view.

In the first place a good story will lift the child into an ideal world, and help him to form ideals. We may produce certain impressions by telling children of the great and good things that can be done. But by telling them stories in which people are represented as having accomplished these things, the interest of the child is aroused and he will aspire to become like these people.

Another use of stories is the knowledge they give the child of a world beyond his own,—a world in which he is only one—thus destroying egotism and inspiring love and respect for others. He becomes acquainted with the great forces of nature and realizes how dependent we are on her. He is also brought into sympathy with animal life.

Then again, stories take the child out of his own range of experience, and tend to develop sympathy. His preception is quickened and he can more easily conceive and enter into the joys and sorrows of others.

It is also through stories that the power of example is in a great measure brought to bear upon children. But we must be very careful to obtain the right results in the use of stories for this end. Children must not be encouraged to imitate closely certain actions which are admired; because, then their imitation will be prompted by a vain desire of exciting the same admiration. For this reason it is better to take

stories from times and countries in which life was different from the present, so that without directly repeating the action, the child may be inspired by the feeling which prompted it.

And lastly, by means of stories we can render plain facts so much more interesting. For instance—in a lesson on autumn, a child may remember that it is then the flowers go away, the trees become bare, fruits ripen, etc.; but how much more vivid will the impression be, if we tell him a story in which "Mother Nature" bids all her children (the flowers) go to sleep and rest; tells the leaves that they may put on their brightest and prettiest dresses and go to play with the wind; goes around to all the fruit trees and vines and tells them to lock up their seeds in nice warm houses.

You may say, "that is all very well, but story-telling is an art which I have not." That may be true, but it is an art that can be acquired by practice. The chief reason why many people cannot tell stories is because they have "no story to tell." So the eager cry "Please do tell us a story," is met with the response, "I do not know one." This may be remedied. First, get the outlines of a story clearly impressed on your mind. Then repeat it to the children a few times. "But will they not grow tired of it?"—you ask. No! children delight in an old story. It has a growing influence on them, while the effect of a new story is often scarcely felt. In the repetition of a story, keep as nearly as possible to the first version of it. Children see at once and delight in details. They retain a vivid impression of them and are ready to correct any deviation from the original.

It is scarcely necessary to say that in selecting our small stock of stories, we must see that they are true to the principles of good literature, and that they are bright, pure, and fanciful. They may be either imaginative or realistic. It is by means of the first that we give to the child the most vivid pictures of the workings of nature. A good example of this kind of story is given in which a day in October is described. "Jack Frost" is represented as having come from the north the night before and with his little sprites sets to work to make all nature look beautiful. With paint pot and brush they work all night and the result is seen next morning in the lovely blue of the sky, the pretty red and yellow dresses of the leaves and the bright purple of the asters.

By realistic stories, children become acquainted with the laws governing life. They are led to expect certain results as the consequence of certain actions; and the story, therefore, should deal with the ordinary laws of life. Besides being true to life they must also be true to nature, and it is well to have

them relate to children's experience. Children love to hear about children. The interest of a child is easily aroused and held if we relate incidents which he can seem to connect with himself. If attention seems to flag we may recall it by the use of questions and surprises.

Having seen what good can be done by the telling of a story, no longer say "I have no story to tell." Let your love for little children and sympathy with them, enable you to put before them bright pictures from the ideal world in which they often seem more at home than in the real.

Mrs. Harriman's Kindergarten Training Class, { LIZZIE MAHONY.
Halifax, N. S.

For the REVIEW.]

Vague Spelling

The subject of spelling in the schools of New Brunswick was discussed at some Teachers' Institute meetings lately. Do our young people spell worse than those elsewhere? Many of them certainly spell badly, both at school and at college, and therefore we may presume they spell badly all their lives after. I do not know that we are much worse than others, but certainly there are among us some first-class teachers and some college graduates who cannot spell, notwithstanding all the regulations of education board and senate. That is the first fact.

Then are we getting worse? I have been told by some of middle-age that we are. Again, others say that for a few years back there has been an improvement.

What I wish specially to call attention to is this—a thing I have remarked for several years—that there seems to be an extraordinary readiness to catch a general view of the letters in a word without remarking what order they are in. So one examination leaves me such forms as *angle* (*angel*), *dose* (*does*), *propechies*, *wierd*, *peots* (*poets*), *paly* (*play*) *thier*; and in one and the same paper there will be indifferently *Alymer* and *Aylmer*; *Desdamonea* and *Desdemona*, and perhaps even *Desdemona*; and such outrages as *McDuff*, *McBeth*, *MacBeth*, *Mackbeth*. Over and over again I find that the name of a book that has been seen on hundreds of pages when read through, or the names of persons in it, also seen hundreds of times, will be only approximated, in spelling.

Now is this extraordinary? Is it found where other systems of spelling-teaching are followed? Is it a new thing among us? Is it due to our present system?

If there are sure answers to these questions it is important for us to have them.

W. F. STOCKLEY.

University of New Brunswick, Jan. 11th, 1892.

For the Review.]

Manual Training at Halifax.

As was noted in these columns some time since, a small manual training school was started in Halifax last September. Six work benches designed by Mr. G. Larsson, of Boston, were put in, with a complement of wood-working tools. Work was commenced with the older pupils of the County Academy, of which the school is a department, and later, pupils from the upper grades of the common schools were also taken. It was soon found desirable to double the capacity. After a few preliminary exercises in the use of the saw, try-square, pencil, rule, and marking-gauge, the pupils were employed in making necessary improvements and conveniences in the shop. Sheathing was sawed to measure and put up over some of the blackboards of the former schoolroom. Tool racks for holding chisels, gouges, bits, etc., furnished excellent practice in laying out work and in working to exact dimensions. Simultaneous with this was begun instruction in mechanical drawing. Where the pupils were too inexperienced to make the working drawings themselves, they were made on the blackboard by the instructor and carefully explained. In every case the work was made from drafts. The pupils use blocks of drawing paper made on heavy mill-board and trimmed square on two adjacent edges. With a small T square they are thus able to dispense with the draughtsman's triangle.

