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MISSING

The Educational Review.

Devoted to Advanced Methods of Education and General Culture.

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In future all correspondence and business communications, including payment of subscriptions, from Nova Scotia and New Brunswick should be addressed to Editor EDUCATIONAL REVIEW, Halifax, N. S. All other communications, including subscriptions, should be addressed Editor EDUCATIONAL REVIEW, St. John, N. B.

EDITORIAL NOTES.

WE intend to devote a large portion of our April number to suggestions for Arbor Day, and notes on plant study. It will be issued not later than April 10th.

THE appeal made to the teachers of Cumberland and Colchester by Inspector Lay will, we hope, meet with a ready response, not only in those counties but in others throughout Nova Scotia and New Brunswick. The fact that the disaster at Springhill, the most terrible that has afflicted these Provinces, has made one hundred and fifty children orphans, will meet with a ready and sympathetic response from other children more happily situated, if their attention is directed to the matter and their co-operation secured.

THE twentieth annual report of the Halifax School for the Blind has been received. This school, which has so many claims upon the people of the Atlantic

Provinces, is yearly increasing its influence, in the zeal and devotion of its teachers, and in the number, industry and application of its students. During the past year additions have been made to the buildings by erecting a wing as a residence for the boys, and another is proposed for the girls. The principal of the institution, Mr. C. F. Fraser, is indefatigable in his efforts to increase the usefulness of the institution, and he should receive the assistance and support of every well-wisher of that most interesting class of young people in whose interest the institute is conducted.

WE publish the following notice from Mr. H. J. Hill, secretary of local executive committee to make arrangements for the International Educational Association in Toronto, in July next:

The annual Convention of the National Educational Association of the United States, for the present year, will be held at Toronto, from the 14th to the 17th of July next, and a local committee has been appointed to make all the necessary arrangements. At least twelve thousand teachers of public schools, collegiate institutes, high schools, universities and school Inspectors, throughout the United States and Canada are expected to attend the convention, and a large amount of work has to be done preliminary to the meeting to make arrangements for accommodation of this large number of visitors. Cheap railway rates have been secured from all parts of Canada and the United States. An official bulletin will be issued about the middle of March, giving a full programme of the proceedings at the convention, officers of the association, railway arrangements, etc., and will be forwarded to any one desiring a copy on their dropping a postal card to the secretary of the local committee, Mr. H. J. Hill, at Toronto, or Mr. J. L. Hughes, chairman of the executive committee, Toronto. The most complete arrangements will be made to give the visiting teachers a splendid welcome, and to make the meeting a great success. Local excursions are being arranged to all important points of interest surrounding the place of meeting. The meeting will be of an international character, and as it is the first time the association has ever met in Canada, it is hoped that the Canadian teachers will attend in large numbers to take part in the proceedings.

It is with much regret we have to record the death of Principal J. Scott Hutton, A. M., of the deaf and dumb institution at Halifax. No better monument

to his genius can exist than the remarkable development of this institution during the thirty-three years since he took charge of it at its start. Principal Hutton was born in Perth, Scotland. When quite young he entered the University for deaf mutes at Edinburgh. In 1857 he received the appointment at Halifax and remained in charge until his death, 25th February, except for three years, after 1878, when he went to Belfast in a similar capacity. In his department Mr. Hutton stood high in the estimation of educationists throughout the world. He was a man of sterling qualities in every relation as a citizen. His illness lasted for about two months.

THE teachers and pupils of the Victoria and Girls' High School, St. John, have contributed \$70 to the relief of the sufferers by the Springhill disaster.

PROFESSOR Archibald MacMechan, Ph. D., of Dalhousie College, in an able paper before the Nova Scotia Historical Society, December, completely exploded the universally current fiction that John Crowne, dramatist, (who lived in the latter half of the seventeenth century, and was spoken of as a rival of Dryden) was a Nova Scotian, and the son of an "independent" minister. He was the son of a Colonel Crowne who, with Temple and others, played leading parts in the history of Acadie during the middle of the said century. John Crowne when a lad was for a short time at Harvard and boarded in a minister's family; but there is no probability of his ever being on Nova Scotia soil.

DR. PATTERSON read a paper before the same society in two sections, one at the January meeting and the other at the February meeting on the early Portuguese voyages of discovery to North America. Very many new points were brought to light and many new views suggested by the paper.

THE principalship of the Protestant Academy in St. John's, Newfoundland, is vacant.

IN a letter to the Halifax *Herald*, dated Berlin, January 29th, Prof. Frank H. Eaton has the following in reference to high school and college work:

* * * "The greater part of the work covered in the Freshman year of each of our colleges is work that every respectable high school in America undertakes, and is qualified to do. When, in addition to this, the fact is remembered that, at no point in any of our college courses is an undergraduate qualified, without extra work, to meet the requirements of an academic license examination, the

waste of teaching power will be quite apparent. In addition to the economical gain which would follow upon the co-operation of the colleges, and the educational department, there are other advantages, direct and indirect: (1) The scholarship standards, on which academic licenses are based, would be materially improved. (2) The organization of the work of the academics would be simpler, more consistent and more efficient. (3) The college faculties, relieved of high school work which they are now doing, could widen the range of optional courses, and intensify the specialization of departmental teaching. (4) Students entering college under the application of higher admission standards would attain in a three years college residence, at least, as high a degree of scholarship as now they are able to reach in a four years' course. (5) A community of interest between the college faculties and the administrators of public education, such as does not now seem to exist, would be created."

THE death of Jeremiah Meagher, Principal of St. Dunstan's school, Fredericton, after only a week's illness, removes a well known and successful teacher.

"He has been teaching continuously, says the Fredericton *Globe*, since sixteen years of age, with a break of five or six years when he carried on a grocery and dry goods business on Queen street in this city. He has been longer in the teaching profession than any other teacher in this city, and probably longer than any in New Brunswick. He commenced his teaching in Fredericton and taught in various parts of the Province, including St. John and Charlotte counties. For fourteen years he has been the Principal of St. Dunstan's, and his connection with that school has been a marked success." He was 58 years of age.

IN February Professor MacMechan gave a very interesting lecture on "The influence of young men" before the Halifax Y. M. C. A. in Orpheus Hall. The young man was he whose life and death inspired Tennyson with the thoughts crystallized in his "In Memoriam" — the gospel of the nineteenth century.

IN the course of a lecture recently delivered before the Massachusetts Horticultural Society on the "Geographical Distribution of Plants," by W. F. Ganong, A. M., instructor in botany at Harvard University, he said:

"Man's influence upon the plant kingdom has been far less than it appears at first sight, and it is nearly uniformly unfavorable. The carrying of plants from place to place includes, for the most part, forms cultivated for food or for ornament, and the majority of them, if left to themselves in their new homes, would soon be exterminated, and hence produce no lasting effect upon plant distribution. In fact the cases in which man has produced any considerable effect upon the vegetation or flora of a region are extremely few, and the effect is nearly always destructive. The stumps where once a forest stood speak most forcibly of man's power to destroy."

PHYSICAL GEOGRAPHY.

We hope our readers have carefully studied the excellent paper that appeared in the February REVIEW, by Mr. Manning, on Physical Geography. The writer claims a more excellent way of studying geography than by the methods that are unfortunately too prevalent in our schools; and the clearness and force with which he has presented his views should set every teacher thinking whether his methods of teaching this subject are in accordance with nature and reason; whether they inspire a love in the minds of children for this most fascinating of school studies or create an aversion for it; whether they unfold nature's truths or deal in details fit only for gazeteers or encyclopedias.

We submit this proposition to every intelligent teacher who has calmly studied the matter of how to teach geography: Is not this the subject, above all others, for cultivating the powers of observation in children? And how can this be done better than by referring constantly to the natural scenery in the neighborhood of the school, and by the daily observation of natural phenomena? Every warm day with its attendant evaporation of moisture, every rain storm, or snow storm, the varied forms of frost, either on the stream, the ground, the window pane, the branches of trees in a "silver thaw," the coming out of the frost on a stone or brick building, the sharp reports made by "Jack Frost" on a cold winter night—the varied forms of moisture, as dew, fog, mist, clouds, hail, rain, sleet—all furnish material most valuable as illustrative lessons in geography. We have seen pupils absorbed hour after hour in trying to determine why the surface only of rivers and lakes freezes; why there is an abundant dew on a still, clear night and little or none on a windy or cloudy night; why some forms of moisture have a definite shape and others have not. These and other questions stimulate inquiry; they teach pupils to observe and reason, and they open the doors to other sciences of which physical geography may be regarded as the parent,—to physics, chemistry, geology and botany.

Again, the natural scenery in which every district of these provinces abounds affords ample opportunity to study nearly every physical feature which the earth presents—hill, plane, slope, basin, river, island, etc., so that from the small world of the pupil, if accurately studied and understood, he may be led to reason and generalize about the larger world that he may never see, but still may have a far more correct conception of than he who travels over large portions of it with his eyes shut. The child may be led to see also in his own neighborhood the operation

of those forces, which have helped to mould our earth into its present shape—the action of air, frost, running water—and to see in the manifold changes of the landscape around him the operations of laws which are eternal,—laws which have for ages been gradually shaping the scenery of our earth and giving it here and there those touches of rare beauty which meet our eyes everywhere,—laws which have made life possible on this earth and which continue to govern our existence.

