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MISSING

The Educational Review.

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EDITORIAL NOTES.

ARBOR DAY will take place on the 15th of May in all the inspectoral districts of New Brunswick, except that of Inspector Brydges, where it occurs on the 8th.

MR. W. H. CULBERT, nurseryman, Sussex, can supply trees for Arbor Day, as will be seen by his advertisement in another column. Mr. Culbert's trees, as we can testify, are delivered in excellent condition and are healthy and make vigorous growers.

THE graduates this year from the several faculties of Dalhousie University numbered forty-two—larger than ever before in the history of the institution. The leader of the class was Miss Agnes S. Baxter, of Halifax, the first lady who has ever taken first rank honors in mathematics and physics and the Sir Wm. Young gold medal. The convocation proceedings, held April 23rd, were of a very interesting character.

THE new advertisements in this month's REVIEW are of interest to all our readers; that of Edward S. Carter, the publisher of *Progress*; S. F. Heustis, Halifax; C. E. Burnham & Sons, St. John; the Summer School at Harvard. Trustees especially should read the advertisement of Miss Barlow. The arrangement which she has designed and patented has received very warm commendation on the part of educationists.

MR. CHALMERS of the geological survey, Ottawa, in his recent report says of Mr. Wilson of the Leinster street school, St. John: "Mr. W. J. Wilson rendered me good service, and has now acquired such a knowledge of surface geology as to make him an efficient and valuable coadjutor in the work."

THE Annual Convention of the National Educational Association of the United States for the present year will be held at Toronto, Canada, July 14th to 17th. Most of the railroads have agreed to give half-rates, plus \$2.00 membership fee to all who attend the meeting. Toronto people are making great preparations to welcome and entertain the visiting teachers, and numerous cheap excursions are being arranged to all important points on the great lakes, the St. Lawrence, and the seaside, after the convention. The official bulletin, containing programme for the meeting, railway arrangements, and all other particulars, is ready, and will be sent free to any one desiring it, on their dropping a post card to Mr. H. J. Hill, secretary local committee, Toronto. Among those who read papers are A. H. MacKay, Esq., of the Halifax Academy, and Miss Narraway and Miss Bartlett of the St. John High School.

We have it on the very best authority that there is a strong and generally expressed desire, not only on the part of City Boards but of County Trustees as well, that the summer vacation should be extended. The N. B. Board of Education must be aware of this from the number of applications it receives each year for an extension of holidays which, up to this time, have been uniformly refused. Both City and County Boards in a number of cases now take the matter in their own hands, and, of course, the teachers lose the Provincial grant for the extra days taken.

We hope the Education Department will see its way clear to take action in this matter for the present year, and at least extend the vacation in country districts to the second Monday in August, and in cities and towns to the last Monday in August. We would guarantee such action against complaint from any quarter.

SUMMER SCHOOL OF SCIENCE.

The Summer School of Science for the Atlantic Provinces of Canada meets next July in Antigonish. The fine new building of St. Francis Xavier college has kindly been placed at its disposal for the occasion. Antigonish will this summer be connected with all the Atlantic Provinces by the most direct lines of communication. The opening of the Pictou-Oxford branch of the I. C. R. makes a straight line of rails to St. John, and New Brunswick generally; and for Prince Edward Island it is only one remove from Pictou. The accommodations for the school will be good and inexpensive. The botanical *faucies* of the district will be a change from that of the previous location of the school, giving all our botanists that great desideratum, a new ground for investigation. From a geological point of view the region is classic. The Arisaig coast displays so many well marked formations of the palæozoic age, first disclosed to the world by our late lecturer in geology, Dr. Honeyman, and yet receiving the attention of the geological survey of the Dominion, that our geologists must be delighted. The only regret on this point is, that the minutely accurate geological maps of the county, completed by the survey two or three years ago, owing to the peculiar judgment and temper of the deputy head at Ottawa, have not yet been published, and are only proposed to be published on a surface sixteen smaller than the maps of all the Cape Breton counties. A deputy has in such details, it appears, obstructive powers which even cabinet ministers may find it ticklish to deal with. We only stop to say that this and other points may soon be so clearly put to our people that the government may find no difficulty in dealing with the matter. In conclusion we must not forget to notice the proximity of the site of the school to the Alps of the Atlantic Provinces — not an inland Alps, but a maritime one, picturesque in its marine as well as in its freshwater lakes, missing only the glacier-flanked peaks of the old world — the island of Cape Breton.

COMPULSORY ATTENDANCE.

The Chief Superintendent of Education in New Brunswick in several reports has earnestly advocated compulsory attendance at school. In his last report he says that "the question is one so vitally related to the well-being of the country that it must continue to be pressed until some action is taken."

The Inspectors who, perhaps, are in a better position than others to estimate public opinion and

appreciate the necessities of the school service, are, so far as they have expressed themselves—and some have done so again and again—unanimous in their advocacy of compulsory education. In their reports are such remarks as these: "Many children never attend school at all. In this connection my attention has repeatedly been called to the need of some scheme that would compel the regular attendance of all." "Attendance will never be satisfactory until we have a compulsory clause introduced into our otherwise excellent school system." "Anything like compulsory education would be strongly supported by the large majority of ratepayers in this district." "The best sentiment of this district is in favor of compulsory attendance at school."

The teachers of the Province at both County and Provincial Institutes have many times endorsed the principle of compulsory attendance, and trustees and school officers have persistently advocated it.

The most influential portion of the public press has given its adherence to the principle and has ably argued in its favor.

The Attorney-General of the Province, in a recent speech at Woodstock, while he did not commit himself in the matter, referred to the subject as one occupying the attention of the government, and expressed himself desirous of having the matter discussed by the representatives of the people.

It is to be earnestly hoped that the present session of the legislature will not adjourn without the matter of compulsory attendance having been brought forward for discussion at least. The details of such a scheme require mature deliberation, and in the adoption of such a measure the experience of other countries will be before our eyes. In Ontario, Nova Scotia and Prince Edward Island there is at the present time a compulsory clause in the school law. In Quebec, Manitoba and New Brunswick there is yet no such provision.

In the Province of Ontario a pamphlet has been printed by order of the Legislative Assembly embodying the experience of Canada, Great Britain, Germany and the United States in the matter. To this we may refer again.

In their advocacy of compulsory attendance, teachers and school officers cannot be accused of selfishness, as their already arduous duties would be greatly added to by its adoption. Earnest, ambitious and conscientious persons coming in contact each day with examples of carelessness and almost criminal neglect on the part of parents, and recognizing that each man is his brother's keeper, they do well to be outspoken. The very unselfishness of its strongest advocates strengthens the advocacy.

THE CHIEF SUPERINTENDENT.

We regret to notice that the rumour is revived that Chief Supt. Crocket is to be removed from office. We believe that it is only a rumour, and that the leader and men who compose the government of this Province are too broad minded to permit local or personal differences, if any such exist, to prejudice the educational interests of the whole Province.

No department of the public service is more sensitive at changes than that of education, and where there is a competent head none but the most weighty reasons could justify removal.

Supt. Crocket has for nearly all his life served this Province faithfully and acceptably as teacher, inspector and normal school principal.

The office of Chief Superintendent was not solicited by him, but was offered him as a recognition of his services in educational work. This principle of deserved promotion is one that the teachers should jealously guard, and any infringement of it would be resented by the whole body as endangering the educational interests of the Province and would be regarded by all as the inauguration of that system which has proved so detrimental to the school service of the United States.

TEACHERS' TRAINING.

Professional training for teachers has become a recognized necessity in all countries. Canada is fully abreast of the times in her recognition of this principle, and the people of New Brunswick can congratulate themselves on the fact that they employ few untrained teachers. In the neighboring State of Maine a majority of the teachers employed have no training of a professional nature. This does not arise from any want of appreciation, but from a lack of facilities for imparting such training. While we have a well equipped Normal School in New Brunswick, we are very far behind many other States and Provinces in the United States and Canada, not only as to the time devoted to professional training, but as to the scope and nature of the work in that department. The acquisition of scholarship should form no part of the regular work of a Normal School. The backward condition of our common schools at the time of the enactment of the present free school system, rendered it necessary that school work should form a part of the curriculum of study. After twenty years of free common schools we still find a large portion of the time of the student teachers devoted to the acquisition of scholarship and the examination papers of teachers so framed as to lay more stress upon this than on pure professional

requirements. That scholarship is necessary, is admitted, but the examination for it should come before, not after, the student's admission to a Normal School, and we think that the condition of our schools now warrants these examinations as a preliminary to professional training. With the examinations as now given there can be no doubt but that anxiety to excel in mathematics, science, etc., subordinates to a certain extent the desire of the student to become a successful teacher of those branches.

EDUCATIONAL REPORTS.

We have just received the annual report of the superintendent of education on the public schools of Nova Scotia. It indicates continued progress. In the winter term of 1890, 2,142 teachers were employed and 2,109 schools were in operation; increase over the preceding year of 35 and 40 respectively. In the summer term the numbers were 2,287 teachers and 2,243 schools, an increase of 30 and 50 respectively.

The salaries of *first* class teachers, male and female, improved on the average by about *two* dollars per annum; while the salaries of the lower grades diminished from *one* to *three* dollars. Cumberland county had the best attendance at school, viz., 1 out of every 3.3 of the population by the census of 1881; 1 in 4.2 was the Provincial average.

There was an increase of 423 pupils in the winter term over the 82,371 common school pupils of 1889. But there has been, according to the tables, a decrease of 857 in the number receiving lessons on health, and 5,754 on moral and patriotic duties, and of 273 on temperance. If statistics mean anything there was a backward movement during the winter in this department.

"Singing by note" diminished by 1,604, but "singing by theory" increased 1,797, an improvement in quality, if not in quantity as much as it should be. Grammar went back 30 and 61. Geography went back in grades III., IV., V., and VI. So did history, arithmetic, geometry, and some other subjects.

During the following summer term there was visible a great improvement on the previous summer. 3,615 more children received health lessons, and 4,023 lessons on moral and patriotic duties, and 5,201 on temperance. Lessons on nature were given to larger numbers; but there was still a decrease in geography in the lower grades, and a little in history.