As soon as sufficient handiness is acquired, the plane is introduced and simple exercises such as are involved in making boxes, shelves, bench-hooks and cover-boards for the benches, bring in as well some practice in construction. As accuracy is strongly insisted on, the progress is at first very slow, but whatever is lost at the start is certain to be more than made up for later on.

As soon as practicable, the pupils are introduced to the grindstone and oilstone. Each week two boys work at the tools, keeping them in good order. This is believed to be one of the most valuable exercises in the school. The manual dexterity required properly to sharpen an edge tool can be appreciated only by one who has struggled to acquire the art. A boy who has spent a couple of hours at such work has, beside the skill, a respect for a keen edge, not to be gained in any other way.

With some of the more recent classes, the knife has been the first tool used, after the plan of Mr. Larsson. This tool is commonly said to be the most easy for boys to begin with, as all are supposed to have some knowledge of its use. To those not accustomed to it, however, the knife is hard to master. For the class of boys found here, the saw is better

adapted. Mr. Lars Eriksson has found, at the North Bennett Street School in Boston, the same difficulty, and does not introduce knife work till after the sawing, nailing, planing, boring and chiselling.

The shop is soon to be enlarged by the addition of six benches more, thus trebling its original capacity. It is hoped thus to accommodate more pupils and also to increase the time spent by each in the work.

Owing to the necessity for fitting up the shop, the work has been of a somewhat miscellaneous character. The only system followed has been in the tools used. It is hoped to establish later a set of models embodying correct principles, a systematic gradation from the easy to the more difficult, and the production of articles interesting or useful to the pupils.

PROFESSOR LEE RUSSELL, B. Sc.

For the REVIEW.]

The Study of Modern Languages.

Apropos of what Dr. Hyde and Mr. deSoyres have lately written, concerning the study of modern languages, was it not Macaulay that used to get a New Testament, first of all, in whatever language he was about to learn? An excellent plan—among the many that any sensible and not too mentally timorous being ought to set on foot to familiarize himself with a new language and to get on good terms with him. Will that prevent study of every particle of him afterwards? Why are we so wearisomely absurd? Another learner of many languages, for the purposes of his historical studies, told me he simply—sans dictionary, sans grammar, sans everything—went at a new book in a new tongue, and if it interested him and he wished to read it, or had to read it, then he did read it. Much to be learnt from that man, too.

W. F. STOCKLEY.

University, Fredericton.

P. S.—Is it rude to say that some people seem to be disappointed if they find that a language can be learnt? Perhaps they are mourners for Ollendorff and all his unanswered enquiries.

Under The Beeches.

The sibyl's speech breaks from these leafen lips,
Moved by soft airs from shadowy spaces blown;
"We rear these giant boles amid eclipse,
We workmen die, the work abides alone."
The day has met the night beneath the sky,
And the hot earth put off its robe of flame;
Sweet peace and rest come with the night-birds' cry,
Sweet rest and peace the herald stars proclaim....
'Tis very heaven to taste the wells of sleep,
The founts of supersensuous repose!..
The sibyl's rune still murmurs on the breeze,
The purple night falls thick about the trees,
And blessed stars, like lilies, white and rose,
Burst into bloom on heaven's far azure deep.

—T. H. Rand, in *The McMaster Monthly* for November.

For the REVIEW.]

Mathematical Puzzle.

A gentleman promised his daughter who, by the way, is a student at one of our N. S. County Academies, one of Dickens' stories, nicely bound, for copying some papers for him. She did the work very well and the gentleman agreed to give her two copies unless he could prove to her that one is equal to two. She was then asked to write as follows:

Let	$x=a$
Multiplying by a	$ax=a^2$
Subtracting x^2	$ax-x^2=a^2-x^2$
Or	$x(a-x)=a^2-x^2$
Dividing by $a-x$	$x=a+x$
Or (since $a=x$)	$x=x+x$
	$x=2x$
	$1=2$

The young lady thinks she has discovered an error in this. Ought she to get two books or one? What is the opinion of teachers who read this?

KATE W.

Psychology For Teachers.

In a former number our readers were informed that Professor Seth of Dalhousie University, would deliver a series of lectures on Psychology, dealing specially with it in its relations to education. These lectures are attended principally by teachers. Superintendent MacKay presides. In the Friday class there are eighty-five students enrolled, and in the Wednesday class twenty-five—in all one hundred and ten. We promised to give an outline of these lectures in the REVIEW. They will be valuable for future reference and study. The notes given below are from one of the students.

LECTURE I.

Although psychology is of great importance, we must take care not to give it too great prominence in our ideas of education. Just now it is fashionable to speak of psychology as the basis of education. This is more or less a mistake. Education, if it be a science, must be an inductive science; as medicine is deduced from experience, so education is deduced from the experience of educators. If education is a science it becomes so by experience. We cannot make fixed rules for education, but must be guided more or less by the differences of the minds of those with whom we meet. Education is not, as formerly, a *passive* science, but one deduced from the experience of centuries. Physiology deduces particular facts from laws. In education all facts cannot be deduced from laws; such would be an ideal education and not at all desirable. Human nature is so varied that the educator must study the varieties of that nature, and by his own mother wit discover methods of training minds.