The physical geography that does not lead the student to see beauty and harmony in nature is scarcely worthy the name. The many colored hues of a golden sunset, the varying tints of the distant hills, the ever changing forms of the clouds, the hush that comes at eventide over forest, or river, or lake, appeal to the imagination and sense of beauty. And if one has been led aright in the study of nature he will see design everywhere. There will gradually be unfolded to him the unity and grandeur of this Design; and he will catch a glimpse of some of the wonders of this world and of Him who created it. If these are some of the results that come from the study of physical geography, should it not be pursued with a spirit of earnestness?

THE BOTANICAL EXPLORATION OF NOVA SCOTIA.

A valuable and interesting address on the general botany of the Province was given by Professor Lawson, of the University, to a large audience of botanists at the last regular monthly meeting of the Institute of Science of Nova Scotia in Halifax. He called attention to the cosmic problems which may be solved by an accurate knowledge of the distribution of plants. He divided the land surface into the below mentioned seven areas; and the coast line, for the study of the marine algæ, into eleven sections. He suggests that the botanists of the Province should immediately proceed to make a full and accurate examination of these with a view to publishing complete lists for each area or section. From such data, when obtained, very important conclusions would likely be derived.

We are glad Professor Lawson has undertaken the task of directing the energies of our botanists into definite lines, which promise valuable results. As a botanist he has few peers. As a student he first made a practical acquaintance with European floras. While Professor in Queens University he gave a great impetus to the study of botany in Ontario; and so thorough has his researches in some departments been, that during the lapse of over twenty years very little more could be added to his investigations, as can be seen by reference to his papers in the Canadian

Naturalist and *Geologist* and other publications. He has now been many years in Dalhousie University, and adds to his practical knowledge of the flora of other countries that of our own. No better qualifications for a leader can possibly be found than are united in the person of the genial past president of the Royal Society of Canada. There is now very definite work outlined for the botanists of our Summer School of Science and all others, and especially for local botanists. We shall be glad to report rare finds in the meantime.

We give here the *areas* and *sections* as mentioned; so that with the opening spring our amateur botanists may commence a thorough survey of their respective localities with the view of publishing ultimately lists of the *flora* of each.

AREAS FOR OBSERVATION OF OCCURRENCE OF LAND PLANTS.

AREA

1. Inverness and Victoria Counties.
2. Cape Breton and Richmond Counties.
3. Antigonish and Pictou Counties.
4. Hants, Colchester and Cumberland Counties.
5. Guysborough and Halifax Counties.
6. Yarmouth, Digby, Annapolis and Kings Counties.
7. Lunenburg, Queens and Shelburne Counties.

In recording the occurrence of plants in the several areas, the nature of the *habitat*, or particular place of growth, should be described briefly, as: Sea shore; woods; swamp; lake; stream; rocky places; water falls; hayfields; cultivated field; garden; roadside, etc. The elevation above sea level may be given approximately, as: Between 100 and 200 feet; between 200 and 300 feet, etc. Where mosses, lichens and fungi are found on trees, the species of tree should be stated, if possible. The same with plants growing on bare rocky surfaces (the kind of rock.)

COAST SECTIONS FOR OBSERVATION OF OCCURRENCE OF MARINE ALGÆ

Gulf of St. Lawrence, St. Lawrence and Northumberland Straits.

SECTION

1. From Cape North to Margaree harbor.
2. From Margaree harbor to Strait of Canso.
3. From Strait of Canso to Pictou harbor.
4. From Pictou harbor to Bay Verte.

Atlantic Coast and Bay of Fundy.

5. From Cape North to St. Ann's Bay.
6. From St. Ann's Bay to Louisburg.
7. From Louisburg to Strait of Canso.
8. From Strait of Canso to Halifax harbor.
9. From Halifax Harbor to Barrington Bay.
10. From Barrington Bay to Annapolis Basin.
11. From Annapolis Basin to head of Chignecto Bay.

It is important to notice in recording habitats of sea weeds, whether they are found growing on the beach, in pools or otherwise between tide marks, or have been cast up from deep water.

The Whale's Bone That Budded.

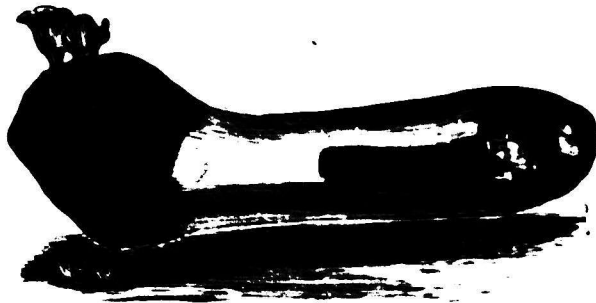


FIG. 1. THE WHALE'S BONE WITH BUDDED FUNGUS.

Fungous plants sometimes choose odd places for a habitat. A certain species is sometimes found on the horns or hoofs of cattle, while another species has been found in the brains of birds. We question, however, whether a more singular habitat has ever been chosen by a fungus than among the "dry bones" of a museum. But during this winter a whale bone in the museum of Acadia College, Wolfville, "budded."

The cut at the head of this article represents the plant and its curious "host." We give an enlarged drawing of the plant which appears to



be one of the *Agaricoid* fungi.

We append below the letter of Prof. Coldwell, the Curator of Acadia College Museum:

ACADIA COLLEGE,

Feb. 27, 1891.

My Friend,

I send you by paper two drawings of a plant that grew this winter in a hole in a whale bone picked up two years ago on the Yarmouth beach. The bone has been in the museum a year and a half and is in a dark, cool place. The plant has no chlorophyll, is hard throughout, white at the stem and on the top and grey underneath. It would seem to be an arctic species from its growing in mid winter. Can you account for its unusual behaviour?

Yours,

A. E. COLDWELL.

A memorial brass, with the following inscription, has been placed in the galilee of Uppingham Chapel. Round the brass is a border of Provencal roses, Mr. Thring's favorite flower.

In grateful remembrance of

EDWARD THRING,

Whose writings animated the art,

And whose life enriched the work of teaching,

A few English and American teachers erected this tablet.

"Honor the work, the work will honor you." E. THURSO.

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 Feb. number.)

[Our readers will of course have noticed the abbreviations and other irregularities of Mr. Perley's manuscript. It must be remembered that the lecture was not intended for the press, but was really a running guide to the lecturer, and does not at all represent its author's style either of writing or speech; in both of which Mr. Perley was both polished and powerful. The present editor in reproducing the manuscript simply follows the only good rule in such cases, and reproduces it *verbatim et literatim*. W. F. G.]

The only cleared spots about the harbour at that time, were at and near Fort Frederick, as you perceive by the map, and the ruins of the French Fort at Portland Point. All the rest of the Harbour, & particularly where the city now stands, wore a most dreary and forbidding aspect. The party found great difficulty in penetrating into the woods in this vicinity, all the trees having been blown down, by a tremendous hurricane which swept over the country, west of the St. John, in 1758.

The general opinion of the party was against taking lands bordering on, or near this Harbour, but in this opinion, Mr. Simonds and Mr. White did not concur. The party next proceeded up the river St. John, noticing as they passed, the devastated settlements of the French, and the blackened fragments of their buildings, which had been mercilessly burned. They particularly examined the remains of the celebrated old Fort of Gimisik which I have so often had occasion to mention.

(I am enabled to state, on good authority that this famous Fort, where so much fighting was done and bravery displayed, stood at the lower entrance of the Jemseg, near the residence of Charles Harrison, Esq., and on property now owned by him. Old swords, copper kettles, hatchets, and a variety of ancient articles, have been frequently ploughed up, and relics are found there to the present day.)

The stumps of apple trees, planted by the French, are yet remaining, and it is well known that those trees bore fruit long after the first settlers took up their residence on the St. John.

At the close of the last lecture, Hon'ble Hugh Johnston, whose property is immediately opposite the site of the old fort, stated to me that his men ploughed up a canon-ball of considerable size in his meadow last summer.)

The party pursued their course up the river from Jemseg, and on the Hill where Burton Court House now stands, they found a french settler, the last and only one who remained. On reaching St. Ann's Point (where Fredericton now stands) they found the margin of the River, along the whole of what is now

the Town plat of Fredericton, cleared for about 10 rods back from the bank, and they saw the ruins of a very considerable settlement. The houses had been burned, and the cultivated land was fast relapsing into a wilderness state. At the mouth of the Nashwaak the remains of a fortress were visible. The solitary Frenchman whom they met, told them that this Fortress, was reported to have been built by a party of settlers from Scotland, long prior to the settlement of the French at St. Ann's. This statement is very likely correct, as the Earl of Stirling sent settlers to this country from Scotland, under Claude de la Tour, who probably built this Fort at Nashwaak* at the time he built the noted Fort of Jemseg, which is fully and clearly established he did under the authority of the Earl of Stirling.

On the arrival of the party at St. Ann's they encamped and commenced a survey. While so engaged, a large party of Indian Chiefs appeared, in their war dresses, with their faces painted in a variety of colors. They were attended by about 500 warriors, and with great solemnity informed the party that they were intruders upon their rights. They said that the country belonged to them and that unless the party desisted from further operations and withdrew, they would be made to do so.

The party promised to comply with the wishes of the Indians, at the same time informing that they had full authority to survey lands on the river. The Chiefs in reply alleged that by a treaty made between them and Governor Lawrence of Nova Scotia, it was stipulated that no English settlement should be made above Grimross.