But we cannot note a hundredth part of the thoughts suggested by these eloquent columns of

figures. The high schools outside of the Academies appear to be giving less attention to drawing, agriculture, chemistry, geology; more to Latin and Greek; and less to modern languages.

The County Academies increase their libraries by 500 volumes. Income from fees diminished by 229, a decrease in every academy, except that of Halifax, which has nearly doubled. Salaries increased \$454, and over \$10,000 was spent on academic buildings. Marked increase in the number studying Latin and Greek.

These dry tables of figures are a mine of information as to the drift and rate of drift of our educational progress; and it is, therefore, specially important that the authorities should closely examine returns to see that there is uniformity in the interpretation of what each column calls for.

Several important and most desirable changes are foreshadowed in this report. We have on former occasions defended from our correspondents the very conservative action of the executive in making improvements. Evolution is better than revolution. We used to say: Retardation of evolution, however, is generally the visible prelude of revolution. We hope our apologies for the policy of delay in the past were not taken in any other sense. We shall hereafter be chary in emphasizing the good points in a Fabian policy. Come on with the reforms!

Gleanings from the N. B. School Report.

Last year St. Stephen made the highest percentage of attendance of any town in the Province.

Examination for license begins this year, June 9th. Encenia at the university comes on May 27th.

There are about 1,900 teachers engaged in teaching in New Brunswick. Of this number one-third change every term from one district to another.

First class male and second class female teachers are paid the highest salaries in St. John and Charlotte Counties.

First class female teachers are best paid in St. John and York.

Second class male teachers are paid best in St. John and Northumberland.

Third class male teachers are paid best in Charlotte and Carleton.

Third class female teachers are paid best in Northumberland and St. John.

Sunbury, Queens, Victoria and Madawaska pay the lowest salaries.

The total amount raised for the support of schools in New Brunswick last year was \$415,550.79. This does not include the cost of buildings, furniture and apparatus.

There were 219 teachers examined for license in New Brunswick last year.

St. John Co. received the largest amount of money last year in aid of new school houses.

York Co. has the largest number of districts receiving poor aid.

There were 181 teachers who attended the Educational Institute at Moncton last year.

St. John Co. has the best attended County Institute. The attendance last year was 156.

In 1888 there were 6,571, in 1889, 4,970, and in 1890 there were 4,040 trees planted on Arbor Day in New Brunswick.

The Stanley medals for professional standing were won last year by Miss Annie Moore, of Fredericton, and Miss Minnie C. Edgar, of Chatham, N. B.

There is a feeling on the part of some teachers that grammar and first-class licenses would be attainable much more easily if the examinations were so arranged as to include only a portion of the subject each year or term.

To a hard working teacher the additional labor of study for an advance of class is very great. If after two years of teaching, satisfactory to the Inspector—as is now required—the examination for an advance of class were divided into three parts and the candidates were allowed to pass, each at different times, we would have more grammar and first-class teachers. Surely this is desirable. To the average teacher, the examination, as at present, looks so heavy that he hesitates to attempt it in addition to his other work; but if it were spread over, say two or three years, it would appear feasible, and no interest would suffer. We hope our educational authorities will take the matter into consideration.

Our Normal Schools devote but one year to a course which has been shown to be not purely professional. Similar institutions devote as much as three years to a purely professional course. Few of our students reach the top of the ladder by one year's attendance, and many of our first-class teachers attend longer or acquire skill by experience to enable them to a higher grade. While it would be desirable to have a longer Normal course, the time is not ripe for it yet in these Provinces and we must make the most of what we have. We can improve by making the course a purely training one; and it does not follow that subjects of our common school course should be eliminated from our Normal School curriculum, but that the time should be devoted, not so much to the acquisition of knowledge, but *how* that knowledge may be best imparted.

On the Early History of New Brunswick.

BY MOSES H. PERLEY.

A portion of a lecture delivered before the Mechanics' Institute, St. John, in 1841, now for the first time published.

(Continued from April number.)

The first party of Loyalists that arrived, landed at the present Market Square, cleared away the dense forest then standing upon it, & with ships sails made hurricane houses, under which, with their women & children, they got the best shelter they could. On the day of their arrival, they were all regaled with fresh salmon, which were caught in great numbers in the harbour, and which were furnished the new comers at the standard price of 7½d. each. The whole of this City was then in a perfect State of wilderness; the wood was dreadfully thick and greatly encumbered with windfalls.

Each man as he arrived drew one of our City Lots, which he forthwith proceeded to clear, and the next operation was to put up a log-house. I am indebted to David Hatfield Esq. almost the sole survivor of those who arrived here in May 1783 for many particulars connected with the arrival & settlement of the Loyalists, for which I beg to tender him my thanks.

Mr. Hatfield tells me he drew a lot in the Lower Cove, near the present Marine Hospital, and that he cut down upon it with his own hands, spruce trees 15 Inches in diameter. In June another fleet arrived, and vessels continued coming all the Season, and in the succeeding winter there could not have been less than 5000 Inhabitants on a spot, which a few months previously had reposed in the Silence and Solitude of the primeval forest.

The disbanded soldiers of the 42d. Regt. drew their lots chiefly upon Union Street, and they erected almost a continued line of log Houses from York Point to the back Shore. At the east end of Union St, at the back of the Block House, and all around the back Shore, there was a thrifty growth of spruce, very large and handsome trees. King's Square was then a very thick Cedar Swamp, and I have heard several amusing anecdotes from persons who had been lost in its labyrinths, one in particular of an inhabitant who wandered about in it, one whole day, in search of his lost cow. King Street was partially settled the first winter. The Father of the present Messr. Sears drew the lot on King Street where their hat store now stands, and I well remember the late Mr. Sears telling me in his life-time that the surveyor went with him, to show him his lot in the bushes, and that after some search, they found the right blaze on a spruce tree at the corner of the lot; that

he pulled off his coat, hung it on the corner tree, and with his own hands proceeded with a heavy heart to cut down the trees, & endeavour to establish for himself a house in the wilderness.

In 1783 Major Studholme was Commandant at Fort Howe, having under him Captain Balfour and a party of troops. Each loyalist on his arrival, was furnished by Govt. with 500 feet refuse boards, with which to make a shanty, until they could get up a log-house. With the first arrival of Loyalists Colonel Tyng came as Agent, and with him Commissary Hart—the latter occupied the House and Stores of Mr. Simonds at Portland point, where rations were furnished the new comers. But notwithstanding these and other arrangements for their comfort, great distress and misery were endured by this noble band of loyal spirits, and their suffering wives & children. Many died the first winter from the small pox, fever & other diseases, induced & aggravated by the want of shelter and other privations.

When we consider that these truly loyal men, had to brave, for the first time, the horrors of a long & bitter winter, in hovels, barely sufficient to shelter their shivering limbs from "the pelting of the pitiless storm", in a dreary region, with scarcely a human habitation to be seen, to struggle with difficulties and privations incalculably severe, & without an object on which the eye could rest, save dismal swamps, frowning cliffs and dark interminable forests, have we not reason to admire their cheerful submission, their indomitable perseverance, their devoted patriotism?

In a dispatch dated 30th Sept. 1783, Gov. Parr stated to the Colonial Minister, that the number of Loyalists who had arrived in Nova Scotia up to that time amounted to 18,000 & three weeks after he reported the arrival of 2000 more. Major Studholme's account for furnishing lumber and erecting houses for the Loyalists, between the 1st day of June and the 31st day of December 1783, amounted to £6,721 6 6 which amount was allowed & paid him by Government.

In the summer of 1784 more persons came from the United States, while many of those who had arrived the preceeding year, moved up the River from this place to farms which had been allotted them, & on which they settled. The building of wharves in the harbour was commenced this year (1784). That Spring, a weir was built from Portland Point to York Point, and the quantity of fish taken in it was almost beyond belief. On one occasion, the gaspereaux lay, knee-deep, for three rods back from the weir, all the way across from Point to Point. The weir was scuttled in three places, to let the fish

out; yet of the immense quantity which remained, a large portion spoiled, from the impossibility of taking care of them, as well as for the scarcity of salt. Salmon were very abundant this year; yet the price advanced to ninepence each. For two years after this City was settled, the Inhabitants did not follow the exact line of the Streets, but used paths along the most convenient places according to the nature of the ground. The City, at that time was divided into two settlements, the upper Cove and the lower Cove, which for a long period, carried on a violent opposition to each other. The Lower Cove was almost wholly cleared up the first year; the principal business establishments were placed there & it had much the greatest population.

The two settlements of Upper and Lower Cove were divided by forest for some time, and all the carting and carriage between the upper and lower part of this City, was carried on by the beach at low water—along by Pettingell's Yard and Reel's Point. This way was very rough & difficult, particularly where Mr. John Walker is now building the splendid new Custom House. There the beach was encumbered with large masses of rock. Dock Street was for a long time, only a narrow foot path, along the edge of a rocky cliff, and people passing along it, were obliged (particularly in winter) to hold on to the small bushes and roots which cling to the rocks to prevent them slipping off, and rolling down upon the wild & rocky beach beneath them. At low water, they went over to Portland by crossing on the flats from York Point to the Point where Messrs. Harris & Allan's Foundry now stands. It was three years before a Bridge was got across. There was no road leading out of Town for some time—the only outlet was by a path along the bank of the Marsh Creek. There were 3 or 4 houses on the marsh, one back of Lily Lake, and one at Indian Town in 1783.

In the summer of 1784, a fire burned all the wood off the lower part of the Town as far up as Princess Street. Some log houses were burned, and the rest were saved with difficulty. (They had no water-pipes, or fire plugs then). The value of City lots at this time was from 10 to £5. Mr. Hatfield tells me that the lot at the Coffee House Corner was held at 15 Guineas, but being considered too high did not find a purchaser. Many lots on King St. were sold for a Jug of rum, and Mr. John Clark the baker, also an old loyalist, tells me, that he could have had as many lots as he wished in the Lower Cove, by paying for the deed and standing treat—and that in fact some of the valuable lots he now holds were acquired on those terms. The first vessel built in this harbour of St. John was built exactly where the New Market

House now stands, and was a brig of 160 Tons. Coasters this year flocked to the St. John in tolerable numbers, and by the kindness of the Sheriff of St. John, I am enabled to show the original Custom House Book from Novr. 1783 to Oct. 1784. On 9th Feby. 1784 Wm. Tyng, James Peters & George Leonard were appointed Judges of the Inferior Court of Common Pleas for the County of Sunbury.