As educators we must have individuality. True, we must be guided by principles, but their application to the minds we have to educate we must discover ourselves.

What is the end of education? In one word, *culture*, or training of faculty. Education ought to be a natural growth, not artificial. The teacher must *assist* nature, not force nature into artificial rules. Education consists in taking advantage

of what we observe in nature and following that out. In order to assist nature we must first interrogate that great teacher. We must find out what the nature of man is and how it develops; what are the laws of that nature and the principles of growth.

The child is an organism and must grow physically by assimilation; it must assimilate the food it receives to promote physical development; its food must be adapted to its stage of development, in kind, quality, and quantity. The business of education is to develop the mental man from the child. The mind is immature, it must be developed, and the mental nourishment must be suited to the stage of development of the mental being to be educated, in kind, quantity, and quality. The teacher acts externally on the mind of the child, but the education is found in the reaction of the mind of the child on the influences of the teacher. In order to cause the mind of the child to thus react, the teacher must put himself in the place of the child and look at things from his (the child's) point of view. We must stoop first to the level of the child's mind, that he may elevate himself to ours in the process of education. Only by so doing will a teacher be successful. He must place himself beside the child and take each step with him, thus only will he train the mind of the pupil systematically.

If education is to become a science, it must be through psychology, which is the *science of mental phenomena*, or the *science of the mind as it is manifested*. True psychology is the science of all *minds*, but especially of the *human mind*. We have our knowledge of the minds of the lower animals indirectly. We call psychology, then, pre-eminently the science of the *human mind*.

Sir Wm. Hamilton defines psychology as the science conversant about the phenomena of modifications or states of mind—conscious—subject—spirit—soul—self—ego.

The universe of *objects* or things, *subjects* or conscious beings. The animal is conscious. We cannot treat animals cruelly without seeing that they are conscious of pain. The animal, then, is a subject or conscious being, but man is a *self-conscious* being, conscious of all exterior influences and of *himself*. Man is *emphatically a subject*.

A subject is also an object. To myself I am a subject, to all others I am an object, because I am exterior to them. We know all others to be *subjects*, but to us they are only *objects*. I know myself only. I am the *ego*, all others are but objects.

Psychology differs from physiology in that it has not a field of its own. All material objects must enter the mind before they become mental facts or phenomena. Every material object becomes a mental object as soon as it has entered into the mind.

Psychology is *internal* science as opposed to *external*, but external objects must become internal in order to be known.

We cannot shut off psychology as a special field, and here it differs from the external sciences. We can only define its province as that aspect of the universe which is ignored or neglected by the physiological sciences, viz. the *mental* or *internal* aspect. The phenomena of psychology are states of an *individual* mind—of a self—of an *ego*. Detach any thought from my mental state, and it ceases to be a fact of an individual life. Thus mental phenomena are subjective, and not merely internal but *individual*. All other sciences are *objective*, psychology alone is *subjective*. All other sciences ignore subjects, psychology brings them to light.

Psychology is not special as other sciences. First, it treats of the mental or inner side of phenomena. Second, while all other sciences are knowledge, psychology is also knowledge,

but it is knowledge of knowledge, of the science of science. It carries on further investigations than the other sciences.

Knowledge is only one class of mental phenomena which psychology investigates. Thus is psychology distinguished from other sciences, but it resembles the other sciences inasmuch as it deals with facts,—but mental facts, or the mental side of facts.

The business of psychology is to classify mental facts, to discover the laws of mental behaviour. As other sciences systematize material laws, so psychology classifies mental laws.

Hamilton calls psychology *phenomenology*, as distinguished from *ontology*.

Ontology is the science of the *nature of the mind*, and is the business of metaphysics.

Psychology is the science of the *manifestations of the mind*.

Nomology is the study of the laws which *ought to regulate the mind*—what we might call the moral law.

Psychology teaches of the mind as it *really behaves*.

Logic is nomology of thought. We ought to reason so and so, but how often we reason illogically.

Psychology shows the uniformities which characterize mental behaviour.

Psychology is phenomenology.

We must distinguish *empirical* from *rational* psychology. Psychology is now always empirical, formerly it was rational.

Rational psychology is the investigation of the being. For instance, the doctrine of the immortality of the soul belongs to rational psychology; because the soul is simple it must be immortal.

Empirical psychology treats not of the nature but of the actions of the mind. It asks not, "What is mind?" It deals with mind as it is manifested. It assures us that mind is a subject, just as physiology assures us of facts regarding material things.

Some psychologists go so far as to assert that we must not assume the mind, merely acknowledge a stream of phenomena. But this is going too far. Psychology throws light on mental facts as physiology on material facts; and as the latter assumes matter so the former must assume mind.

There is one objection to the definition that psychology is the science of mental phenomena, but it is brought forward only by materialists and is easily refuted. Materialists assert that mental phenomena are only one aspect of matter; true, we know mind only in connection with matter, but as entirely different from matter. Mental facts are always materially conditioned, but we must distinguish between the *fact* and the *condition*. Some exterior or material object affects the *senses* and this sensation is conveyed to the brain. A new thought is generated, but who will say that the thought and the material object which produced it are the same, or of the same nature? The science of conditions is different from the facts so conditioned.

Some educators talk of physiological psychology. This is a misnomer. There is no material side to psychology. The science of the material conditions of mental phenomena and the science of the phenomena themselves are totally different, and it is with these phenomena alone that psychology deals.

Mr. Ernest Hutchinson has presented the trustees of Douglastown with a fine site for a school building, and \$1,500 to build it with. May such an excellent example be followed often. At present it is like an oasis in the desert.

Time-Tables.