The party then fell down the river about twelve miles, and then made the survey of a township which they named Maugerville. †

The next year, 1763, a party of settlers arrived from Massachusetts in four vessels. There were about 200 families, in all about 800 souls, under the charge of Israel Perley. They forthwith proceeded to the new Township of Maugerville, where they established themselves, and thus made the first permanent British settlement on the river St. John. ‡

[Here follow several paragraphs on the history of the North Shore, but as their substance is already in

* It is now known that this fort was built by the French in 1692. It was called by them *Fort St. Joseph*. W. F. G.

† How irrelevant a circumstance often changes history. Had the settlers been allowed to make their survey, they would doubtless have settled there, and the site of Fredericton must have been later fixed elsewhere. W. F. G.

‡ The facts in the last three paragraphs are of very great value as fixing the exact dates of the advent of the New Englanders to New Brunswick; the dates are wrongly given in some printed works. Among some papers loaned the present editor by Miss Perley, of Fredericton, great granddaughter of Israel Perley, occurs one tattered old fragment of a Ms., evidently part of a much longer document, which has some additional facts of value. It is undated, but very old, and certainly written by one of the early settlers. The part torn away I have provisionally supplied in italics, and the words in small capitals

print. (in Cooney's History of New Brunswick & the Gaspé, they can be omitted here.)

The settlers on the St. John, at Maugerville, in addition to the many difficulties and privations attendant on establishing new settlements in a remote part of a wilderness country, were for some time also annoyed by threatened attacks from the Indians. But in 1765 an amicable arrangement was entered into, and a good feeling established between them and the white settlers. From that moment the decline of the Indians may be dated, and the swelling tide of civilization, as it rolls its restless course over this favored land, bids fair in a few years to sweep off the last trace of the Red man, leaving only his remembrance in the land which once belonged to him, and which for unnumbered ages he had roamed over in perfect freedom and independence, and in the enjoyment of sovereign power.

On the 30th April, 1765, all the country bordering on the St. John, was erected into a county, called the county of Sunbury in the Province of Nova Scotia.

This year, 1765, was an important one to this Province. Mr. DesBarres surveyed the whole of the

are marked through with a § in the original. It is headed "State of Facts."

In the year 1761 a number of Disbanded Provincial officers and soldiers in New England who had served in several Campaigns during the then present war agreed to form a settlement on the St. John River in Nova Scotia, for which purpose they sent one of their number to Halifax who obtained an order of Survey for 10000 acres of a Township of 10 mile squares in that Part of St. John's River, the whole being then a desolate wilderness. This Township called Maugerville was laid out in the year 1761 or 1762 and a number of Settlers soon began to be encouraged by the King's Proclamation for settling the land in Nova Scotia in which among other things was this clause that People emigrating from the New England Province to Nova Scotia should enjoy the same Privileges as in New England and in the above mentioned order of Survey was the following words viz you shall Reserve 1000 Acres in the Township for Public use, one 1/2 a tract for the Church of England, one for the Dissenting Protestants, one for the maintenance of a School, and for the first Settled minister in Place. These orders were strictly complied with in the year 1763 but in doing so they had in obtaining a Grant of this Township from the government of Nova Scotia on account of an order from home that these Lands should be Reserved for Disbanded forces, the Settlers did in the year 1763 Draw up and forwarded a Petition to the Lords of Trade and Plantations setting forth the services they had done for government in the last war. The encouragement they received for Removing to Nova Scotia at a great expense, the efforts for bringing forward a grant of land and Praying for a grant of land which they had settled.

Here it ends abruptly. The present editor has had called to his attention by his friend Dr. B. Rand, that the fact of these colonists being disbanded soldiers is important, and serves to differentiate this colony from others founded in Nova Scotia about the same time.

A writer in the Magazine of America in February 1786, says these colonists came from Byfield, Ipswich, Rowley, Boxford and Marblehead, and that Israel Perley was from Boxford. W. F. G.

Bay of Fundy for the first time, and an order passed the Council of Nova Scotia directing the Honble. Charles Morris to survey the lands upon the St. John River, and between that river & the southern boundary of the Province. (St. Andrews laid out soon after this.)

On the 29th May, 1765, a writ was issued to the Inhabitants of the St. John River, in the county of Sunbury, directing them to choose a fit person to represent them in General Assembly. The Honble. Charles Morris was the first representative chosen; he served for several years, and then the late James Simonds, Esq. was elected, and he served until Sunbury was erected into a separate Province.

In consequence of the friendly relations established with the Indians, Mr. White in this year built a trading-house at St. Ann's Point, where for many years he traded with the Indians for furs, and supplied them with necessaries. The settlements on the River continued to increase slowly for some years, and a few more persons began to settle about this harbor. Messrs. Jonathan and Daniel Leavitt settled in Carleton about this time; they owned and sailed a small schooner, which they employed in trading and fishing, and that small schooner was then the only vessel owned in this harbor and the solitary keel, which cleft its waters. Think of that, ye merchants, who now send mighty ships to sea, in scores, and remember the time when the navigation of this port of St. John consisted of one small schooner!

(The Messrs. Leavitt became very tired of being the only navigators, and the loneliness of the place became wearisome to them — they said to Mr. White, that they should remove to some other place, where there was a greater population and more to be done. But Mr. White encouraged them to stay, concluding his observations with: "Don't be discouraged, boys, keep up a good heart! Why, ships from England will come here yet!")

In 1768 all the troops at Annapolis, Cumberland, Amherst and this place were removed to Boston, in consequence of some threatened disturbances there.

The annual report of the governors and principal of McGill University, Montreal, for 1890 has been received. The statement of the progress that is being made under the impetus of generous donations, and the increased stimulus to higher education, especially in the direction of applied science, is most encouraging to note. The number of students attending classes at McGill during the past year was 854. Out of 324 students in the arts course, 108 are women.

Astronomical Notes.

THE SKY IN MARCH AND APRIL.

Six months ago these Notes contained a description of the heavens as seen in this latitude at the hour XXI. sidereal time, which was nearly 9 p. m. mean time on September 20th. Three months later XXI. fell at 3 p. m.; and at 9 p. m. the celestial sphere had turned through a quarter revolution, and the sidereal hour was III. A description of the heavens at this hour was given in the REVIEW for December. On March 20th the hour XXI. will fall at 9 a. m., and at that hour — if the sun were got out of the way, and if the sky was clear — we would see the same stars and constellations that we saw at 9 p. m. on September 20th, and we would see them in the same position they were then in. Six hours later, at 3 p. m. on March 20th, it will be III. sidereal time, and the stars above and around us will be those we saw at 9 p. m. on December 20th, and at 7 p. m. on January 20th. At 9 p. m. on March 20th the sidereal hour will be IX.; and it is the business of these present Notes to tell what stars and star-groups may then be seen. A week before March 20th the hour IX. will fall at 9.30 p. m.; a fortnight after March 20th it will fall at 8 p. m. All the hours given here in Arabic numerals are hours of mean or local time.

Begin with the Pleiads. At XXI. they were above the eastern horizon, at III. they were nearly on the meridian and high up, at IX. they are above the western horizon — in a couple of hours more they will be below it. Nearly due west you will find them — that little sparkling cluster of five, six, seven or whatever is the number you can count. Put your opera or field glass on them, and when you have filled your eyes with the beauty of the sight, try how many you can then count. To the left of them is the red Aldebaran, the brightest of another group called the Hyades. The letter V, which the stars of this group form, is seen at its best in its present position — upside up. Use your glass here, too, and you will see some good doubles. Both Pleiades and Hyades belong to the constellation Taurus, the Bull; Aldebaran is Alpha Tauri.

To the left of Aldebaran, and about south-west at present, you will see "great Orion, sloping slowly to the west." Those three second magnitude stars close together and in line — and nearly in line with Aldebaran — form Orion's belt, a name which will explain itself if you look at the painted picture of the giant on a celestial globe. Above the belt is a bright red star, Alpha Orionis; below the belt another very bright one, Rigel — its color you may settle for your-

selves. Run your glass all over Orion and enjoy the fine views, especially about the belt and the row of stars hanging below it.

Then look at the splendid star below and to the left of Orion, in line with the three in the belt. See if you can find its equal anywhere in the whole heavens. And what a beautiful color it has! By the way, what color is it? No, it's not Venus — nor Jupiter either — it's not a planet at all. It is Sirius, the Dog-Star. But it is like the planets Venus and Jupiter in that it can be seen in the daytime if you take some pains to find out the where and the when. With a field-glass it is not at all difficult to pick it out on April afternoons when it is on or near the meridian. Having picked it out and marked its position, you may lay aside the field-glass and try a mere opera-glass on it. And when you know very exactly where to look for it, you may — if your eye is fairly good — enjoy a glimpse of it without the help of a glass of any kind, and in spite of the full blaze of the afternoon sun. But your eye may smart for it for a week after.

Note the distance between Sirius and Alpha Orionis, the red first magnitude star above Orion's belt. About that same distance above Sirius you will find another first magnitude one which is Procyon, the little dog. Its distance from Alpha Orionis is about equal to its distance from Sirius; and so these three grand stars are at the three corners of an equilateral triangle. As high above Procyon as it is above Sirius — but not in the same line — there is another star of the first magnitude. This is Pollux, and the rather smaller one above it is Castor. The two are known as the Twins, and they — with most of the stars between them and Orion — belong to the constellation Gemini.