But this vast and variable Country was not destined to remain much longer a county of Nova Scotia, the whole of which it so greatly exceeds in extent.

On the 16th Aug. 1784 a Commn. issued under the Privy Seal to Thomas Carleton Esquire appointing him Captain General & Govr. in Chief of the Province of New Brunswick, the boundaries of which (the same as at present) were defined and established by Commission. On the 22nd day of Novr. 1784 this commission was received & promulgated at this place, and the first entry in our Council Records is as follows.

“ Parr Town, 22 Nov. 1784.”

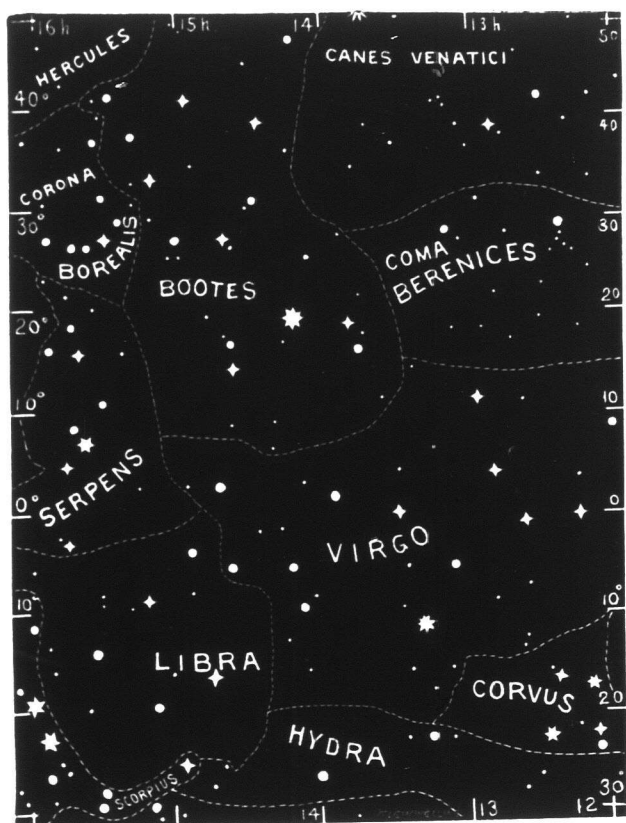
His Majesty's Commission above recited, constituting and appointing Thos. Carleton Esq. Captn. Genl. & Govr. in Chief of this Province, having been duly published, His Excellency repaired to the Council Chamber where he took the Oaths by law required and administered the same to George Duncan Ludlow, James Putnam, Abijah Willard, Gabriel Ludlow, Isaac Allen, Wm. Hazen and Jonothan Odell, Esquires, they being the number nominated in the Kings Instructions to be of His Majesty's Council for this Province; and then the Govr. and the members above named having taken their seats in Council, a Proclamation of the Govr. was read notifying the boundaries of the Province as established in the Kings Commn. and commanding all Officers civil & military to continue in the execution of their respective Offices.

Advised that the said Proclamation be this day published.

To be continued

Of all trees the *Eucalyptus amygdalina* of Australia is the tallest, reaching a height of over four hundred and fifty feet. The *Sequoia gigantea* of California is the largest as regards total bulk, if we exclude the banyan. The most useful trees are the palms. The smallest, and in many ways the most interesting, is *Welwitschia mirabilis* of South Africa, which, while attaining to a great age, does not attain a height of more than two feet. It has only two leaves, which are persistent cotyledons, and it bears cones extensively, not unlike those of our spruces. The oldest trees are baobabs of the east, cypresses of Mexico and dragon-trees of Teneriffe. Some of these are known to have attained an age of over four thousand years.

Astronomical Notes.



Here are some constellations that are well placed for evening observation at this time of year. If you know some of them already, you can work your way from the known to the unknown ones at any time that you can see them. But if you know none of them, you will find it easiest to begin an acquaintance with them when they are placed as your map represents them. This is when they are "on the meridian,"—on an imaginary line running from the south point of the horizon up to the zenith. It is when "on the meridian" that a star is at the highest point of its daily journey across the sky.

On May 22nd the stars along the right edge of the map will be "on the meridian" at 8 p. m., mean time, and those along the left edge at midnight. Half-way between these hours, 10 p. m., will be the very best time on that evening for the novice to compare his map with the sky. But the moon will be nearly full then, and she will be among the stars at the lower left corner of the map; so that evening will not be a particularly good one for star-gazing. But you will find the stars in the same position on any other evening if you change the hour on the 22nd by four minutes for every day between it and the evening you select. For example: Whatever is the position of any star at 10 p. m. on May 22, the same will be its position at 10 30 on May 14, at 9 30 on May 29, at 9 on June 6, and so on. At any of those hours then—or of the corresponding hours on other days—compare the stars on your map with those on and near the meridian. Facing south, and running your eye downward from the zenith, you will see the stars along the the middle

of the map from the "14" at the top to the "14" at the bottom.

The two eight-point stars are easiest to recognize. The upper one, which is much the brighter, and is reddish or yellowish in color, is Arcturus; the lower is Spica. Arcturus is the chief star in the constellation Bootes and is therefore called Alpha Bootis. For a similar reason Spica is called Alpha Virginis. On the map Spica is nearer to the bottom than Arcturus is to the top, but when on the meridian in the sky this is not so. For latitude 45°, the top of the map goes 5° farther than the top of the sky (the zenith), but the bottom of the map is 15° above the bottom of the sky (the horizon.)

To the right of Spica note the four stars in Corvus. The quadrilateral they form is a well-marked object, and it is a good thing to have as many as possible of such easily recognized sky-marks.

Those two four-point stars in Libra are easily found in the sky as the two most conspicuous objects to the left of Spica. The lower one is Alpha, the upper Beta. Do you think that is the order in which you would have named them? Put your glass on Beta and see if you can detect the "beautiful pale green hue," which Webb finds in it. Try Alpha next, and then add it to your list of easy doubles, but don't speak of it as a "double" to an astronomer or he will laugh at you. That one to the right of Beta is a variable—its name is Delta Libræ. It will be at one of its extreme phases at 10:20 a. m. on May 16, at 9:45 on May 23, and at 9:10 on May 30. (These hours are 60° time.) Which extreme—whether maximum or minimum—you can determine by observing it at these times, and again on the evenings between the given dates. Another variable is one of those three in Hydra, just below the boundary line between Virgo and Corvus. This one—R Hydræ—is a long period variable like Mira; Delta Libræ is a short period one like Algol. When R Hydræ is at maximum it is the second brightest of those three; when at minimum it is invisible. Which is it at now?

Away below and to the left of those three—outside the map altogether—you will see Theta Centauri, that bright and rather solitary star. Nearly as far below it as it is below Spica we would see—if we were down in the West Indies—the star which is the nearest to us of all the stars, and which is brighter than any we ever see, except the Dog star; and to the right of it—down below Corvus—we would see the Southern Cross.

In Virgo note the row of stars curving up and to the right from Spica—first a dot and then a couple of four-point stars. The dot is Theta Virginis, the next one is Gamma, and the one near the edge of the map is Eta. Another, Beta, lies just outside the map. Gamma is the brightest of these and is a famous "binary" star, that is, a double whose components revolve about each other. "Very easy," says Young of this double, but he means for a telescope not for a field or opera glass. The moon's track runs very close to Gamma at present, and a series of occultations of it will begin in September. The two stars above Gamma are Delta and Epsilon, and the other four-point one to the left is Zeta. Note the right angle which these three make.

Half way between Spica and Beta Libra you will see the middle one of a bent row of three stars. On the map the two above are big dots and the lower one a little dot. On the sky there is not that much difference between them. The middle one is Kappa. About half way between it and Spica a faint dot should be distinctly seen by a good eye on a clear, moonless night. That dot is the planet Uranus.

Of Serpens only a part is shown. As a whole the constellation is not an easy one to pick out in the sky, but that X up near Corona is easy, and should be put down among your sky marks. It is in the Serpent's head. The six-point star below it is Alpha Serpentis.

Corona has figured in recent Notes, and so has Coma. In Canes Venatici the four-point star is King Charles' Heart, and it also has been noticed lately as forming a large diamond with Arcturus, Spica, and Denebola. Denebola is just outside the map, at the right edge, where the southern boundary line of Coma runs.

Bootes — called Boots by some irreverent people — is too fine a constellation to be disposed of in a few lines at the end of an article. Its turn will come some other time.

Yarmouth, N. S., April 26, 1891.

A. CAMERON.

For the REVIEW.]

Kindergarten Methods in Primary Schools

SEVENTH PAPER.

The first six gifts are solid, and now the next step is the transition to the plane. The *seventh* gift consists of tablets generally made of wood, but they may be of pasteboard. The shape is of two kinds, square and triangular. The latter are again divided into four kinds of triangles.

In preceding gifts the child has dealt with solids—made of them houses, chairs, etc.; but with the tablets, he will only be able to make pictures of these.

Square tablets are given first, and with six or eight of them nearly all the forms of the third gift are produced. After square tablets are understood, then the right-angled isosceles triangle is introduced. It is shown that it is really a part of a square tablet.

We generally use two colors of tablets, light and dark, blue and orange, or red and green, etc., as the main idea in making forms is to "*keep the opposites alike.*" The law of opposites is not spoken of, but a lopsided figure is no more beautiful than a lopsided object. Children soon learn to apply this law, and to *think* this way as well as to *work*. "We cannot think of *light* if we have not known *darkness*. If we think of *goodness*, the opposite quality, *evil*, presents itself immediately to the mind. Without this law there would be no true comparison."

In the first lesson on tablets we call attention to the one-inch cube of the third gift, and have, or cut from a potato or apple a similar cube. With a knife slice this up, wishing all to watch you while you

work. Ask them what you are doing, and some one will be able to tell you that you cutting the cube into slices. Then talk about this slice, its shape and of what it is made, then give to each one wooden tablet to measure. They find that it fits in the ruled desk just as the one-inch cube did. Now give to each enough of the tablets to make a cube, thus forming the parts into a whole again. They know now where these tablets come from, *i. e.*, that they are really parts of a cube. Taking two tablets, ask one to place them so that that the corners will touch, so that they will touch by edges.