In the January REVIEW there appeared a short article from the *N. Y. School Journal*, giving a programme for an ungraded school. While it may be useful as showing what is done elsewhere, it is not suited to our course of study. Of all outside the teacher that goes to make a school successful, nothing is perhaps more important than a good time-table. It means system,—the proper correlation of studies,

of classes in each subject. Well graded schools may in the meantime be left to themselves, while any help that can be given by the REVIEW will first be for those who need it most—the country or suburban schools with all grades at all ages.

GENERAL PRINCIPLES.

1. In the more important subjects there should be recitations at least once a day—oftener for the younger children.
2. In History, Geography, and Grammar the older pupils should recite twice a week—in some subjects once a week would do.

Ideal Time-Table for Ungraded Schools.

Recitations.	Hours.	Time.	STUDY.			
			D Division 1st and 2nd years.	C Division 3rd and 4th years.	B Division 5th and 6th years.	A Division 7th and 8th years.
Opening Exercises.....	8.50-9	10	.....	.....	.....	.....
C and D Lang. Less.....	9-9.20	20	.....	.....	Gram. and Comp.....	Gram. and Comp.....
A and B Gram. and Composition.....	9.20-9.50	30	Kindergarten and Language Lesson.....	Language Lesson.....	.....	.....
9.50-10.			Recess 10 Minutes.			
D Arith.....	10-10.10	10	Arith.....	Arith.....	Arith.....	Arith.....
C Arith.....	10.10-10.25	15	Arith.....	Arith.....	Arith.....	Arith.....
A and B Arith.....	10.25-10.55	30	Print or Write Rea. Lesson.....	Arith.....	.....	.....
10.55 to 11.5.			Recess 10 Minutes.			
D Read. and Spell.....	11.5-11.15	10	.....	Read. and Spell.....	Read. or Etymology.....	Read. or Etymology.....
C Read. and Spell.....	11.15-11.30	15	Print or Write Les.....	.....	Read. or Etymology.....	Read. or Etymology.....
A & B Read. or Etymo.....	11.30-12	30	Kinderg'ten or Dismiss	Read. and Spell.....	.....	.....
12 to 1.			Noon 60 Minutes.			
Geography D.....	1-1.10	10	.....	Geography or History.....	Geography or History.....	Geography or History.....
C Geography or History.....	1.10-1.25	15	Draw. Maps.....	.....	Geography or History.....	Geography or History.....
A & B Geog. or History.....	1.25-1.55	30	Kindergarten Work.....	Geography or History.....	.....	.....
1.55 to 2.5			Recess 10 Minutes.			
D Read. and Spell.....	2.5-2.15	10	.....	Drawing or Writing.....	Drawing or Writing.....	Drawing or Writing.....
Writing or Drawing.....	2.15-2.40	25	.....	.....	.....	.....
Vocal Music.....	2.40-2.55	15	.....	.....	.....	.....
2.55 to 3.05			Recess 10 Minutes.			
D Oral Work.....	3.5-3.15	10	.....	Oral Work.....	Oral Work and Comp.....	Oral Work and Comp.....
C Oral Work.....	3.15-3.30	15	Print or Write Lesson.....	.....	Oral Work or Comp.....	Oral Work or Comp.....
A and B Oral Work.....	3.30-4	30	Kinderg'ten or Dismiss	Write Composition.....	.....	.....
Gen. Business & Dismiss.....	4-4.10	10	.....	.....	.....	.....

NOTE.—Of this programme President Baldwin says: "In some form it is now successfully used by the best teachers in all the States. The results are most gratifying." The REVIEW hopes, however, to be able to better it in all respects.

—attention to subjects in proportion to their importance,—the natural sequence of mental and bodily activities,—the formation of regular habits,—a fair distribution of the teacher's energies to each class,—good order in the school,—besides many other things.

THE REVIEW will endeavor with the help of experienced teachers to form time-tables suited to the circumstances of all classes of schools. The problem is comparatively simple in schools of but one grade and of course increases in difficulty with the number

3. For young pupils recitations should not exceed fifteen minutes; for older pupils thirty minutes. No recitation should occupy less than ten minutes.

4. In some subjects the pupils of two or more grades may be taught together. A recitation of sufficient length, even if the pupils vary a good deal in attainments is much better than two or three very short recitations.

5. The programme must assign definite work to each class throughout the day.

6. The older pupils should be utilized as monitors both in hearing recitations and correcting exercises.

7. During the first three months of a term special attention

may be given to certain subjects while other subjects more or less related to them may be left for the next three months.

8. Certain cognate subjects may be treated as one; Algebra and Arithmetic for example. History and Geography should supplement each other, so also Writing and Drawing, &c.

9. Every pupil should understand the programme, and work by it.

No time-table can be framed which will suit every school or even the same school at all times, but ideal time-tables have been published embodying certain principles. Inexperienced teachers have found them very useful. At first they can be adopted as set down, modifications may be introduced to meet particular cases, care being taken to keep the original plan constantly in view. Above is given the "Ideal Time Table" recommended by President Baldwin. We would suggest that teachers analyze and compare the time-tables given here and in the last REVIEW. They will then be better prepared to criticise and suggest amendments to a programme intended for the ungraded schools of the Atlantic Provinces. This programme will be published in our next number.

Opening Exercises.