These are the brightest stars and the most conspicuous groups in the south-west quarter of the sky at IX. Get well acquainted with them, and then, if you want to know the names of the other stars you see there, and of the constellations they belong to, get a star-map and you will easily learn them from it. And do the same thing for each of the other quarters of the sky. Only a few of the principal objects can be mentioned here.

In the north-west quarter, at IX., there are two well-marked groups and one very bright star. The star is Capella; one of the groups forms the letter J, and belongs to the constellation Perseus; the other group can be imagined into a W or a chair, and belongs to the constellation Cassiopeia. This last group is now well round to the north, and not far above the horizon. It was in Cassiopeia that the Star of Bethlehem was to have appeared last year,

according to the newspapers, but the event did not come off. Perseus is a little higher up than Cassiopeia, and between it and the Pleiads. Find the Beta of Perseus from your map, and then pick it out in the sky. It is the wonderful variable star Algol. Capella is the very bright, yellowish star between Perseus and the zenith. If you are not sure of Perseus, run your eye from the Pleiads upward and bear a little to the right and you can't miss Capella. It is brighter than any other star on the west side of the meridian just now, except the Dog-Star. The other stars near it belong, like itself, to the constellation Auriga.

Turn now to the east side of the meridian. There is one brightest star there which you will have no trouble in finding. Its color is reddish, its brilliancy is second only to that of Sirius, its name is Arcturus, it is nearly in line with the two outer stars in the handle of the Dipper, and at IX, it is nearly due east. Within half an hour you will find another exceptionally bright star low down on the north-east horizon. This is Vega. For a couple of hours after it rises we have above our horizon the four brightest stars that we ever see here—Sirius and Capella on the west of the meridian, and Arcturus and Vega on the east. It is only during the spring months that we can see these four at the same time in the evening.

To the left of Arcturus and nearer the horizon lies the curved string of brilliants in the Northern Crown. Lower still and further left is the trapezium in Hercules. Higher than this and still farther north—just over the spot where Vega is trying to rise—is another four-cornered figure in the head of the Dragon. The dimmest of the four is the charming field-glass double, Nu Draconis.

The Dipper and the North Star are known to every one, of course. The Little Dipper is not so easy to make out: at IX, it stretches out to the east of the North Star. Before leaving the Big Dipper look at the middle star in its handle. Its name is Mizar. That little fellow you see close to it is Alcor. A good field-glass will show a third one, nearer to Mizar than Alcor is. A small telescope will show a fourth one very close to Mizar and forming a beautiful double with it. It has lately been discovered by the spectroscope that there is a fifth one still closer than this, so very close that no telescope can show it.

The outermost star in the handle is Benetnash. To the right of it is the star called King Charles's Heart (Cor Caroli). It and Arcturus are at two of the corners of a large diamond-shaped figure. A third corner is at Spica, that first magnitude star down near the south-east horizon. The fourth one is a

second magnitude star at the very tip of the Lion's tail; its name is Denebola. Between Denebola and Cor Caroli is Berenice's Hair, a good object for an opera-glass. South from Spica, four stars in the Crow form a quadrilateral. South from this a less conspicuous quadrilateral may be seen in the Cup. Very nearly due south there is a lone star between 30° and 40° above the horizon. It is Cor Hydrae. Above this is one of the smallest first magnitude stars Regulus. It and five or six of the stars above it form the Sickle, a figure easier to make out now than it was last year when Saturn was strolling about in its neighborhood. Saturn is not very far off yet. He is that bright, yellowish object to the east of the Sickle, which has not been mentioned among the stars and which you will not find on your star-map.

Saturn is a planet, and there is no room here for planets this month. But just note this one fact. The first half of April will be the best time this year to see Mercury as evening star. Look for a white, twinkling spot in the west from half an hour to an hour and a half after sun-set.

A. CAMERON.

Year 1888, S. 1, 1888

THE WOODS IN MARCH.

The woods are still sleeping
But grass is a peeping
Out from under the snow;
The swallows are coming,
The bees are a humming,
The sap has begun to flow.

The buds that were hidden
In brown coats are bidden
To break and let the world know
The Ice-King is quaking
And Springtime is breaking,
For sap has begun to flow.

The Kindergarten.

MARCH.

Light-footed March, wild maid of Spring,
Your frolic footsteps hither stray,
Smiles blent with tears will April bring—
Tis April's sentimental way—
But your wild winds with laughter ring,
While young and old your will obey:
A moment here, then on the wing,
Coquettish March, what games you play!

I know a maid as blithe as you—
Child of the Ice-King and the Sun—
At her fair feet fond lovers woo,
She flouts and jeers them, every one.
And then she smiles—once more they sue.
Then blows she cold—they are undone:
Oh March, could you or she be true,
Then all were naught, so you were won.

—*Louise Chandler Moulton.*

Euclid. Book II.

I.

Continued.

PROP. 6.

The rectangle contained by the unequal segments of a line when cut externally, with the square on the half line, are together equal to the square on the mean distance of the point of section.

$$\begin{array}{c} a \quad | \quad a \quad | \quad x-a \\ \hline \quad \quad \quad x \end{array} \quad (a+x)(x-a)+a^2=x^2.$$

Proof—

$$\begin{aligned} (a+x)(x-a)+a^2 &= (a+x)x-(a+x)a+a^2. \quad (\text{II. 1.}) \\ &= ax+x^2-a^2-ax+a^2. \quad (\text{II. 3.}) \\ &= x^2. \quad (\text{ax. 3.}) \end{aligned}$$

Q. E. D.

PROPOSITIONS 6 AND 7 GENERALIZED.

If a line be cut in any point within or beyond its extremities, the rectangle contained by these two segments is equal to the difference between the squares on the mean distance of the point of section and on the half of the line.

PROP. 7.

$$\begin{array}{c} a-b \quad | \quad b \\ \hline a \end{array} \quad a^2+b^2=2ab+(a-b)^2.$$

Proof—

$$\begin{aligned} a^2+b^2 &= (a-b)^2+2b(a-b)+b^2+b^2. \quad (\text{Euc. II. 4.}) \\ &= (a-b)^2+2ab-2b^2+b^2+b^2. \quad (\text{Euc. II. 1.}) \\ &= (a-b)^2+2ab. \quad (\text{Axiom.}) \end{aligned}$$

Q. E. D.

Cor. ∴ $a^2+b^2-ab=(a-b)^2$ (axiom — from the two equals take away 2 ab.)

PROP. 8.

$$\begin{array}{c} a-b \quad | \quad | \quad b \\ \hline a \quad | \quad b \end{array} \quad (a+b)^2=4ab+(a-b)^2.$$

Proof—

$$\begin{aligned} (a+b)^2 &= a^2+b^2+2ab. \quad (\text{Euc. II. 4.}) \\ &= (a-b)^2+2ab+2ab. \quad (\text{Euc. II. 7.}) \\ &= (a-b)^2+4ab. \quad (\text{Axiom.}) \end{aligned}$$

Q. E. D.

PROP. 9.

$$\begin{array}{c} a \quad | \quad x \quad | \quad a-x \\ \hline \quad \quad \quad a \end{array} \quad (a+x)^2+(a-x)^2=2a^2+2x^2.$$

Proof—

$$\begin{aligned} (a+x)^2 &= a^2+x^2+2ax. \quad (\text{Euc. II. 4.}) \\ \text{and } (a-x)^2 &= a^2+x^2-2ax. \quad (\text{Euc. II. 7, Cor.}) \\ \therefore (a+x)^2+(a-x)^2 &= 2a^2+2x^2. \quad (\text{Axiom 2 — if equals be added to equals, etc.}) \end{aligned}$$

Q. E. D.

PROP. 10.

$$\begin{array}{c} a \quad | \quad a \quad | \quad x \\ \hline \quad \quad \quad x \end{array} \quad (a+x)^2+(x-a)^2=2a^2+2x^2.$$

Proof as in Prop. 9.

PROPOSITIONS 9 AND 10 GENERALIZED.

If a line be cut in any point within or beyond its extremities, the squares on these two segments are together equal to twice the squares on the mean distance of the point of section and on the half of the line.

FOR THE REVIEW.

Kindergarten Methods in Primary Schools.

SIXTH PAPER.

The fourth gift, like the third, is a divided cube, but its sub-divisions are blocks, whose sides are oblongs instead of squares. These blocks or bricks are two inches long, one inch wide, and half an inch thick.

Like the third, this gift is introduced as a whole cube, but here, in the parts, there is something new to be learned, and, as in all Fröbel's gifts, varieties of forms are made of life, of knowledge and of beauty.

There is a strong resemblance to the third, yet there are important differences, and then not only in the parts but in the application.

In the first exercise the third and fourth gifts are shown together for comparison and contrast. After the comparison of the whole cube it is observed that the square faces of the third are alike, but the oblongs of the fourth are not alike. The bricks will rest in three positions, standing, sitting and lying. The cubes will only stand.

Children prefer the fourth gift to the third, which shows that it assists in the progress of development.

With the eight bricks we can teach number lessons in the four rules just as we did with the cubes of the third gift. We might play that the bricks were soldiers—eight soldiers all standing in one row, then arrange them so that they will stand two in a row, etc. Still further, eight soldiers on the battlefield and one was killed. How many remained, etc.