Give two tablets to each child, and they soon find out that they will not make a square form, but may be placed in a number of different positions.

Three tablets given to each next lesson will make a number of forms, and at the close of each lesson allow them to draw the pictures of the forms on the board. These tablets are the basis of drawing.

Very pretty forms are made of four tablets of one color and four of another. Only a few forms of life can be made, as a hat, a table, a gate, a chair, a cross, and a few others; but a great variety of forms of beauty (symmetrical forms) may be made.

Now, triangular tablets are introduced, and at first a square tablet (of clay, apple, etc.), is cut in two, to show where these triangles come from. Children are very much interested in these triangles, and readily see that two triangles of this kind make a square. Alone or combined with the square tablets many pretty forms may be made.

One interesting lesson comes in here about *corners* and *angles*. We generally speak of the angle as the inside corner. The name square or right angle is given to the inside corner whose outside corner will fit into the ruled square on the desk. In the triangular tablets the sharp corners have little angles inside. These terms are taught here because when we come to the sticks of the eighth gift we make use of them when figures are dictated. We might wish the sticks laid on the desk to be inclined at a small or big angle. Children easily learn these words because their little fingers are doing the work at the time we talk, and they do not memorize them.

Now that grades I. and II. use tablets, as prescribed by the course of instruction and as spoken of in Prang's Model Book, I think the *plates* accompanying "The Paradise of Childhood," by Edward Wiebé, would be of great use to primary teachers. The book may be purchased of J. L. Hammett, 24 Cornhill, Boston, price \$1.50. In the *plates* spoken of there are 200 forms made with tablets.

M. Olszewski has found that liquid oxygen, instead of being colorless, has a bright blue color. He concludes that the blue of the sky may be due to the air's oxygen.

For the REVIEW

To be Read to Pupils.

Boys and girls, you all like to hear of brave deeds. You have heard the story of the terrible explosion at Springhill, that carried death through the dark passages of the coal mines, and made so many fatherless children. I saw twelve of those orphans in grade III, the other day. There were too many brave deeds done in that awful time, to tell you of in one letter, so you must be satisfied to hear of the boys. Danny Robinson, fourteen years old, had charge of one of the horses that draw the boxes of coal in the mines. Danny was driving along, sitting on the empty box, when he saw a flash of flame coming towards him. In a second a great blast of wind followed. His horse fell dead, and he was thrown back into the box, terribly burned and half stunned. Climbing out of the box after a bit, he started for a place of safety, for the roof was falling around him, when he heard his little trapper, Jud Terrice, calling for help. (Your Royal Reader, No. IV., will tell you what a trapper is.) Danny turned about and ran towards the cries, tearing off his burning clothes as he went. He found Jud under the door, which had kept off the flames. Then Danny tried to pick him up, but his hands hurt too much, then to get him on his back, but Jud would slip off. At last, as Danny told me, he just got him under his arm (poor arm! shrivelled up by the fire), and ran to the pit bottom. Dropping Jud he was about to run back after his own brother, but the men would not let him, and carried him up to the pit's mouth; and you will be glad to know that his brother was there, all right. Danny is getting better now, and if you want to hear how he is at any time, just write to some of the Springhill teachers. Some of them talk and read to him; and, I dare say, take him something good to eat, as you would do, if you were there. What would you like to do for Danny? Could we not give him a medal, bought with some of the children's relief fund money? There was another Dan, older than the last, still only seventeen, not much older than some of you. This boy, Dan Beaton, had a brother working in the pit. Dan was getting his lamp fixed when he heard the explosion, a long piece away. Catching his shirt in his teeth, to keep out as much as he could of the choke damp, he ran along the dark tunnel one thousand feet to where his brother lay unconscious and on fire. Picking him up Dan ran back over fallen stones and dead horses to a place of safety. I did not see this Dan, but I did see his brother, who is almost well again. He will not soon forget Dan, will he? (Ask your teacher about the damp, or carbonic acid, and at recess measure one thousand feet along the road, and see how far Dan had to run along that dark tunnel, where to linger was to die.)

I wish I could tell you that all the boys found rescuers. Others were saved, two by their horses falling upon them, and so keeping off the flames, while all around dead men were lying, but more than twenty were taken home dead.

But I have talked too long to-day; so I will stop by asking you all to go right to work, not acting but being heroes. Your teacher can tell you how; but I just want to say that if you want to be honest, and truthful, and pure, as all heroes must be, you will have great battles all along the road.

Whether you are fond of fighting or not, I want you to take that road of honesty, truth and purity. People may not write about you in *THE REVIEW*, but you will have brave deeds to do, and be real heroes all the same. Perhaps the editor will give you a corner to yourselves in *THE REVIEW* in which you may ask questions of him, or of your sincere friend,
STAHLFEDER.

What a Live Teacher is Doing.

Dear Sir: Please find enclosed one dollar, subscription to *THE REVIEW*. I like *THE REVIEW* much; find it a great help in teaching. The lessons on Practical Chemistry and the Metric System alone are worth to the live teacher more than the cost of *THE REVIEW* for one year. We had a concert in our school, and we realized enough to get the chemicals and chemical apparatus to enable us to take the course in practical chemistry. We hope to be to work at it soon now. Trusting you may receive all the encouragement necessary to make *THE REVIEW* just what teachers need,

I am, yours truly, H. T. C.

Messrs. Editors: Will you accept of a few, simple lines intended to recall to the minds of our teachers and pupils some thoughts already expressed in the columns of *THE REVIEW*. Your very valuable Arbor Day issue, will, I feel sure, stimulate many teachers and pupils in their laudable efforts to beautify and improve school premises. I. B. OAKES.

Horton Academy, Wolfville.

Say, what have you done, when you've planted a tree
By the side of the street, or on the broad lea,
On the school ground so bare, or the green cottage lawn,
Where the hours may pass 'mid mirth-making song;
You have spread o'er the school, o'er the lawn and the street
Many air-cooling fans, many odors most sweet.

Every branch overstretched is a hand full of good,
Full of beauty and strength, full of shelter and food.
Every leaf that may flutter, fans the worn passerby,
Cools the heat of the sun that burns in the sky,
Joins the music it plays on the zephyrs so low
With the carol of birds that sings on its bough.

What, then, have you done, when you've planted a tree?
It teaches grand lessons for you and for me,
The tree rises upright, seeks a kingdom above,
Stretches hands toward heaven for its hourly food,
Rejoices alike in the sunshine and rain,
Gently chiding the heart so apt to complain.

It lives and it moves, has its being in God,
Breathes the breath that we breathe, though it clings to the
sod.

Has a true circulation, assimilates food,
Yields to physical laws, loves to do good,
Loves cultivation, to make its life grand,
Giving beauty and health to its own native land.

What, then, have you done when you've planted a tree
Near the street, near the school, on the lawn, or the lawn
You offer to birds, in the days that will come,
A home and a place where to nurture their young.
You beautify school, garden lawn, village street,
Furnish moisture for health, and an atmosphere sweet.

The tree speaks God's plan in the broad leafy wood,
Which promotes vegetation, saves the river from flood,
Saves the country from desert, from late spring and frost,
That threaten with danger, desolation and loss.
Then plant a memorial, more lasting than stone,
That will tell of your deed after life's work is done.

L. B. O.

Childhood of Charles Linnæus.

(Translated from the French of Louise Collet by Helen F. Moore.)

One evening in the winter of 1719, the chimney of the parsonage in the village of Roeskult, a poor dwelling scarcely distinguished from the surrounding huts, cast into the heavy icy air a column of black smoke. Within burned a huge turf fire. The pastor and his family, which consisted of the pastor's wife, an excellent housekeeper, two little girls of seven and eight years, and a boy who might be about twelve, were seated around a table for the evening. On this table blazed a low, large iron lamp, with three burners. At the foot of the lamp were heaped large balls of brown wool which the mother was knitting into stockings. The wooden knitting-needles clicked in her fingers; the two little girls strove eagerly to imitate their mother's task, and succeeded well. The pastor, with his elbows resting on the table, and his head bent over a large Bible, read from it now and then passages on which he commented.

The whole attention of the little boy, whose fair hair fell over his forehead and eyes, was absorbed by a copy-book of black paper, in which he was fastening plants and flowers. His little sisters sometimes looked at him by stealth, but without interrupting his work. As for his mother, she cast a fond look upon him from time to time, accompanied by a smile, but with her eyes constantly glancing at her husband, the minister, who continued his learned and pious reading without raising his eyes towards his auditors. But suddenly he shook his great head with the obstinate face, and, after looking at his son, he cried angrily:

"Still these copy-books and these good for nothing plants! I am determined to throw them all into the fire to make an end of your idleness and disobedience."

As he made a motion to execute his threat, the child pressed his book closely to his breast, and crossed his arms over it, while his mother checked her husband and said:

"Have patience, my good Nilo. He only wanted to arrange the plants he had gathered to-day, and now he is going to attend to his Latin tasks;" and she hastened to put away the threatened copy-book and to bring out instead the book of exercises and translations.

"Woman, in trying to excuse him you accuse yourself," cried the pastor, still angrily. "You speak of the plants he has gathered to-day. Yes, I know very well that instead of writing his exercises at home or accompanying me to the beds of the sick and dying, he has been groping about under the snow, and running like a little vagabond among the mountain passes to look for what? — I ask you that — for nameless and useless plants!"

"Nameless they may be," replied his wife, who was as ignorant as himself of botany, "but there are some which are both useful and wholesome. The other day, for instance, when our little Christina cut her finger, a few leaves of one of these plants were enough to stop the bleeding. Then, again, when our old cousin Bertha burned herself so dreadfully some time ago, it was again the plants that Charlie pointed out that cured her. The village doctor, whom she called, declared that this dressing of herbs was good, that it must be continued, and that whoever had prescribed it knew what he was doing."

"At all events," replied the father, "as I do not wish to make my son a doctor of medicine, but a doctor of theology, — a minister of the church like myself — he will for that end have to give up this ridiculous herbal, and devote all his time henceforth to the study of the Holy Scriptures and of Latin. Otherwise I can assure him that before another week I shall send him to the Latin school in the village, where he will live under a harsh rule."