One very good plan is something like the following. From two to four pupils are selected, and it is made the duty of each to look up and copy a short moral sentiment or maxim to be read at the opening of the school in the morning. Another set is selected to present similar maxims the next day, and in this way all the pupils are selected in turn. When the pupil has read or repeated his sentiment to the school, it is illustrated or commented upon by the teacher till the meaning is not only clear, but well impressed. After the reading of the sentiments they are copied on the blackboard, where they remain all day, and each pupil in the room copies them into a blank book. After the first day the teacher calls upon volunteers to repeat sentiments given on preceding days. Five or six sentiments may be called up in review each day. Some pupils, not much accustomed to general reading, may find it difficult to look up new sentiments, but let it be understood that if a new one cannot be found an old one will be accepted. Under judicious management there will be no trouble here. Children do not like to be parrots, repeating the words of their mates; and when review sentiments are presented they will be quite sure to be such as deserve repetition. This plan leads to several valuable results. It keeps children on the lookout for fine moral sentiments. With this plan, pursued for a year, the pupils each have copied into his book five or six hundred excellent maxims.—*The Century.*

What French Girls Study.

In a paper on What French Girls Study, in the February Atlantic, the writer, Miss Henrietta Channing Dana, describes a French schoolgirl's life. She says:—

Before we consider the subjects studied in a French private school there are two things to be borne in mind. First the element of stability in a schoolgirl's life. She enters at five years of age, sometimes at four, the school where she will remain till her education is finished. Her teachers know her from earliest childhood; they watch her character develop and her mind unfold. They understand her capacities. Perhaps her mother has been trained in the same school before her, or she may have relatives among the nuns. At any rate, she is their child; they know and love her, and they lay the foundation of her education well, for they are responsible for the whole structure. They have the end in view from the beginning. They lead her up gradually from one thing to another. They calmly lay out for her courses of study embracing five, six, ten, and even twelve years. There is always plenty of time and no hurry. Things are taken quietly and gone into deeply. The school terms are longer and school life is less broken into by vacations than with us. The girls study more hours a week and more weeks in the year than we do. School opens the last week in September, and does not close till the second week in August. There are no spring or winter vacations and no Saturday holidays. Six weeks in the late summer, a few days each at New Year and Easter, all Sundays and the principal Church holidays, and usually a half holiday on Thursday, are all the breaks made in school life, which goes on almost uninterrupted in slow, healthful regularity for ten months and a half out of the twelve.

TOPICS OF THE TIMES.

Chile proposes to submit the affair of the attack on American sailors, to the arbitration of some neutral nation, or to leave it to the decision of the United States Supreme Court. The following interesting account of Chile and its inhabitants, is taken from the *N. Y. School Journal*:

The country of Chile has many interesting features—it has a remarkably picturesque surface; it has an extensive seacoast; it has an active and energetic population; it has great sources of wealth; it has attained already a considerable advance in civilization; it has a great variety of climate and productions; and it has become the dreaded power in South America.

SURFACE.—The Andes mountains form the division between Chile and Argentina; they rise to great heights, they push their snowy summits into the very clouds; huge mountains may be seen at every point, every inhabitant looks on them daily. Aconcagua rises 22,427 feet into the air; there are numerous volcanoes. The Andes form an impenetrable barrier on the east; they can be crossed only with difficulty. The journey requires six days, and is through narrow defiles. Along the coast and close to it are the Cordilleras de la Costa; these come down to the very sea. Only in a few places is there room for a town; between the Cordilleras and the Andes there is a table land or central plateau of 1,800 feet in height. This is the valuable and fertile part of Chile.

SEACOAST.—Chile extends along the Pacific ocean from Peru to the Straits of Magellan—a space of over 2,500 miles; this is more extensive than the long Atlantic coast of the United States that stretches from Maine to Florida. It is true that the part west of Patagonia is worthless unless it contains guano. The Chileans have established a station on the straits of Magellan; this is to add to their power on the sea.

POPULATION.—There are three classes of people. The ruling race is pure white, the descendants of the Spanish conquerors of the land. The Araucanians are the original people as the Indians are here; they live mainly on the outskirts, in the wild parts of the country; they join the army and are dreadful fighters, caring little for life. The mixed race are called peons; they constitute the bulk of the population, and do the work of the country. The governing race are proud and arrogant, having kept these Spanish traits. They live in style, following the fashion plates; they treat the peons like slaves.

SOURCES OF WEALTH.—In the north there are valuable minerals, gold, silver, copper, lead, antimony, cobalt, zinc, nickel, iron, bismuth and molybdenum; also vast quantities of nitrate of soda. The mines of nitrate of soda were taken in the war with Peru, the desert of Atacama being found rich in nitrate, guano and silver. Chile got up a war with Peru, beat her, and took away this valuable territory. The nitrate of soda is mined mainly by the English; hundreds of vessels come there to be loaded; it is found in beds from one to ten feet below the surface; it is blasted out, loaded on cars, and taken to the coast. These beds are supposed to be the bottoms of old salt lakes. The guano beds of Chile supply the world. Coal is found in abundance.

CIVILIZATION.—The Christians (the ruling race) are quite highly civilized; they have schools and colleges. A good many American teachers are employed there at excellent salaries. There are many railroads well constructed, with express trains and parlor cars; there is a great deal of traveling—the mixed races being a restless and roving people; after making a little money they want to go and spend it.

Santiago, the capital, is considered a handsome city; it lies on the great central plateau; the tall peaks of the Andes are visible from every street. In this town, as in all in Chile, there is a central square or plaza where the people promenade; here the life of the place can be studied. There are horse cars rolling back and forth, and the conductors are young women. There are many fine residences; the peons, however, live in hovels made of sun-dried bricks (called *adobe*). The houses are low, for earthquakes are common. The religion of the whites is Roman Catholic; the peons attend the churches, but believe in many superstitions derived from their ancestors. Valparaiso is a busy port; English is much spoken here.