In a language lesson given with the aid of these bricks, one day we played that the bricks were dolls and that they were ill in bed. The bricks were then laid down on their wide faces. Each little girl gave the name of the disease with which her dollies were afflicted, as "My doll has the measles." The dolls were all lying down at this period, and shortly they became so much better that they were allowed to sit up. The bricks were then made to sit upon their long, narrow faces. In due time they were so well that they were allowed to stand, and then the bricks stood on their little faces. In this imaginative lesson the children expressed their ideas beautifully, because they were perfectly at home with the word *dolls* and they learned to use the words *lying*, *sitting* and *standing* in their proper places in reference to the

bricks without any effort. After this lesson, indicating any form they would know just what faces were meant to stand, or touch, etc.

For building purposes and invention the third and fourth gifts may be used together and many pretty forms made.

The fifth gift is a large cube made up of twenty-seven small cubes, each cube the same as the one-inch cube of the third gift, and some of these small cubes are divided into halves and quarters. We introduce fractions when we divide the whole cube, either the third or fourth gift into halves, quarters and eighths, but in this fifth gift we may go further.

The sixth gift is a large cube also and is made up of oblongs like those of the fourth gift. Some of the oblongs are divided lengthwise and crosswise.

All these building gifts provide the child with work for his creative powers. "Children can be encouraged by this additional material to work together, and here comes in a very necessary development. The child learns lessons of control and respect for other's opinions and rights."

St. John, N. B.

For the REVIEW

"English as She is Writ."

SIR: A reserve man steals two coats, is, therefore, imprisoned for two months for which time his pay is docked. He protests and explains. Here follows the explanation, from one of those who, according to statistics, read and "write," and who inherit free spelling—can Chaucer be more free than "hour" and hower "Rigmint" and "Ridgment," "Chesser," "cheshour" and "Cheshur?"—and who wander in the marvellous ins and outs of the English *H*.

Yours truly, W. F. S.

Stratham, London, Eng.

22 May 1890 Sir I went to Aulker [Altcar] camp wair my Ridgment Hedquarters campt At Aucker And I went too see my fellow comrads And I had been drinking with them And sum of cheshour melitia joind hower company in (t) drinking in hour Capteen And wee got mised hup togethur in thair canteen togethur And that All As far As I Rember But howsumever I-dont know howsumever I dont know how I got in Posetion of too Ridgmental top Coats one top Coat And Cape Belong too A oficer of the second Cheshur Rigmint And the other Belong to A oficer of the Chesser meliteah And How it curd I canot tell Howsumever I came to have them in my Posetion wich I Ham sorey to say that I got too months in Prisenment Sir this is my Indentory Proper Nombor As I send you [Here a number is given] wich is I send you is on My Life sisftat sir if I have Eny money to come I would Bee thankful to you to send to Mee As sune As you can sir No More at Present.

For the REVIEW

Thanks.

I beg to thank Dr. Hall very cordially for his sympathy "for more light" on language teaching, so kindly expressed in the January REVIEW. It (the light) has revealed to me the encouraging fact that my plan is not, after all, so different from his as I had supposed.

LADY TEACHER.

Northumberland, N. B.

For the REVIEW

An Appeal.

Teachers of District No. 102.

I wish to appeal to the sympathies of you and your pupils on behalf of the orphan children of Springhill. The late terrible disaster there has elicited generous help from our people, and I would like to see children, as well as parents, educated in almsgiving. To this end let us establish a fund, to be known as the "Children's Relief Fund," to which every school in Cumberland and North Colechester will be asked to subscribe.

This plan will give many people in country districts a chance, not otherwise afforded, of assisting their suffering fellow citizens; and I trust they will do so by aiding this fund. I am sure, also, that all ratepayers will uphold their trustees in giving any small sum that can be spared out of the school funds. All amounts forwarded to me will be acknowledged through the REVIEW, together with the names of teacher and section, and promptly paid over to Springhill. Teachers and children, in the name of our common brotherhood, and by the authority of the golden rule, I make this appeal to you. What school will be the first to send its donation to the "Children's Relief Fund?"

Yours sincerely,

E. J. LAY.

Andover, N. S., March 6, 1890.

Now THE teachers of Philadelphia have undertaken to raise a fund for the pensioning of teachers. The association is open to all teachers, and those who withdraw after five years will receive back one-third of the dues paid in. The annual dues are 2 per cent. on salaries up to \$1,000, and 1 per cent. on each \$100 above \$1,000, the maximum dues not to exceed \$40 a year. The annuity of retired members is to be 60 per cent. of the salary at time of retirement, but no annuity is to exceed \$600. Already 1,100 teachers have joined, contributing a fund of \$17,000. —*School Bulletin*.

Compensations.

In a recent article in an educational paper, the experience of a certain teacher was given with a candor that could not fail to interest. This person confessed that the dreams which sweetened the beginning of the way, did not attend the path throughout; that enthusiasm faded, and inspiration failed.

Had the writer stopped there in her confession, her word might have had no special significance for us. But she goes on to relate that a reaction came; that from the ashes of the youthful glamor, arose a serene and steady brightness, which sanctified her work, and enabled her to do it in faith and patience.

There are few exceptions in life. We are faithful duplicates of one another, in our tendencies at least. Hence the interest with which we take this bit of history, and recognizing how it runs parallel to many another life, dwell on the thoughts it suggests.

James Martineau has pointed out the fact that not only do the tides of the spirit ebb and flow—a fact painfully familiar to most of us—but that they do so in obedience to a universal law; which takes the fact out of the region of individual experience, into the common lot of humanity, even into the deep mysteries of Nature itself. It is a comforting thought. If we can hold fast to it in our next season of discouragement, it may save us from the sting of remorse, and spare us the shame of feeling that we are recreant to our calling. We have only to wait patiently until the great wave comes again, covering the unsightly drift with its calm depths.

In the reflux of inspiration, the compensations of our calling, sometimes faint and unreal, grow distinct. It is one of the necessary trials that much of our finest work is quite unknown, unsuspected by us; but in the inspired moments the contemplation of the mere possibility gives strength and courage. What matter if no certain sign comes? If we work lovingly, some souls may be the richer; and though the shy child-nature looks it gratitude in unresponsive silence, we may trust unerringly that some day the sowing will bear fruit. We cannot know what a passion of loving reverence kindness may awaken, nor what may be the influence of a sympathetic touch upon young lives.

It moved me to see, not long ago, the affection shown by a young man for his dead teacher. Although not a person of extraordinary gifts, this teacher had the power of awakening in his pupils an affection and loyalty I have never seen surpassed. The moist eyes and faltering voice of the young man, the affection and gratitude which he expressed, made an impression I shall not soon forget.

Whatever of manliness and womanliness we put into our profession is doing its work. Its quickening power is spreading from the child to the family, to the nation that it to be. By the purity of our ideals and our faithful consecration to them, we may raise the standard of national integrity. And no less than this the state demands of us.

These ringing words from Sartor Resartus have thrilled many a teacher:

“Of this thing, however, be certain: wouldst thou plant for eternity, then plant into the deep infinite faculties of man, his Fantasy and Heart; wouldst thou plant for Year and Day, than plant into his shallow superficial faculties, his self-love and arithmetical understanding, what will grow there.”

The highest rewards of our calling are not its pecuniary gains, be they large or small; not even the welcome words, “well done,” though they are sweet. They are found in its constant opportunities for exerting ennobling influence and giving happiness; than which life has no greater privilege, no truer blessedness.—*Common School Education*.

Good Things.

Ride no hobbies;

Do not *hire* your pupils to be studious and to obey you.

Keep whispering, leaving seats, etc., down to the minimum.

Be constantly on the alert, but beware of being over suspicious, or seemingly so.

Never lose your patience when parents unreasonably interfere with your plans.

Give dull pupils time to answer your questions. Do not flurry them by trying to hurry.

Make a few rules, and let such as you make be as general as possible, and the outgrowth of necessity.

Never command a pupil to do a favor for you, but frequently give pupils the pleasure of obliging you.

Have your school so well disciplined that you can put your strongest efforts into class work without interruption.

Do not antagonize your pupils when it can be avoided. Make them feel that you have their best interests in view in all you do.

Use a simple system of signals for calling and dismissing classes, and be careful to have pupils pass out and in quietly at intermissions.

Be not timid; know your rights and your privileges as a teacher, and maintain them, but not in a spirit that will arouse unnecessary ill feeling.

Avoid making excuses to visitors for the defects of your school. A poor housekeeper is always explain-

ing why you do not find her house in order; so with the poor teacher.

Read not only educational journals and books, but read what the world is doing, and be prepared to talk intelligently on living topics. If you are alive, let the world know it.

In cold weather see to it that no window panes are out, and that the stove is in good working order — and, in short, that the house is comfortable, cheerful, clean and properly ventilated.

Remember the chief aim of the public schools is to make of the rising generation intelligent, honest, self-reliant, law-abiding citizens — men and women of high purposes and sterling worth.

Do not permit slipshod work in any direction. Make your pupils feel that to fail in a recitation is a serious matter, and not to be passed over as of little or no importance. Failures in school duties are, as a rule, the beginning of failures in life.

Make every recitations *tell* in some direction. Have a definite object in view, and attain it — don't fire at random, or scatter your instructions over the entire universe in one recitation. I once saw a teacher commence with punctuation marks and end with the nebular hypothesis.