The mother was about to reply, but the pastor silenced her by his gravity, and, bending over his Bible, continued his reading in a low voice.

Nothing was to be heard for a while in the smoky room, which served at once for kitchen, parlor and dining room to the pastor's poor family; but the sound of the knitting needles of the mother and the two little girls, and the fainter sound of the pen of the boy who was writing his Latin translation.

He threw himself into his work with an absorption and a rapidity which was almost feverish. It was evident that he wished to do well and quickly an un congenial task. When he had done he heaved a sigh of relief which interrupted the universal silence.

"Well," said the pastor, raising his head which had been weighed down by reading, meditation, or possibly by a half doze.

"There, father," said the child, placing beside the Bible the written pages.

The father ran his eye over them immediately, and when he had finished he murmured:

"Good, very good! I know, Charlie, that you can do whatever you choose. That is why I blame you the more when you are disobedient."

"I will obey you," said the child, looking at his father with an expression of tenderness and supplication, "but could you not let me divide my time into two parts; one for the study of good books, and of Latin, the other for the study of plants and flowers, which to me are so many psalms and hymns singing the greatness of God?"

"You are crazy!" cried his father. "I have already told you that this childish study will come to nothing, and will interfere with your theological career. If you persist you know my resolution on the subject, and I will not depart from it."

With these words he rose and commenced the prayer which the family made together each evening. Then the children, having kissed their father and mother, went to bed. Charlie slept in a dark closet, which had for its sole furniture a bed, a chair, and a set of deal shelves, on which were arranged a few books and the beloved herbal.

Hardly was he in bed when he began to weep and to think over ways of following his beloved vocation without disobeying his father.

While he was still in tears his mother came secretly; she kissed and comforted him.

"My darling," said the good mother, holding Charles in her arms, "it grieved you very much, then, not to be able to go any more through the snow and among the rocks, looking for the hidden plants."

"O, mamma, if you knew how delightful it is when I find a new kind; to admire it, to count the roots, the stems, the leaves, the flowers, the petals—each feature, in short, of these treasures of the good God! It is in the spring above all that this keen delight is varied and multiplied. The newly opened flowers are for me a complete world, such as the arch which encloses the whole animal creation would be for others. The plants speak to me, and I understand them. I assure you, mamma, that they have instincts, habits and differences in the same species just as the faces of my sisters and myself are different in spite of our resemblance."

"You are dreaming, you are dreaming, my dear child!" cried the mother, half laughing and half moved. "But in this terrible cold, and with the hardness of the earth, your pleasure must be greatly lessened. You take a great deal of trouble to secure a slight and sparse result."

"O, mamma! Ask the hunter if he fears the snow which falls on his shoulders; ask the fisherman if the ice banks stop him. They only see the prey which they pursue, and which they bring home in the evening."

"You will live and you will eat; only you will eat your breakfast an hour sooner than usual," replied his mother, gayly, "and every morning while your father is still sleeping you will go to your dear discoveries. But you must never stay beyond the allotted time, and at the appointed hour you must return at once to study your Latin."

"O, thank you, thank you!" cried the child, throwing himself upon his mother's breast, who kissed him and left him, saying: "Wait till to-morrow."

For the first time in his life the child went to sleep radiant with joy, and had a beautiful dream. He thought that he was suddenly transported into an immense valley surrounded with mountains, which commenced in a gentle slope, and gradually rose till they reached the skies. He was seated beside a beautiful, clear fountain which murmured among the plants and flowers of all sorts. It was summer, and the great white and gold clouds drifted through the intensely blue ether above his head. He had never seen such a sky in the poor, Swedish village in which he was born, and which he had never quitted. His admiration was divided between the sky, where the sun shone in all his glory, and the smiling country, covered with flowering shrubs and plants. He rose and began to walk, enchanted and alert, through the paths. He feared to touch a twig, a leaf, a petal, a stamen, and yet he wished to gather, one by one, each of these flowers in order to study them. At first he eagerly inhaled their perfumes, and enjoyed the sight of their beautiful forms and their exquisite tints. Then, seized with a sort of vertigo, he cried:

"Never can I fix in my memory this innumerable variety of species to classify and name them."

In his discouragement he stopped motionless, and praying inwardly:

"My God! my God!" he cried, "nature is too great for the weak sight of man, and if ever he attains to a knowledge of the outward, its depth and its details would escape him. Thou hast made, O my God, creation in Thine own image, and we, poor, puny creatures, would measure its grandeur and describe its beauty—it is impossible! We know but fragments of Thy work, the remainder escapes us. Forgive,

then, my audacity, O God! My father is right. I ought to adore and serve Thee as a humble minister, and not endeavor to know thee and explain Thy works like a wise partaker of Thy divine nature."

The poor child, crushed by the splendor of nature which surrounded him, fell on his knees praising God, and remained long in an ecstasy.

But voices, which seemed the voice of God Himself, rose suddenly from the open calices of the flowers, and from the bosoms of the still unfolded buds. These voices cried to him:

"Come to us, we are thine. We love to have thee love us and seek us, to understand that we live and feel—we who have been for so long believed lifeless, inanimate and capable only of pleasing the eye. Do not fear to gather and destroy us; we shall be born again without pain. Each of our severed fibres will teach thee mysteries hardly suspected hitherto. Thou wilt find in the details of our structure as many wonders as that in the human body; for, on a different scale, we have, like mankind, an organization that suffers and rejoices. We have our habits, our manners, our imperious destinies fixed by unfailling laws. Look at and understand us, thou child who lovest us. Thou shalt know how we are born, how we develop, and how we attain to beauty and love."

It was not only the large and magnificent flowers of the tropics which spoke—the cactus, the nenuphar, the magnolia. Neither was it alone the queen flower of the garden—the rose, the tuberosa, the lily, the carnation—which spoke thus to the sleeping child. It was also all the little wild flowers—the daisy, the violet, the thyme, the buttercups, all the mosses and all the lichens growing on the rocks or beside the water. Each plant, each stem, each calix had, as it were, a distinct voice, and all these accents united, formed a sweet and soothing harmony which plunged the little Charles into a delicious enchantment.

"O, yes," he cried, in answer to these mysterious words, which he alone could hear, "I love you, I understand you, and I will reveal to the world the grace and the splendor of your secrets."

He bent over the nearest flowers to gather them, but, behold, a miracle suddenly took place around him! All the flowers seemed to move and to tear themselves from their roots. They came toward the child, made a fragrant inclosure around him, mounted to his heart and to his arms, then to his head, where they entwined themselves into an immense crown.

The face of the child shone transfigured beneath this emblem of a glorious feature. He grew rapidly beneath this coronation of his beloved flowers. Suddenly he felt a warm breath glide across his face. A kiss touched his face, and caused him an indescribable happiness. The sensation was so vivid that he awoke. He saw his mother standing near him, half visible in the first ray of sunshine. The kiss came from his mother, his mother who understood his soul.

(Concluded in next issue.)

The following sums have been received for "Children Relief Fund": Miss McKenzie, Byers Section, New Annan, \$2.57; Miss Chrystal, primary department, Campbelltown, \$1.25; Miss Archibald, Debert River, \$9.00; Miss Stevens, Advocate, \$2.50; Miss Sayre, Nappan, \$13.50; Miss Bowser, Lower Cove, \$1.50; Miss Gillis, Mt. Pleasant, \$1.25; Miss Anderson, Northport, \$3.57; Miss Clarke, Maccan, \$4.50.

E. J. LAY.

Manual Training in the Halifax County Academy.

That the Halifax Board of School Commissioners is leading in the matter of educational reform and enterprise is illustrated by the following item of business transacted at the regular monthly meeting, 30th April last. We quote from a morning paper:

The following report from the special committee on manual training (Ald. Power, chairman), was adopted and the committee authorized to carry it out:

Your special committees on manual training in the schools of this city beg to report as follows: "The subject of manual training in the public schools is now receiving great attention in the most progressive cities of Europe and the United States, and your committee consider that it could be most advantageously introduced into the Halifax school system. Manual training does not mean teaching any trade in schools, but rather instructing in those principles which lie at the root of all trades. The pupils of these training schools are taught the use of tools in the best sense of the term, accuracy, patience, thoroughness, form, style, causes and effects. Experience on the continent of Europe shows that the pupils from the manual schools acquire quicker, easier and much more thoroughly any art or trade—more especially arts or trades calling for exercise of the reasoning or inventive faculties—than the ordinary youths.

And, more important still, by the teaching and example of such schools the dignity of labor is asserted, and that mistaken but unfortunately prevalent idea that he who labors with his hands as well as his brain is not the equal of the professional man or the man of leisure, exploded, perhaps, more effectually than otherwise.

Theoretically less important, though possibly practically more so, is the fact that a practical knowledge of the commoner tools and of their uses, and of mechanical principles, cannot fail to be of a very great advantage to men of all classes and stations in countries such as this.

In many cities of the United States these manual schools exist, hence it is easy to devise from their experience a plan or scheme suitable to Halifax. In the opinion of your correspondent an annual grant of \$1,500 would, for some time, defray all the expenses of such a school in this city. The tools and appliances are not expensive, and could be added to from time to time. A room which, with some alterations, would doubtless prove very suitable for the classes to work in, is at present unused in the high-school building. Probably the greater portion of the needed \$1,500 could be obtained from outside sources, and the school board has some as yet undeveloped sources of raising revenue. Your special committee consider the scheme for a manual school of moderate but useful extent one that the Halifax school board can undertake and carry out without unusual inconvenience or effort.

At the beginning, in such a school little would be taught beside wood working, its principles and use of its tools. Work on iron and stone would follow after the school was well under way; also the study of machinery, engines, and mechanics generally. The experience in these schools, as in most other affairs, is that the success of the enterprise depends largely on the teacher or head of the classes. Good and suitable men can be obtained and their number is annually becoming greater.