PRODUCTIONS.—The central plateau has productions of all kinds—in the north, oranges, lemons, figs; in the south (remember it is colder there), flax, corn, wheat, barley, grapes, olives, peaches,—in fact, all kinds of grains and fruits, like the middle states in our country; a great deal is exported. Peru and Bolivia depend on Chile for cereals; they are taken even to Europe. The fisheries are very important and valuable; the timber supply is enormous, the trees being different from ours but just what is needed.

THE PEOPLE.—The Chileans (proper) while descended from the Spanish are very different; the cool climate has made them very vigorous, defiant and bold. The success they had with Peru and Bolivia has made them aggressive; they are afraid of nobody. They incorporate into their army the Araucanian element, as well as the lower grades of the peons, and these turn out to be terrible fighters, caring little whether they are killed or not. Travelers tell us these people are strong and full of endurance, and that Chile is sure to be the ruling power in South America.

SCHOOL AND COLLEGE.

The answer of the Attorney-General to the Moncton Town Council is not very encouraging to the advocates of compulsory education in this province.

Miss Minnie Knowlton has been appointed as High School assistant in the Victoria School, St. John.

Miss Everitt of Fredericton, has been appointed to succeed Miss Dibblee in St. Stephen. Miss Nettie Brown being already under contract could not accept.

Mr. Frank Baird of Queens County, has taken charge of the school at Seal Cove, Grand Mannan. Mr. C. T. McCutcheon has taken the school on Whitehead. Miss Minnie Clark has taken Miss Fullerton's place in the primary department at North Head.

Mr. Fred L. Daye has taken a school on Campobello. Miss Alma Erb succeeds Miss Myra Lambert in the Welchpool primary department.

Miss Maud Creighton, teacher at Grove Hill, St. John Co., has raised enough money by a school entertainment to paint and otherwise improve the school house.

Miss Douglas of York County, has been appointed to the Milltown staff of teachers.

There is the largest attendance at the Normal School, Fredericton, ever known. There was a very large attendance last year, and still teachers are scarce.

Mr. Harry Johnston, a student in the senior class at the University, has been appointed mathematical tutor in the Normal School.

Sister Bernard and Sister Angela, for a long time teachers in St. Vincent's Convent, St. John, are taking a well earned and well deserved rest.

The teachers in St. John have been afflicted with la grippe. So many have been ill at the same time that it was impossible in all cases to procure substitutes, and some of the departments were combined.

In no public department is the march of progress more visible than in our schools, school houses and teaching staff. As the present excellent graded school of the town excels its first school, so far the educational system of our country exceeds in efficiency that of fifty years ago.—*Parrsboro Leader*.

The school commissioners have engaged C. L. Moore of St. John, a graduate of Dalhousie College, as the additional Grade A teacher required at the academy Kentville, N. S.

In the New Brunswick Normal School, H. C. Creed, A. M., has taken the department of English Literature, formerly in charge of Principal Mullin, who will devote himself to the professional subjects of the course.

Miss Minnie Jean Harper, third daughter of Dr. John M. Harper, inspector of superior schools at Quebec, died at her father's residence, City of Quebec, recently, in her sixteenth year. Miss Harper was well known in Quebec as a young lady of very amiable disposition and excellent qualities.

BOOK REVIEWS.

A SHORT HISTORICAL GRAMMAR OF THE GERMAN LANGUAGE. MacMillan & Co., London and New York, 1891. This is a translation and adaptation of Behagel's 'Deutsche Sprache,' a book giving in popular form the results of recent study in German philology. But there is 'popular' and 'popular': this book—which may be compared with the well-known Morris' Historical Outlines of English Accidence—is for those only who can read German, or else for reference. It is clear; but more use should have been made of the outward helps to clearness, given a variety of type, by headings, spaces, etc. And 'Grimm's Law should not be stated so absolutely: exceptions prove the rule. There is an interesting and exact account of the influence of Luther in giving a classical German speech; but it is noted how that such unity of literary language prevailed only in the 18th century, and how the "unity in the spoken language is only in its very first beginning." There is no past to German literature in the French sense, or even in the English sense. The case endings of nouns are given under three heads or declensions. The historical method is applied throughout; and of course so called "irregular" forms are thus explained. Those who are interested in language study will get the book, and will strengthen the convictions already given them by Morris in English and Brachet in French, that history does explain grammar. Such students owe one more debt of gratitude to the publishers whom they claim as their special benefactors. W. F. STOCKLEY, University, Fredericton.

A WORD BOOK FOR STUDENTS OF ENGLISH HISTORY by Rev. John deSoyres, M. A. (formerly Cambridge University Extension Lecturer.) Publishers, J. & A. MacMillan, St. John. Rev. Mr. deSoyres has earned the thanks of students of English history by the publication of this cheap manual, explaining the technical and foreign terms so frequently met with in English history. The book is an admirably clear compendium, and its terse and explicit definitions will enable the teacher and student to get a clear idea of what could not be found elsewhere, except with a great expenditure of time and labor.