Try to work yourself and your school up to a white heat of interest and enthusiasm. If you can bring yourself to feel that you would like to put in about ten hours a day with your school for the remainder of your life, then you are accomplishing something; but beware, under such circumstances, of doing too much of your pupils' work for them. Our teachers lack life, vigor, enthusiasm. "As is the teacher, so is the school." — *C. P. Carey, in Western School Journal.*

Etiquette for Children — In Ten Rules.

1. Always say Yes sir. Yes, papa. No, papa. Thank you. No, thank you. Good night. Good morning. Never say How, or Which, nor What. Use no slang terms. Remember that good spelling, reading, writing and grammar are the base of all true education.

2. Clean faces, clothes, clean shoes and clean finger nails indicate good breeding. Never leave your clothes about the room. Have a place for everything, and everything in its place.

3. Rap before entering a room, and never leave it with your back to the company. Never enter a private room or public place with your cap on.

4. Always offer your seat to a lady or old gentleman. Let your companions enter the carriage or room first.

5. At the table eat with your fork; sit up straight; never use your toothpick (although the Europeans do), and when leaving ask to be excused.

6. Never put your feet on cushions, chairs or table.

7. Never overlook any one while reading or writing, nor talk or read aloud while others are reading. When conversing listen attentively, and do not interrupt or reply till the other is finished.

8. Never talk or whisper at church, or public places, and especially in a private room where any one is singing or playing the piano.

9. Loud coughing, hawking, yawning, sneezing and blowing are ill-mannered. In every case cover your mouth with your handkerchief (*which never remains, nothing is more vulgar, except spitting on the floor.*)

10. Treat all with respect, especially the poor. Be careful to injure no one's feelings by unkind remarks. Never tell tales, make faces, call names, ridicule the lame, mimic the unfortunate, or be cruel to insects, birds or animals. — *National Educator.*

Education in Finland.

Education is the panacea to which the Finnish Diet invariably has recourse against all the evils that afflict the land, and in this case technical education was the form in which it was prescribed. So rapidly was the remedy applied that Finland, whose population is smaller than that of many a Russian government and less dense than European Russia, actually possesses more agricultural schools than European and Asiatic Russia combined; and agricultural schools constitute but one of the numerous categories of technical schools opened since 1863. There are thus sixteen agricultural schools, one of which belongs to the highest type of educational establishments, what in Russia is termed an academy, and eighteen dairy-farming schools, of which one bears the same relation to the other seventeen that a university bears to a grammar school. Among the other special educational establishments, the object of which is to enable the people to turn the meagre gifts of nature to the best account, one should not forget the school of Forestry with a very efficient staff of teachers, the Institute of Forestry, which receives the pupils who have passed through the school, the Grooms' School, in which those who intend to devote themselves to improving the breed of horses receive theoretical and practical instruction in all matters bearing upon this calling; the cattle-breeders' school, two schools of horticulture and two farmers' schools. — *Fortnightly Review.*

The Fifteen Minutes Before School.

How to secure the best discipline during that "bad quarter of an hour" before the session, when one is perhaps obliged to stand, Janus-like, 'twixt school-room and dressing-room, is a problem with many teachers. Many and ingenious are the devices employed by the skilful teacher to catch and hold the attention, and to direct, even for so short a time, to some useful end the energy which is otherwise inactive or expended in disorder. To accomplish this, these devices must be both varied and interesting, and should demand just a little less than can be done in the given time, leaving a margin of two or three minutes for the teacher to give or write what is asked for, for slates to be quickly exchanged and corrected, or for papers or books to be collected. In some schools this has been so clearly managed as to bring fully four-fifths of the class into their seats ten minutes before the hour, thus lessening the chances of tardiness, while its advantages in discipline and training the attention are evident.

It is well to vary the programme every day or two, as the secret lies in withdrawing the exercise just before the interest begin to flag. This means work for the teacher, who will find it pays, however, in the end. Below are given some things used in the first and second year programme grade of a Boston school:

I. A reading-table supplied with the *Youth's Companion*, *St. Nicholas*, *Wide Awake*, etc.

II. A set of sixty cards, each containing a problem in written arithmetic. Each pupil takes with the card a pencil and a slip of paper. The name, number of card and solution of problem are written and all cards are collected two minutes before the hour. As each card contains a different problem, there is no chance for dishonesty. The names of pupils perfect should be written on the board the next day.

III. Four or six lines of a poem, or a short selection written on the board, to be committed to memory.

IV. One or more riddles to be guessed, each successful guesser to furnish a riddle for the next time.

V. Taking words to pieces to make other words. (For instance, make twelve words from "satisfactory.") Of this there are endless varieties.

VI. Maps to be traced from the geographies.

VII. Five questions in geography written on the board. Pupils write answers or give them orally.

VIII. A skeleton story written on the board. Pupils read silently, fill in blanks and one pupil finally reads.

IX. Ten or more questions in combinations of numbers to be copied from the board and answers written.

X. (1) Directions for drawing a certain figure written upon the board. Pupils draw, or

(2) Figure drawn on the board, and pupils copy.

For higher grades there should be supplementary histories, geographies and books of poetry and travel, together with map-drawing or design at the board.

Each teacher must select and adapt to her own need the material for these exercises, the object of which is not merely to keep the pupil busy, but to stimulate his thought and awaken his intelligence.

— *Common School Education*.

The World's Greatest Cataract.

The interior of Labrador undoubtedly is the largest unexplored area on this continent. Up the Grand River, which empties into the Atlantic Ocean at Hamilton inlet, are the Grand Falls, which, if everything is true about them that is reported, are the most stupendous falls in the world. They are only about 160 miles up the river, but only two white men have ever seen them. Mr. R. F. Holme, three years ago, went from England to visit the Grand Falls. He organized a little party to accompany him inland, and arrived within about fifty miles of the falls, when he was compelled to return on account of the failure of his provisions. The Labrador Indians say these falls are haunted, and they carefully avoid them, believing that they will die if they look upon them. The two white men who have seen them are Mr. Maclean, who, as he was ascending the river, in 1839, was stopped by the falls, and Mr. Kennedy, who over thirty years ago had charge of Hudson Bay post in Labrador. Mr. Holmes says the height of the falls is not certainly known, but, in some respects, there is little doubt they are the greatest in the world. Though inner Labrador is so inadequately known, we are aware that it is a vast tableland whose limits are quite clearly defined. In the southeast the descent from the tableland is quite sudden, and almost immediately after leaving the plateau a level is reached that is very little above that of the sea. The Grand Falls are the place where the Grand River tumbles over the edge of this tableland, and almost the whole of the great top is effected in this one descent. Professor Hind gives the height of this plateau as 2,240 feet. It has been estimated that the region at the foot of the falls is only 200 feet above sea level, and that, therefore, the waters of Grand River have a perpendicular descent of about 2,000 feet. — *Goldthwaite's Geographical Magazine*.

A Case of Discipline

One afternoon two bright boys in my grade, D primary, did not come in from recess. Upon inquiry I learned that they had gone home. The next morning they came to school one with a note from his mother asking that he be excused for leaving school the day before, explaining that they went too far away from the building and could not get back in time, so they went directly home. The other boy had no excuse. I detained them at recess, and we had a talk as follows:

"Where did you go yesterday afternoon at recess?"

"To the common for a race."

"Did you hear the bell?"

"Yes, ma'am; but we could not get here in time, and did not want to be tardy."

"Where did you go then?"

"We went home."

"You know the rule about leaving the grounds, and that the school has laws which we all are bound to obey, just as we obey the laws of our country, do you not?"

"Yes, ma'am."

"What is done to those who break the laws of the country where they live?"

"They are put in jail."

"Have to go to prison, or be hung."

"Well, if you were a teacher, what should you do with boys who did what you have done?"

"Punish them."

"How would you punish so as to help them remember not to do wrong again? Think awhile and tell me."

After a few minutes of whispered consultation and nodding of heads, two little hands were raised.

"What have you thought of for a punishment?"

"You might keep us in at recess for a week."

I accepted their decision and let them try it. They submitted manfully to the privation, kept at work with great diligence, not once making a move to go out with the rest, although it was fine spring weather and the days were beautiful.

The third afternoon I thought they were entitled to a reprieve, so I explained to them that law-breakers sometimes were pardoned if they behaved well and showed themselves inclined to do right in the future; that although they had done wrong and deserved to be punished, they went directly home and told the truth about it. I hoped they would not forget if I let them off with a shorter term than a week.

Happier, or more obedient boys than they were for the remainder of the year you would not wish for.

These boys were not quite seven years old.—*School Journal*.

Male Teachers.