Believing that this school should be undertaken—and as well now as at any later date—your committee recommend that one of the board officials—preferably the supervisor—be sent to personally visit and in fact inspect thoroughly and repeatedly, some such school in practical operation—for instance, Boston—and to thoroughly acquaint himself with the methods, courses of study, and cost of material, etc. Also, and more particularly to seek for, see, and open negotiations with a desirable and highly efficient teacher—not necessarily a low priced one—willing to instruct the pupils of our city schools. Also, that this or some other committee be instructed to communicate with the provincial government as to the special grant which, it is understood, they will give the proposed school, and to use all means in their power to acquire information, and to carry the proposed scheme to a successful issue.

Music in Public Schools.

About 250 schoolmistresses were told how musical instruction should be imparted to their pupils by Mr. Frank H. Damrosch at Music Hall, Fifty-seventh street and Seventh avenue. The audience was the Association of Principals of Primary Departments and Schools of New York City. Mr. Damrosch said, "musical instruction should begin in the lowest primary class, and should comprise besides a number of rote songs, a thorough drill in the major scale and the relation of the sounds contained therein to each other. Starting from this foundation the instruction should continue in such a manner that at the end of three years in the highest primary class each pupil should be able to read any song in simple rhythm in any key at sight." The programme, he said, for the whole course in schools should be: For the first three years ten minutes a day; second three years, fifteen minutes three times a week; last two years twenty-five minutes twice a week. He also advocated the appointment of a general superintendent of music.—*N. Y. Sun*.

There is some one, or more, in every grange, who would be glad to find a place for and take care of 200 or 300 young trees until they were large enough to set out by the roadside. Such trees can be bought in great variety at small cost from wholesale nurseries. A few dollars invested in this way every year by the grange would soon give us all the shade trees we could possibly use and make all our country roads beautiful. Don't be afraid of starting out small. A horse chestnut, planted by a little boy on his ninth birthday, has grown in twenty years to be a tree more than twenty feet high, and has given the boy and man great pleasure every year in watching its steady growth. The little trees will grow while we are sleeping, and before we realize it they will be yielding a grateful shade and the birds will be singing in their branches.—*C. H. Mann, Essex County, Mass.*

PERSONAL.

Mr. E. H. Balkam has resigned the office of school trustee of Milltown. It is to be hoped that he has not ceased to be secretary of the Board. Mr. Balkam has been identified with the schools of Milltown since the passage of the school law, and has taken a more active interest in them than perhaps any citizen of the town, which owes much to his energy and foresight in school matters. While he had strong convictions in educational matters, they were always progressive. In him the teachers had a friend and the community a most zealous and efficient school officer.

AMONG THE SCHOOLS.

Miss Webber of the Ledge and Miss Thompson of Crocker Hill, Charlotte County, have raised about \$60 each for the purpose of procuring school libraries. We hope to hear of many more such efforts in this direction.

Through the efforts of the teachers and pupils of Lancaster No. 1, St. John County, the sum of \$20 has been raised for the purpose of providing the school with a flag and flag-staff. The teachers are James S. Clark and Kate Armstrong.

Faculties of engineering, mining and applied science are reported as likely to be added to the University of Dalhousie before the opening of the next year.

Howard Murray, B. A., (London), senior classical master in the Halifax Academy, has been appointed a lecturer and examiner in classics in the University of Dalhousie. The appointment will not interfere with his academic work.

R. J. MacDonald, B. A., (Dal.), late editor of the medical department of *Dalhousie Gazette*, has been appointed to the vice-principalship of Albion street school, Halifax.

Morris street school, Halifax, under Principal Creighton, is developing its physical and calisthenic drill into military form, steps having been taken to form a regular cadet company. In the Halifax County Academy, over two hundred have been drilled twice a week during the past term in military and calisthenic movements, and they are now quite proficient.

At the Pictou Academy terminal examination the highest honor—the gold medal—was won by Miss

Blanche MacDonald, of Hopewell. The silver medal was won by D. A. Fraser, of New Glasgow. The following numbers in each year presented themselves at the examinations: 1st year, 29; 2nd year, 36; 3rd year, 22; 4th year, 7. Total, 94.

At the Truro Academy the gold medal was won by Miss Lillie Meehan. Miss Mary King took second place and lead in mathematics. Total number at terminal examination, 90.

At the Halifax Academy the terminal examinations were conducted by means of printed examination papers, the Greek papers being as beautifully set up by the Nova Scotia Printing Company as if they were done in London. The results of the fourth year examination will be announced later, prior to graduation exercises at the end of June. At examination: 1st year, 102; 2nd year, 62; 3rd year, 32; 4th year, 15. Total, 211. One hundred and ten candidates wrote at the entrance examination for the summer term, of whom forty-eight were admitted.

The Victoria School of Art and Design is being transferred to the Halifax County Academy building, thus affording a magnificent opportunity for the study of art in connection with the ordinary academic branches. The change will improve the accommodations of the institution very materially, as the rooms are much more commodious than those with which it started. It has the following departments: Freehand and Model Drawing; Mechanical Drawing; Architectural Drawing; Painting; Modelling and Sculpture.

Geo. A. Cogswell, late principal of the River John high school has been appointed to the staff of the Truro Academy in place of E. Smith resigned.

We are glad to learn of the recovery of Principal Calkin of the Nova Scotia Normal School from a severe illness.

The agricultural farm and the normal school were visited by the Provincial Assembly's education committee.

Professor Smith of the agricultural school read a very valuable paper on "Fertilizers in Red Sandstone Soil" before the Nova Scotia Institute of Science, Halifax, in April last. It gave the results of experiments on the farm during the past two years.

The schoolrooms of the famous Boston High School are 24x32x14 feet, with an allowance of 268½ cubic feet for an average attendance of forty pupils.

QUESTION DEPARTMENT.

CENTREVILLE. — Please solve the following questions in trigonometry.

I. $\tan 18^\circ = \frac{\sin 33^\circ + \sin 3^\circ}{\cos 33^\circ + \cos 3^\circ}$
 II. $\tan \frac{x}{2} = \frac{\sin x}{1 - \cos x}$ (Should be $\frac{\sin x}{\cos x - 1}$)

I. From formula $\sin A + \sin B = 2 \sin \frac{1}{2}(A+B) \cos \frac{1}{2}(A-B)$

$\cos A + \cos B = 2 \cos \frac{1}{2}(A+B) \cos \frac{1}{2}(A-B)$ we have
 $\sin 33^\circ + \sin 3^\circ = 2 \sin \frac{1}{2}(33^\circ + 3^\circ) \cos \frac{1}{2}(33^\circ - 3^\circ) =$
 $\cos 33^\circ + \cos 3^\circ = 2 \cos \frac{1}{2}(33^\circ + 3^\circ) \cos \frac{1}{2}(33^\circ - 3^\circ) =$
 $2 \sin 18^\circ \cos 15^\circ = \frac{\sin 18^\circ}{\cos 15^\circ} = \tan 18^\circ$ Q. E. D.

II. From formula, $\sin A = 2 \sin \frac{1}{2} A \cos \frac{1}{2} A$ and $\cos A = 2 \cos^2 \frac{1}{2} A - 1$, we have

$$\frac{\sin x}{1 - \cos x} = \frac{2 \sin \frac{x}{2} \cos \frac{x}{2}}{1 - (2 \cos^2 \frac{x}{2} - 1)} = \frac{2 \sin \frac{x}{2} \cos \frac{x}{2}}{-2 \cos^2 \frac{x}{2}}$$

$$= -\frac{\sin \frac{x}{2}}{\cos \frac{x}{2}} = -\tan \frac{x}{2} \text{ i. e. } \tan \frac{x}{2} = \frac{\sin x}{\cos x - 1}$$

MERIGOMISH. — Please solve problems 22 and 23, Ex. XXV, page 157, Todhunter's Algebra for Beginners.

22. Let x = no. of lbs. free. xy = charge in pence per lb. of luggage not free. The two passengers have $2x$ lbs. free, therefore 5 cwt. less $2x$ lbs. pay y pence per lb., which amounts to 5s. 2d. and 9s. 10d. = 62d. + 118d. = 180d. And 5 cwt. = 560 lbs. (English weight). And 19s. 2d. = 230d.

The two passengers have $(560 - 2x)$ lbs. to pay for. The one passenger would have $(560 - x)$ lbs. to pay for.

$\therefore (560 - 2x)y = 180$ (1)
 and $(560 - x)y = 230$ (2)

(1) \div (2) $\frac{560 - 2x}{560 - x} = \frac{180}{230} = \frac{18}{23}$ (3)

(3) Cleared of fractions, $12880 - 46x = 10080 - 18x$ (4)

(4) Transposed and collected, $-28x = -2800$ (5)

(5) $\div -28$, $x = 100$ Ans.

23. Let x = distance in yards which A ran in 5 minutes at the rate of y yards per minute, B ran only $x - 50$ in 5 minutes at the rate of $2y$ yards per minute.

But distance divided by rate gives the time. Therefore $\frac{x}{y} = 5$ for A (1)

and $\frac{3(x - 50)}{2y} = 5$ for B (2)

(2) \div (1) $\frac{3(x - 50)}{2x} = 1$ (3)

(3) Cleared of fractions and expanded, $3x - 150 = 2x$ (4)

(4) Transposed and collected, $x = 150 =$ distance. (5)

Sub. (5) in (1), $\frac{150}{y} = 5 \therefore 5y = 150 \therefore y = 30 \text{ yds.} = \text{A's}$

speed and $\frac{2}{3}y = \frac{2}{3}(30) = 20 \text{ yds.} = \text{B's speed.}$

Wm. H. D. Please solve the following in your next issue:

$x + \sqrt{12a^2 - x} = a + 1$ (1)
 $x - \sqrt{12a^2 - x} = a - 1$

(1) Cleared of fractions, $(a - 1)x + (a - 1)\sqrt{12a^2 - x} = (a + 1)x - (a + 1)\sqrt{12a^2 - x}$ (2)

(2) Transposed, $(a - 1)\sqrt{12a^2 - x} + (a + 1)\sqrt{12a^2 - x} = (a + 1)x - (a - 1)x$ (3)

(3) Collected, $(a - 1 + a + 1)\sqrt{12a^2 - x} = (a + 1 - a + 1)x$ (4)

(4) Further collected, $2a\sqrt{12a^2 - x} = 2x$ (5)

(5) $\div 2$, $a\sqrt{12a^2 - x} = x$ (6)

(6) Squared, $a^2(12a^2 - x) = x^2$ (7)

(7) Expanded, $12a^4 - a^2x = x^2$ (8)

(8) Transposed, $x^2 + a^2x = 12a^4$ (9)

(9) $x(-1)$, $x^2 + a^2x = 12a^4$ (10)

(10) Square completed, $x^2 + a^2x + (\frac{a^2}{2})^2 = 12a^4 + \frac{a^4}{4} = \frac{49a^4}{4}$ (11)

(11) $\sqrt{\quad}$ extracted, $x + \frac{a^2}{2} = \pm \frac{7a^2}{2}$ (12)

(12) Transposed and collected, $x = \frac{a^2}{2} \pm \frac{7a^2}{2} = 3a^2$ or $-4a^2$ (13)

Ans.

or, by a shorter method.