ECONOMIC HISTORY SINCE 1763. Compiled by Benjamin Rand, Ph. D. second edition. Cambridge, Mass., 1892. John Wilson & Son. 8vo., 567 pp. It always gives us very great pleasure to note the good work that is being done in letters by Atlantic Province men, a pleasure too often tinged with regret that it is being done, not with us, but abroad. The author of the work before us is a Nova Scotian, a graduate of Acadia, afterwards of Harvard, and now assistant in philosophy in Harvard University. He is known to many, particularly in Nova Scotia, for his writings of Canadian railways and allied subjects. The work comes to us not only with that practical stamp of excellence in such a work, a second edition, but also with the approval of Harvard and other American Universities in which the first edition has been used as a text-book for the required reading in the courses in economics. This second edition is considerably enlarged and otherwise improved, and the remarkably favorable reception awarded by press and college to the first edition will doubtless be extended also to this. Text-books of political economy are not rare, and are of all grades of excellence. But now-a-days it is coming to be

recognized that it is best for ordinary students as well as for original investigators, to deal with original materials directly, and to let the materials tell their own story. It is a book on this plan that Dr. Rand has given us—a true documentary economic history. The value of such a work will consist in the excellence of the selection of materials, and for this Dr. Rand's careful and broad training have admirably fitted him, and the result justifies all expectations. Essays from very diverse sources, but always by authoritative writers, are given upon important economic events, great commercial crises, large international transactions, in the history of England, Germany, France and America. For instance, Adam Smith's "Colonial Policy of Nations," Walpole's "Great Inventions," "England's Finances from 1793-1815," "The Corn Laws, 1801-1849," "France under the Second Empire," "The French Indemnity,"—(payment of the war tribute by France to Germany), Economic Condition of the United States in 1880, as to population, and industries, etc. The work is brought down to date, even selections relating to the growth of Canada to 1890, and from the U. S. census of 1890 being included. But the limits of our space will not allow of a synopsis of its contents which will do the work justice. It is a work not for the college alone, but one in which every person at all interested in economic questions, either from a political, commercial, or more abstract standpoint, will find matter of the greatest interest and value.

LATIN PROSE EXERCISES, based upon Livy, Book xxi, by A. Judson Eaton, Ph. D. Published by Ginn & Co. Pages iv + 64, 7 in. x 5 in. Price 40 cents. The object of this book is, as the author states in his preface, to furnish the student with a course of exercises which are to be preliminary to Latin composition after the style of Livy. The exercises are to be taken up after the thorough study of several chapters of the twenty-first book. The exercises of the first division are culled from this book. At first the author would exact close imitation until the beginner has got into the swing of Livy's style, after which the exercises are more complex and less literal. This division of the exercises is followed by extracts from leading historians which have some likeness to portions of Livy already read, and these again are followed by a few passages to be translated in connection with sight-reading. The notes subjoined to the exercises seem very helpful. They contain references to Allen & Greenough's grammar, Harkness' grammar and appendix. The suggestions and notes on idioms in the appendix are also very good, and if carefully followed out can hardly fail to help the student to enter into the spirit of the language. There is also an account of the periodic style of Livy in the appendix. We think the plan of the book is good. The narratives are interesting and the advantage of having the text and the English to be turned into Latin thus connected will be apparent.

THE GEOMETRY OF THE CIRCLE WITH EXTENSIONS TO CONIC SECTIONS, ETC., by W. J. McClelland, M.A. Macmillan & Co., London and New York, 1891. This is an admirable book in nearly every point of view: got up in excellent taste, as evinced in style, and type, and diagrams; and the publishers have to be complimented on this ground as well as the author. The more important matter is printed in large type: the

examples, which are numerous, in a type smaller, but yet so distinct, that he that runs may read, although he would probably derive little instruction or comfort from his current survey. The diagrams are distinct, printed with great care, and—though there are perhaps too few of them—illustrate the geometric truths under consideration in the most perspicuous manner. The author has laid the methods and resources of modern geometry and the writings of the most advanced geometrical thinkers under copious tribute; and has produced a work, which, although restricted in its professed aim, does in fact cover a much wider area than the title of the book seems to indicate. We had already formed a very favorable opinion of Mr. McClelland's faculty for the exposition of geometric truths, from the work on spherical geometry and trigonometry, published in 1846, with which his name as joint author is associated. The present treatise is, however, as we think, superior to the one of five years ago. This treatise, nevertheless, can hardly be recommended for general use in our schools and colleges. It begins at a point where our ordinary college undergraduate gladly leaves off. The book cannot be taken up for profitable study before a competent acquaintance, not only with Euclid's elements (or their equivalent) has been obtained, but also a considerable familiarity with analytical trigonometry, conic sections and even what is called "abridged notation" has been reached. It is thus a book for the specially mathematical student: but it is one in which he will rejoice: and unless he is very advanced indeed, will find some new ideas. Like most enthusiasts, the author probably underrates the difficulties that present themselves to a student who, being "familiar with the first six books of Euclid, with easy deductions, and the elements of plane trigonometry" should try to master the present work. In this statement of his, we, in the kindest spirit, plead to be allowed to differ from him. To the average student, whether at school or college, who has fulfilled such simple requirements, his admirable work would certainly present stumbling-blocks that only the living voice of a teacher could remove. To a *genius* it is not so. Newton as a boy is said to have seen intuitively the proofs of Euclid's propositions, on reading the enunciations. *Non omnia possumus omnes*. Under the heading of "maximum and minimum"—to take an example—ideas are suggested *en bloc* to the mind, that demands far more than Mr. McClelland's text to clarify them. When all is said, both of *pros* and *cons*, the big balance remains, that this treatise is a most admirable one, perhaps the best on the subject of modern geometry, of those that have hitherto appeared in English: and we wish and only hope for the day when it, or such another, could be fitly introduced into our classes in academy and college. But even now we think portions of it might fittingly be prescribed for such students in our colleges as have chosen mathematics as a special study.

AN ENGLISH GRAMMAR, for the higher grades in grammar schools, adapted from "Essentials of English Grammar," by Prof. W. D. Whitney of Yale University. With new arrangement and additional exercises by Miss Sara E. H. Lockwood. Cloth, 253 pp., price 80 cts. Publishers Ginn & Co., Boston. Of making books there is no end, and this may be truly said of books on English grammar, but a glance at the contents of this work shows that it has some advantages over others on the same subject. It is practical, and combines in an admirable manner theory with abundant exercises for practice and an excellent topical arrangement.