To many persons it will doubtless be a surprise to learn how few men are engaged in teaching the Public Schools of Philadelphia. The teachers now in the service number, all told, ninety-three men and two thousand five hundred and fourteen women. Of the men, thirty-five are engaged in the High School, the Manual Training School and the Normal School. Fourteen are Supervising Principals. This leaves but forty-four men as teachers for all schools other than those mentioned. In several school sections, there is not a man engaged in teaching in any of the schools. This state of affairs did not always exist here, and it is peculiar to this city. In my judgment, it should not continue longer than is absolutely unavoidable. Women will always largely preponderate in numbers in our teaching force, and rightly so. In the primary, and mainly in the secondary grade, as well as in grammar schools for girls, women's work is appropriate and indispensable. We cannot, however, close our eyes to the fact that the teaching force in our grammar schools for boys should be greatly strengthened, inasmuch as calls for better results are becoming urgent. The women themselves who teach in these schools complain that it is a more difficult and burdensome task to teach the larger boys than to teach girls of the same grade of attainment; and they urge that fact as a plea for increased pay for assistant teachers in boys' grammar schools. No single instance has yet come to my knowledge wherein a teacher in a girls' school of any grade has expressed a desire to be transferred to a boys' school of the same grade; but the contrary is of frequent occurrence. It is the character and work of the teacher that impart real power and value to any school; and I take the position that to deprive a girl of the benefit of such influences as are derived only from contact with a refined and cultivated woman during her school life, and to confide her education entirely to men would be to commit a serious blunder. In like manner, I hold that to deprive a boy during the educational period of the advantages which he would receive in the development of mind and character from daily association a sturdy, manly man, is no less a grave mistake. A boy who has received his later school training under a man will go forth, other things being equal, to the duties of citizenship more manly, and with a better equipment for his work in the world than one whose school training has been left entirely to women.—*Annual Report of Superintendent MacAlister for 1890.*

ONE of Dr. Arnold's pupils said: "To me his lectures were like the opening of the heavens. I felt that I had a soul. His noble views, unfolded in glorious sentences, elevated me into a higher world, they changed my whole nature."

IN the recesses of your being earnestly ask yourself these questions: How many good books have I read since I began to teach in this school? How many boys and girls are perceptibly better physically, intellectually and morally because of my teaching and influence? How many evenings during the term have I devoted to study, how many to fantastic frivolity, empty gossip, or unseemly revelry? How many recitations have I conducted listlessly, mechanically, monotonously, impatiently? How much time have I given to preparation for lessons? How many times have I punished or revoked in anger? How oft has the sun gone down on my wrath? How many times have I used slang in the school-room? Looking back over my work do I truly think that it can be said of me now or hereafter, "Well done, good and faithful servant?"

THE Prussian Ministry of Education has just admonished the school teachers in the rural districts under its supervision that numerous steps must be taken at once to preserve the health of the scholars. "Among the immediate and inexpensive measures," says the circular letter, "are the exact adaptation of the back of the school bench to the shape of the pupil's back, general cleanliness, add especially the prevention of dust, which, as all doctors know, is the medium of bacilli, and thus the cause of almost all skin and eye diseases among school children. Regard for the health of the eyes must dictate also the earliest possible abolition of slates. If no substitute can be found the use of slates must be confined at least to the first two years in the primary classes. The children must be so accustomed to the pen in these two years that all exercises from the beginning of the third year can be executed with pen, ink and paper. Slates are so injurious to the eye that they should be used only in cases of absolute necessity."

THE important thing is not so much that every child should be taught, as that every child should be given the wish to learn. What does it matter if the pupil knows a little more or a little less? A boy who leaves school knowing much, but hating his lessons, will soon have forgotten all he almost ever learnt, while another who had acquired a thirst for knowledge, even if he had learnt little, would soon teach himself more than the first ever knew. Children are by nature eager for information. They are always putting questions. This ought to be encouraged. In fact we may, to a great extent, trust to their instincts, and in that case they will do much to educate themselves. Too often, however, the acquirement of knowledge is placed before them in a form so irksome

and fatiguing that all desire for information is choked or even crushed out, so that our schools, in fact, become places for the discouragement of learning, and thus produce a different effect from that at which we aim. In short, children should be trained to observe and think, for in that way there would be opened out to them a source of the purest enjoyment for leisure hours, and the wisest judgment in the work of life.—*Sir John Lubbock.*

QUESTION DEPARTMENT.

A very simple question, asked by a little girl, has proved to be anything but simple in its solution. The question is as follows: Why is the rainbow arched rather than any other shape?

One has a hazy idea that the form is caused by the light striking the falling rain-drops; but to get a complete and yet a simple answer to the question has not been easy. Will you kindly give the solution needed in your valuable educational organ and oblige a group of enquirers, whose scientific knowledge is not the most profound. E. F.

The question is as to the form of the rainbow. This form is that of a bow—an arch—an arc—a part of the circumference of a circle. The higher the sun is, the smaller is the arc. If the sun is in the horizon, we see a whole semi-circle. If, at such a time, we were to measure the rainbow with a sextant we should find that its highest part was about 40° above the horizon, and that the part of the horizon spanned by the bow was a little over 80° . This rainbow, then, is half of the circumference of a circle whose radius is 40° . And the centre of the circle will be found to be that point in the sky directly opposite to where the sun is. Let us call this point the anti-sun. If the sun is above the horizon, the anti-sun will be below it, and the rainbow will be less than a semi-circle, but it will be found on measurement to be still an arc of a circle whose radius is 40° , and whose centre is in the anti-sun. If the sun is higher than 40° there will be no rainbow at all—at least no "primary" bow, which is the one considered here.

These are the chief facts as to the form. Why are these observed facts what they are?

The "hazy idea" is correct. To clear away the haze, take paper and pencil, and sit down and calculate the course of all the sun-rays which fall on one rain-drop. You will find that most of them leave the drop in lines that diverge from each other, "and through this divergence become so enfeebled as to be practically lost to the eye." But "at one particular angle the rays emerge from the drop almost parallel to each other, being thus enabled to preserve their intensity through long atmospheric distances." (Tyndall.) This angle is a little more than 40° , and these rays from this one rain-drop enter a spectator's

eye and make him see a little bit of a rainbow at a spot on the sky 40° distant from the anti-sun. What is done by this one drop for this spectator will be done for him also by every other drop which is so situated that the angle at the drop, contained between straight lines drawn from it to the sun and to his eye is an angle of 40° . The rays sent to his eye by every such drop will make him see a little bit of a rainbow. And every such little bit will be at the same distance of 40° from the anti-sun, that is, they will be spots on the circumference of a circle having the anti-sun for centre. And if the drops are close together, these spots or patches will be close together also and will form a continuous arc or arch or bow. C.

L. G. P. McL.—Please give an account of Foucault's experiment with the pendulum to prove the earth's rotation.

Ans.—Foucault observed that a pendulum vibrating in a given plane offered resistance to a change of the plane. A wheel in rapid rotation, as in the gyroscope, also offered resistance to a change of its plane. A disk or a hoop, or a wheel will remain erect (in a vertical plane) so long as it is spinning along with sufficient velocity. But when the velocity becomes small they incline to one side or the other, and eventually fall. Therefore, he concluded, any body in motion in a plane will keep moving in the same plane unless some force is exerted to change its plane of motion. If a large domed building, then, should be built exactly over the North Pole of the earth; and from the apex of the dome a long pendulum should be suspended on a frictionless pivot allowing rotation which would keep vibrating for, say twenty-four hours, he thought that should the pendulum be started vibrating in the plane of the constellations Hercules and Auriga, for instance, it would swing during the whole day in the direction of the same stars, while the world with the building would turn around it. If the domed building were circular the pendulum bob would, therefore, appear to change its plane of vibration with respect to the walls of the room fifteen degrees every hour, or 360° in twenty-four hours. But he could not get his building over the north pole. And in Paris his building would not turn round horizontally 360° in every twenty-four hours. And if he went to the equator it would, from its position on the earth, not turn around horizontally at all during a revolution of the earth. From trigonometrical calculation he found that at the pole his pendulum should make an apparent circuit of $360^\circ \times 1$ in 24 hours; at the equator, $360^\circ \times 0$; at intermediate, $360^\circ \times \text{sine of latitude}$. The sine of $90^\circ = 1$; of $0^\circ = 0$, etc. Then he said: If I suspend such a pendulum from as lofty

height as I can in Paris, and let it vibrate from one side of the room to the other, so that a pointer from the base of the bob will just make a mark on the crest of a neat circular ridge of sand, I will expect to see the ridge of sand scored by the changing plane of the vibrating in twenty-four hours to the extent of $360^\circ \times$ by the sine of the latitude of Paris; or in one hour, $15^\circ \times$ sine latitude of Paris. And it happened as he expected. We understand the experiment has been tried in Nova Scotia with good results. In one hour at the pole the theoretical deflection of the plane of vibration should be 15° . In the Atlantic Provinces, latitude 45° , it should be $15^\circ \times \text{sine } 45^\circ = 15^\circ \times .707 = 10^\circ .6$. The Eiffel tower in Paris is now utilized to suspend a large pendulum to illustrate this law.

F. L. D. Please answer the following questions: 1. What is the best book on zoology for beginners? 2. Parse the following: "There is a foe there." 3. In Grade V of the course of instruction the peculiar structure of the stomach of the cow, horse, dog, etc., is to be taught orally. If a teacher has not studied it, from what books will he derive information?

1. The "Guides to Science Teaching," published by D. C. Heath & Co., Boston, are excellent for the beginner in Natural Science. Packard's Zoology is an excellent work. 2. "There" is a preparatory adverb, *preparing* the way for the subject, which thus may come after the verb. The second "there" is, of course, the true adverb of place. 3. Any good work on Zoology will furnish the information. The small manual that accompanies Prang's charts will give the desired information in a small space.

FELSHELL.—Please explain the working of the 8th question, 101st page, 63rd exercise, Sangster's arithmetic, second edition, and confer a favor on yours truly.