In (1). Difference of numerator and denominator divided by their sum in 1st member is equal to the same in the second member. (Theory of proportion).

$\therefore \frac{2\sqrt{12a^2 - x}}{2x} = \frac{2}{2a}$ (2)

(2) Cleared of fractions and simplified, $a\sqrt{12a^2 - x} = x$ (3)

(3) Squared and transposed, $12a^4 = x^2 + a^2x$ (4)

(4) Square completed, $12a^4 + \frac{a^4}{4} = x^2 + a^2x + (\frac{a^2}{2})^2$ (5)

(5) $\sqrt{\quad}$ extracted and transposed, $x + \frac{a^2}{2} = \pm \sqrt{\frac{49a^4}{4}}$

$= \pm \frac{7a^2}{2}$

(6) Transposed and collected, $x = \pm \frac{7a^2}{2} - \frac{a^2}{2} = 3a^2$ or $-4a^2$. Ans.

GRIP. 1. Kindly answer in the question columns of the May issue of the REVIEW the following questions:

1. Write the different ways in which each of the nine digits can be made up of two less numbers.

2. Write a scheme or synopsis of the tenses of the Indicative Mood in the Passive Voice of the verb laugh. As you know the verb laugh is intransitive, but is used, sometimes, transitively by the addition of a preposition such as at. What I really want to know is, When you are writing a scheme of it in, say both voices, or more particularly the passive voice, must the preposition that is added to it in its transitive use be written also? For instance, I am laughed sounds very awkward, but I am laughed at sounds

more harmonious. Instead of writing the synopsis, perhaps you would find it more convenient to answer this question, by just stating whether the preposition is to be used in the scheme in the passive voice or not.

1. We give this problem to our readers.
2. The two words "laughed at" forms *one* transitive verb.

INQUIRER.—I wish, through the Astronomical Editor of the EDUCATIONAL REVIEW, to gain a little information. In regard to the Lunar Cycle and the Solar Cycle, as mentioned in the front of the almanacs, I have solved the first problem, by adding 1 to the present year, 1891, and dividing by 19, which gives a remainder of 11, which corresponds with the number given in the almanac and Book of Common Prayer. But how to get the 24, the number given in the almanac, the present year, for the Solar Cycle, I want to know. Will you please publish the reply and oblige?

Add 9 to the year and divide by 28. Thus the remainder from $1891+9$ is 24.

28

M. V. S.—In the March number of the REVIEW the answer to "Tom's" question: "What territories of the U. S. have become states within the last five years?" is incomplete. The four mentioned are not the only ones, Wyoming and Idaho were both admitted to the union in 1890, making in all forty-four states.

McS. What are these Lycopods?

No. 1. *Lycopodium complanatum* L.—a depauperate variety. No. 2. *L. dendroideum*, Michx. No. 3. *L. annotinum* L. No. 4 (?) Variety of *L. dendroideum*.

County Academy Entrance Examinations, 1891.

ARITHMETIC AND ALGEBRA.

1. Explain the meaning of the following terms and give examples of each: Quotient, Divisor, Remainder, Product, Factor, and write in words the number expressed by the following figures: 1203050725002.
2. Define Common Measure, greatest Common Measure, Common Multiple, Least Common Multiple. Find the L. C. M. of 21, 56, 75, 84.
3. Write "Avoirdupois weight" in full, and express 9 ac. 1 ro. 29 poles, 6 feet 64 inches as the fraction of a square mile.
4. Define Decimal Fraction, Circulating Decimal, and find the cost of .275325 of a ton of sugar at $7\frac{1}{2}$ cents per lb.
5. What will it cost to build the cellar wall of a house 40 ft. long, 30 ft. wide, at 32c. per cubic yd., the wall being 10 $\frac{1}{2}$ feet high and 18 inches thick.
6. A drover exchanges 48 sheep for 192 lambs, when 12 sheep are worth \$96. Find the difference between the value of 9 sheep and 9 lambs.
7. The sum voted at the annual meeting, in a certain section, for the support of the schools was \$1000. After deducting \$85 for poll-tax the balance is to be assessed upon the property of the section, the valuation of which is \$145,000. What will

be the tax on the dollar, and what is A's tax, his property being valued at \$12,230?

8. A sum of money put out at simple interest for 3 years at 6 per cent amounted to \$855.50; to what sum would it have amounted had it been lent at compound interest?
9. Find the difference between $a-b+c-d$ and $a-y+c-z$.
10. Find the continued product of $a+b$, $a-b$, $x+y$ and $x-y$.
11. Divide $x^5-2x^3-2x^2-3x-2$ by x^2+2x+1 .

GRAMMAR.

1. Place in a list those of the following nouns which have grammatical gender, and supply with each the corresponding masculine or feminine form, according as either is wanting: Bird, hero, inventor, songstress, executor, executioner, widow, boy, sultana, emperor.
2. Distinguish between qualifying and limiting adjectives, and give at least three illustrations of each in short sentences.
3. (1) Define "Voice," and distinguish between the voices. (2) Write the corresponding passive or active form (same mood, tense, number and person) of each of the following verbs: Lovest, wast loved, wilt love, (if he) love.
4. Explain for what purposes the verb "be" is used as an auxiliary.
5. Define the term Extension as used in analysis and state—
 - (1) Its chief grammatical forms.
 - (2) Its principal kinds or classes.
6. Parse:

Warsaw's last champion from her height surveyed
Wide o'er the field a waste of ruin laid.
7. Analyze:

This is the malt that lay in the house that Jack built.

GEOGRAPHY.

1. What are Latitude and Longitude? From a place whose longitude is sixty degrees west and whose latitude is forty degrees north, we go south sixty-five degrees and east one hundred degrees, what latitude and longitude do we now reach?
2. In what direction from Halifax is Annapolis? Cape Canso? Charlottetown? Yarmouth? Sable Island? St. John?
3. Describe the shortest water route between Montreal and Calcutta.
4. Describe briefly the rivers of Quebec, and give the boundaries of any *two* of the following: Italy, India, Algeria, Mexico, Ontario and New South Wales.
5. In what countries and on what rivers are the following cities: Fredericton, Winnipeg, New Westminster, New Orleans, London, Liverpool, Glasgow, Paris, Dublin, Limerick, Hamburg, Vienna, Lisbon, Khartoum?
6. Write a short description of the British Empire?
7. Name the States of the American Union, giving the capitals of those on the Atlantic seaboard.
8. Tell what you know about the Austro-Hungarian Empire.
9. Draw an outline map of South America, filling in as many details as you can.

USEFUL KNOWLEDGE.

(Ten questions will be considered a perfect paper.)

1. What is the most useful metal? Why is it the most useful, and where is it obtained?
2. How does a liquid change to a solid? a solid to a liquid? a liquid to a gas?

3. What is a magnet? Describe the mariner's compass.
4. What precautions would you take in a thunderstorm in order that you might not place yourself in unnecessary danger?
5. What part of the turnip is used? the strawberry? cabbage? mustard? potato?
6. What is a coin? Of what metals are coins usually made?
7. Tell what you know about icebergs?
8. How do you obtain the following: Common salt? petroleum? camphor? macaroni? opium?
9. How do you account for the presence of marine shells on the top of some high mountains?
10. What is a ruminating animal? Name the chief ruminants?
11. Describe as fully as you can the metamorphoses of one of the following: Butterfly, frog, grasshopper.
12. Name the senses, distinguishing between those that require contact and those which at a distance inform us of the presence of their bodies.
13. Write a short note on oxygen.
14. What is a volcano? What volcanoes are best known?
15. Describe as fully as you can (1) an insect that is useful to man; (2) one that is noxious.
16. Give as many reasons as you can why you should not use tobacco.

BRITISH AND CANADIAN HISTORY.

1. Name the first three sovereigns after the conquest, with the dates of their accession. Relate the story of Thomas Becket.
2. Describe the character of any two of the following: Richard I, Henry VIII, Charles II, William III, George III.
3. Tell what you can of the following battles: Crecy, Bosworth, Blenheim, Bunker Hill, Culloden, Alma, Aboukir Bay.
4. Assign each of the following events to the reign to which it belongs: Gunpowder Plot, Great Plague of London, Battle of Bannockburn, Battle of Flodden, Destruction of the Armada, The South Sea Bubble, American Civil War, Repeal of the Corn Laws, Catholic Emancipation Act.
5. State what you know regarding the settlement of (1) Lunenburg, (2) Pictou.
6. Describe briefly the following battles: Chateaugay, Chrysler's Farm, and Lundy's Lane.
7. Explain the following: Responsible Government, Quebec Scheme, National Policy.

Charles Alfred Hamilton, M. D., C. M., of the Victoria General Hospital, reports a new species of *Callitriche* for Nova Scotia in Guysboro county. *C. verna* L., *C. intermedia*, Willd., *C. aquatica*, Bigel are all probably the same species, and are found in Canada. Dr. Hamilton's species is very much like *C. heterophylla* Pursh, of more southerly habitat.

There are 400,000 teachers in the public and private schools of the United States.

The school attendance in N. B. in 1890 was 1 in 5½ of the population.

BOOK REVIEWS.

MECHANISM AND PERSONALITY, an outline of philosophy in the light of the latest scientific research, by Francis A. Shoup, D. D., Professor of Analytical Physics, University of the South, pp. XIV, + 343; 7 1/2 inches by 5 1/2; Cloth, \$0.50. Ginn & Company, Boston, U. S. A., 1891. Concise in treatment, popular in presentation and up to date, it is a book for the man of general education who cannot afford to read much special literature on the subject.