FRENCH FAIRY TALES, (*Contes de Fées*.) For beginners in French. Paper, pp. 147, price 35 cts.; publishers D. C. Heath & Co., Boston. This little volume contains eight classic fairy tales, with notes, vocabulary; excellent for beginners.

A STRAIGHT ROAD TO CÆSAR, for beginners in Latin, by Geo. W. Waite, A. M., superintendent public schools, Oberlin, O., and George H. White, A. M., principal Oberlin Preparatory Schools. Cloth; pp. 184, with English and Latin vocabularies, price \$1.25. Publishers Ginn & Co., Boston. The object of this book is to make the road to Cæsar "as direct and easy as a Roman road." The authors have certainly done this. Beginning with an abundance of easy sentences, they then proceed with inflections, pronunciation, and the development of rules of grammar so gradually that the path is delightful as well as easy. Cæsar is introduced by giving easy sentences from his commentaries, and proceeding to the more difficult passages.

PUBLIC LEDGER ALMANAC. We have received from Geo. W. Childs, publisher Philadelphia *Ledger*, the 23rd annual issue of the *Ledger Almanac*, an astronomical book of reference, and treasury of useful information, published free.

Current Periodicals.

The Atlantic Monthly for February has for its first article, Prof. Lanciani's paper on The Pageant of Rome in the year 17 B. C. It is devoted to an account of the public games held in Rome, under the patronage of the Emperor Augustus. Other excellent papers are "What French Girls Study" and "Studies in Macbeth".... *The Century* for February has a timely article on that prince of frauds, the Louisiana Lottery, in which the "Degradation of a State" in permitting such within its borders is clearly shown.... *St. Nicholas* for February is a fine number in which young people will revel, on account of the bright stories and cleverly executed sketches... The February *Wide Awake* has an exceedingly varied table of contents. The serial story "Jack Brereton's Three Months Service" is a fine story for children, inculcating lessons of honor, manliness, and devotion to duty.... In the *Popular Science Monthly* for February there are some striking thoughts for teachers in Mary Alling Aber's second paper on "An Experiment in Education." "The Nationalization of University Extension" is another timely educational article.... The numbers of *The Living Age* for January 28th and 30th contain, Children and Modern Literature, *National*; Anuradhapura: a Pre-Christian City, by Gordon Cumming; In the Country of the Albigenese, and Incidents in the Life of a Naturalist, *Temple Bar*; William Cobbett, and In Praise of Mops, *Macmillan*; More Indian Birds, and The Coming of Summer, *Longman's*. For fifty-two numbers of sixty-four large pages each (or more than 3,300 pages a year) the subscription price (\$4) is low; while for \$10.50 the publishers offer to send any one of the American \$4.00 monthlies or weeklies with the *Living Age* for a year, both postpaid. Littell & Co., Boston, are the publishers.... The *New England Magazine* for February has for its opening article "Corot—His Life and Work" and the charming illustrations that accompany it are worth far more than the price of the magazine.... *Garden and Forest* for January 27th, contains as its leading article "The Beauty of Evergreens in Snow," an admirable piece of descriptive writing that will be read with pleasure by lovers of winter scenery.

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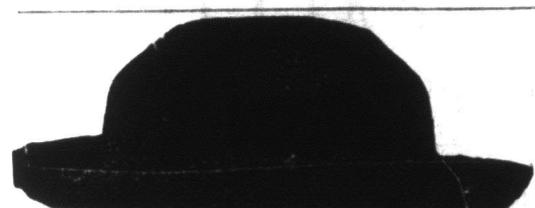
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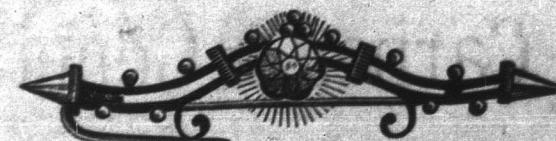
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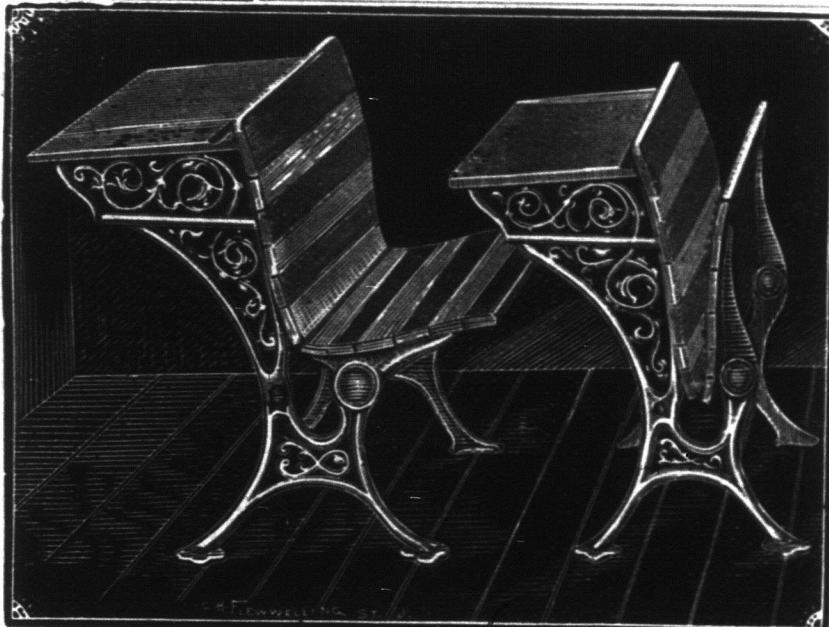
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