$\frac{2}{3}$ of the longer = $\frac{1}{4}$ of the shorter; therefore $\frac{1}{3}$ of the longer = $\frac{1}{4}$ of $\frac{1}{2}$ of the shorter. Hence the longer = $\frac{2}{3} \times \frac{1}{2}$ of the shorter. The whole tree = longer + shorter = $\frac{2}{3} + \frac{1}{2}$ of shorter = $\frac{7}{6}$ of the shorter. If $136 \text{ ft.} = \frac{7}{6}$ of the shorter, $\frac{1}{6}$ of $136 = 8 = \frac{1}{6}$ of shorter. Hence shorter = $8 \times 8 = 64 \text{ ft.}$; and longer = $136 - 64 = 72 \text{ ft.}$

1. Tom. What territories of the U. S. have become states within the last five years? 2. What qualifications are necessary in order for them to become such? 3. "Nashville, Jan. 25th. During a snow-storm here yesterday countless numbers of small fish fell. They were small and resemble carp." In that despatch how do you account for those fish falling?

1. Montana, Washington, North Dakota, South Dakota—all admitted to the union in 1889. 2. They are made states by special act of Congress. 3. The snow storm was all right, no doubt; but as for the fish, dear Tom, we are afraid you will have to add that to the long list of "fish" stories.

AMONG THE SCHOOLS.

The new St. Mary's school building in Halifax is in a charming position, in front of a fine tree-shaded park. The appointments of the building are superior, showing the latest improvements. At the commissioner's examination, the esthetic appearance of some of the rooms was especially deserving of praise, as well as the general efficiency of the pupils.

The University of Dalhousie is contemplating, we understand, still further extension of its work.

From the *Sydney Academy Record*, now in its third volume, we find that this Academic institution is second to none in its efforts to do good work, and in the enthusiastic loyalty of its students. All the elements for a good record there.

R. J. MacDonald, B. A. (Dal.), late principal of Baddeck Academy, is editor of the Medical College department of the *Dalhousie Gazette* this winter.

BOOK REVIEWS.

BELLUM HELVETIUM. For beginners in Latin. pp. 279. Introduction price, \$1.00. **IN LATINUM.** Part I. Exercises based upon the first four books of Caesar's Commentaries. pp. 124. Albert & Scott, publishers, Chicago. The first of these books, containing Caesar's campaign against the Helvetii, has been prepared with the object of teaching Latin as a living language. From a careful perusal of it, we are satisfied that the authors have not only made this possible, but that under the direction of a competent and enthusiastic teacher instruction in Latin from the beginning may be made one of the most delightful and useful of language studies. The composition of Latin words is introduced from the first and persistently followed. Writing from dictation and translation are begun. Paradigms of declensions and conjugations are introduced gradually. The plan of the work, if carried out, cannot fail to make an excellent mental drill, not only in Latin but in English. The second book, mentioned above, incorporates much of the admirable plan of the "Bellum Helvetium," and is intended for more advanced students.

THE WORLD'S LITERATURE. A course in English for Colleges and High Schools, in four parts. Part I. pp. 316. Albert & Scott, publishers, Chicago. The plan of this work is to present, as a basis of study in literature and history, some of the most striking compositions of the world's best authors, mingled with history and criticism. The following table of contents of Part I. will illustrate: Chap. I. and II., Origin of the Myth according to Ruskin; III Different Theories of the Myth; IV. Carlyle's Theory of the Myth. V. -IX. Select translations from the Iliad; X. -XIII.

Selections from the Odyssey; XIV. Criticisms on the women of Homer; XV. The period between Homer and the first Olympiad - 1,000 B. C. to 776 B. C.

Shakespeare's **HAMLET**, price 2s. 6d.; Scott's **LAY OF THE LAST MINSTREL**, Cantos IV. - VI., price 1s. 3d.; Tennyson's **THE COMING OF ARTHUR AND THE PASSING OF ARTHUR**, price, 2s. These works have recently been published by MacMillan & Co., London and New York. They are both cheap and excellent and admirably adapted for the student and teacher. All are published in a convenient form, clear type, with introduction in each case, giving the history, plot, etc., of the poem, with full explanatory notes of all the difficult textual passages. The editors are careful scholars and critics, and their work has been excellently done.

FROM COLONY TO COMMONWEALTH: price 70 cents. Publishers, Ginn & Co., Boston. This consists of stories of the Revolutionary days in Boston suitably illustrated with maps and portraits. The book is an attractive one, and the stories interesting and well told.

THE REPRODUCTION OF GEOGRAPHICAL FORMS, by Jacques W. Redway; paper, price 25 cents. Publishers, D. C. Heath & Co., Boston. This is a cheap and admirable little work. It is divided into two parts - Part I. treating of Sand and Clay Modelling with respect to Geographical Forms. Part II. Map-drawing and Map-projection. The teacher can, with a careful preparation of the subject, from the hints in this excellent manual, make geography a study of the greatest interest and pleasure as well as an admirable discipline and training of the observing powers.

TALES OF TROY, for boys and girls, translated and adapted from the German by Charles DeGarmo. Cloth; postpaid, 60 cents. Public School Publishing Co., Bloomington, Ill. This book consists of stories of the most stirring events of the Trojan war, as narrated in the Iliad and related literature. The design of the book seems to be to arouse the interest of children of from nine to fifteen years of age in these springs of literary culture, by a form of narration at once classic and child-like. These stories of the heroic deeds of old will prove no less attractive to the children than the trashy, sentimental and often vicious narrations that make up so large a part of recent juvenile literature, while the literary and ethical value of the two are not to be compared on the same day.

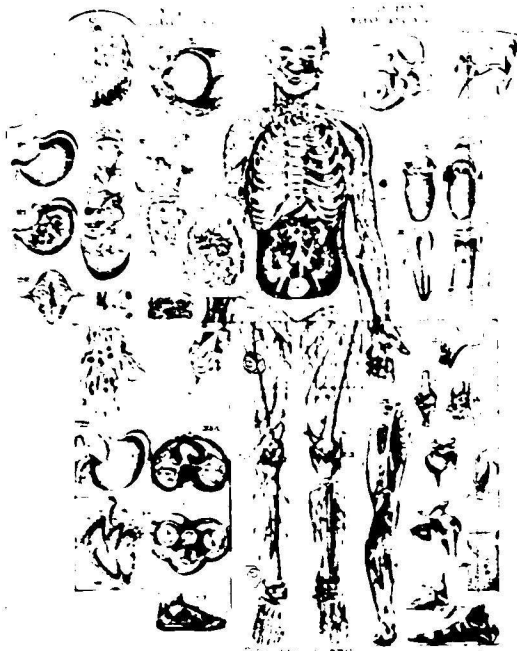
Current Periodicals.

Littell's Living Age. Recent numbers contain the following interesting articles: Winter in the Country of the Passion Play; Statesmen of Europe, and A Musical Village in Yorkshire; A Tour in Burmah; The Responsibility of Reading; The Applications of Geometry to Practical Life, with instalments of "Madeleine's Story" and "Messer Antonio's Revenge" and poetry. For fifty-two numbers of sixty-four

large pages of five or more than 3,500 pages a year, the subscription price is low; while for \$10.50 the publishers offer to send by one of the American \$4.00 monthlies, or weeklies with *The Review*, for a year, both postpaid. Little & Co., Boston, are the publishers. The March for March contains the usual choice illustrations with interesting reading matter. Two of the most valuable articles are "My Autograph Book," illustrated with letters and autographs of many eminent men; and the "Land of the Midnight

Sun" (*New England Magnet*) for March is an admirable number, both in illustrations and reading matter. The opening article is "Harvard College During the War of the Rebellion," and other good articles are: "Early History of Electricity in America," "A Master from the States" (a capital school story) ... *The Kindergarten* (Chicago) for March has a beautiful frontispiece, entitled, "Our Nursery," containing a group of happy children who are being instructed in the principles of Froebel's teachings.

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The Calendar for the Session of 1890-91 contains information respecting conditions of Entrance, Course of Study, Degrees, etc., in the several Faculties and Departments of the University, as follows:—

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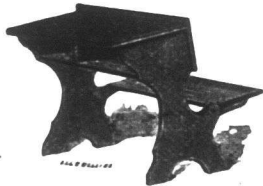
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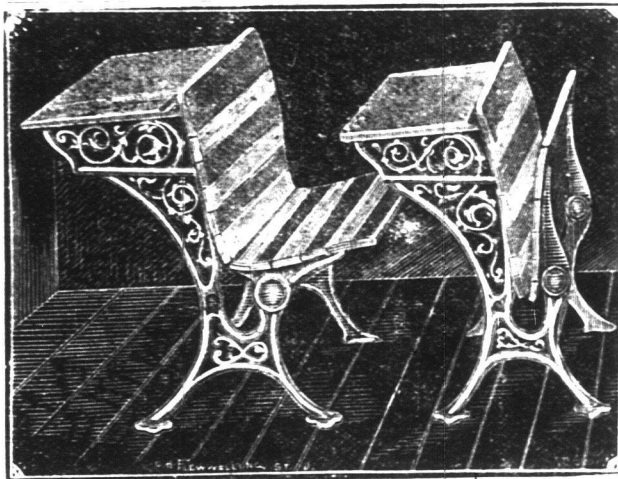
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