THE NEW FOURTH MUSIC READER, designed for the upper grades of boys and mixed schools and containing chord-work, exercises, and part songs with and without words for a capella singing, by Luther Whiting Mason, formerly Supervisor of Music in the public schools of Boston, Mass. Ginn & Co., Boston, 1891. A capital book in the regular musical notation.

HYGIENIC PHYSIOLOGY, a text book for the use of schools, by D. F. Lincoln, M. D., late Secretary Health Department of American Social Science Association; author of "School and Industrial Hygiene," etc. Cloth, 5 1/2 inches; pp. IV, + 206; \$0.90. Ginn & Company, publishers, Boston, U. S. A., 1891. The printer has done his work well, and the author has also. Nowhere do we remember having seen any treatment of the subject, more clear, and better illustrated in so small a compass.

LESSONS IN ASTRONOMY, including uranography. A brief introductory course without mathematics, for use in schools and seminaries, by Charles A. Young, Ph. D., LL. D., Professor of Astronomy in the College of New Jersey; author of a "General Astronomy for Colleges and Scientific Schools," and of "Elements of Astronomy for High Schools and Academies." Cloth, 5 in. x 7 in.; pp. IX, + 357 + 8 (Star maps). \$1.30. Ginn & Co., Boston, U. S. A., 1891. Typographical execution superior. Treatment of the subject admirable. We were about describing the work as popular, but it is more. It is a most accurately scientific presentation of modern astronomy so far as it can be apprehended without a knowledge of more than common school mathematics. It is a popular astronomy with a compendium of the latest results of astronomical research.

IMMENSEE von Theodor Storm, with English notes and a German-English vocabulary; **DER FLUCH DER SCHÖNHEIT**, Novelle von W. H. Richl, edited for the use of schools; **DER GEISTERSEHER**—Schiller. Three books published by D. C. Heath & Co., Boston, New York and Chicago. Apart from their splendid adaptation to high school and college, these books are just the reading to be relished best by the self-taught student of German. The vocabulary, notes and good print of portions of the best German literature, in 25-cent form, is one of the advantages of the present over the past.

A TEXT-BOOK OF EUCLID'S ELEMENTS, Part II, for the use of schools, containing Books III. and IV.; by H. S. Hall, A. M., formerly scholar of Christ's College, Cam-

bridge. MacMillan & Co., London and New York, 1891. This is Euclid put in its neatest and most effective form, with a capital selection of exercises and modern geometrical ideas.

PLATO—GORGIAS. Edited under the supervision of John William White and Thomas D. Seymour. pp. IX. + 308, 6 x 8 inches; \$1.75. Ginn & Co., Boston, U. S. A. and London, 1891. This is truly a superb specimen of a Greek text-book. The introduction gives an excellent sketch of the beginning of Greek rhetoric, Gorgias' life and activity, the aim and principle of the dialogue in the book, its scenery, place, time and plan, with an exact summary of its subject matter. The fine Greek text is accompanied with numerous and full notes, making the book a very fascinating one for any student of Greek.

THE AMERICAN CITIZEN, by Chas. F. Dole; published by D. C. Heath & Co., Boston. This is a work that will be useful to the student everywhere, suggesting as it does topics of interest in the growth of citizenship.

SPRAGUE'S SHAKESPEARE: MERCHANT OF VENICE and MACBETH, edited with notes by Homer B. Sprague, Ph. D. S. R. Winchell & Co., publishers, Chicago. This edition of Shakespeare has some excellent features which must commend themselves to the teacher and student. The notes are arranged upon the principle of stimulating thought; it gives results of the latest etymological and critical research; it gives the opinions of some of the best critics on almost all disputed interpretations; and it presents the best methods of studying English literature by class-exercises, by essays, and by examinations.

MADemoiselle de la Seigliere, a comedy in four acts, with introduction and English notes. Publishers, D. C. Heath & Co., Boston, Mass.

SCOTT'S LADY OF THE LAKE, with introduction and notes, by G. H. Stuart, M. A. Price 2s. 6d.; SHAKESPEARE'S CORIOLANUS, with introduction and notes, price 2s. 6d. Publishers: MacMillan & Co., London and New York. These two works are carefully edited and neatly printed and with the excellent notes should be of great service to students.

TWELVE ENGLISH STATESMEN: PEEL, by J. R. Thursfield; price 2s. 6d. Publishers: MacMillan & Co., London and New York. An admirably written account of Sir Robert Peel and his times, in which we have pen portraits of other eminent statesmen.

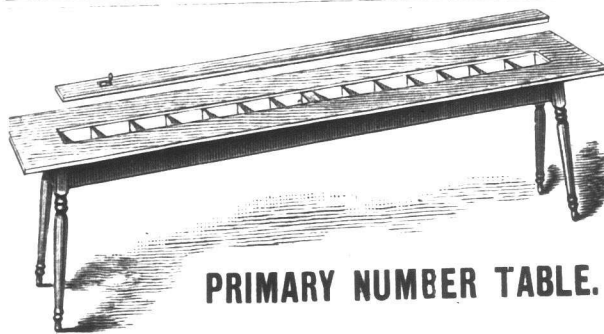
ELEMENTARY CLASSICS: XENOPHON'S ANABASIS, Book III, for school use, with notes, vocabulary and maps, price 1s. 3d. Published by MacMillan & Co., London and New York. An excellent work for schools, the Greek text being especially clear.

CLASSICS FOR CHILDREN: Irving's ALHAMBRA; Scott's MARMION; price 50 cents each. Publishers: Ginn & Co., Boston. This cheap and excellent series of books by the

Messrs. Ginn should have a wide circulation. They are well printed, in good sized type, handsome pages with explanatory notes at the bottom.

Current Periodicals.

The *New England Magazine* for May possess more than usual interest for Atlantic Province readers. The article on the Loyalists by James Hannay, illustrated by Lewis A. Holman, is one that will be read very generally. . . . *Littell's Living Age*.—*The Living Age* for April 24th and May 2d contain John Wesley, *Nineteenth Century*; The Anabaptists and their English Descendants; The Influence of Democracy on Literature; The Fair Ophelia of a Highland Glen, *National*; An Irish Landlord, and Archaeological Nomads in Rugged Cilicia, *Blackwood*; A Village Obituary, *Gentleman's*; and others. For forty-two numbers of sixty four large pages each (or more than 3,300 pages a year) the subscription price (\$8) 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. . . . *Garden and Forest*, New York, is very reasonable in its directions for tree planting, laying out grounds and hints on gardening and horticulture. . . . *The Popular Science Monthly* for May contains: "New Chapters on the Warfare of Science," "Fortifying Against Disease," "An Experiment in Moral Training," "My Garden on an Onion," "The Education of Children," and other valuable articles. . . . We are glad to notice the enlargement of the *Halifax Critic*, which indicates a growing patronage. Its sound, intelligent and manly British-Canadian tone, we are glad to see, has won for it an enduring place in the history of our journalism and in the affections of our people.



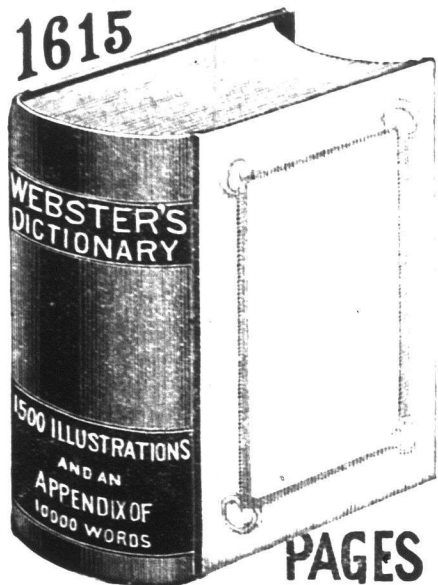
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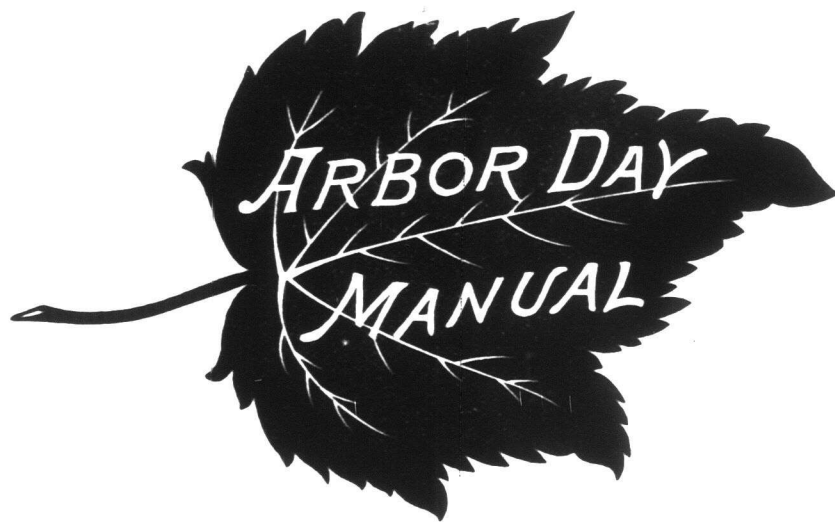
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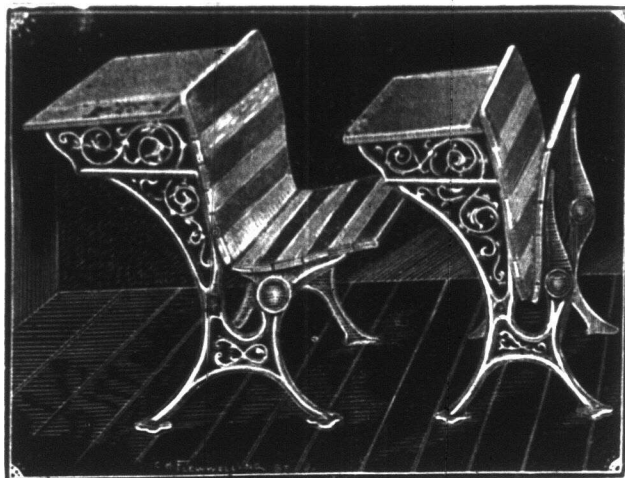
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