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CALENDAR FOR OCTOBER, 1891.

MOON'S CHANGES.

New Moon, 2nd day, 8h., 48.4m. p. m., NW, below horizon.
First Quarter, 10th day, 6h., 44.3m. p m, S.
Full Moon, 17th day, 9h, 32.8m., a. m., W below horizon.
Third Quarter, 26th day, 9h., 44.7m, a.m., SW

DAY OF WEEK	Sun rises	Sun sets	Moon rises	High wat'r	Days lenh
	h m	h m	morn	after	h m
1 Thursday	6 3	5 36	4 17	10 31	11 33
2 Friday	4	34	5 20	11 1	30
3 Saturday	6	33	6 23	11 30	27
4 Sunday	7	31	7 26	morn	24
5 Monday	8	29	8 31	0 1	20
6 Tuesday	10	27	9 38	0 34	17
7 Wednesday	11	25	10 46	1 11	14
8 Thursday	12	23	11 54	1 55	11
9 Friday	14	21	aft 57	2 46	7
10 Saturday	15	19	1 55	3 57	4
11 Sunday	16	17	2 43	5 24	1
12 Monday	18	15	3 23	6 52	10 58
13 Tuesday	19	14	3 54	8 2	54
14 Wednesday	20	12	4 20	8 55	51
15 Thursday	22	10	4 43	9 40	48
16 Friday	23	8	5 4	10 23	45
17 Saturday	25	6	5 26	11 2	42
18 Sunday	26	4	5 52	11 41	38
19 Monday	27	3	6 21	aft 23	35
20 Tuesday	29	1	6 58	1 6	32
21 Wednesday	30 4	59	7 45	1 55	29
22 Thursday	32	57	8 41	2 50	26
23 Friday	33	56	9 44	3 55	23
24 Saturday	34	54	10 50	5 10	20
25 Sunday	36	52	11 57	6 21	17
26 Monday	37	51	morn	7 24	13
27 Tuesday	39	49	1 3	8 13	10
28 Wednesday	40	48	2 7	8 52	7
29 Thursday	42	46	3 10	9 27	4
30 Friday	43	44	4 24	10 0	10 1
31 Saturday	6 45	4 45	5 17	10 32	9 58

TEACHERS IN COUNCIL.

Francis Bain on Natural Science

An Excellent, Readable, Thoughtful Paper.

Practical Ideas for all Concerned in the Education of Our Youth.

(MR. OXENHAM'S REPORT CONTINUED.)

STUDY OF NATURAL SCIENCE.

The following paper on the above subject was read by Francis Bain, Esq:

As this is the first occasion on which I have had the pleasure of meeting with the Teachers' Association, I will take the liberty of expressing the high appreciation I have of the position which the teachers of our Island hold in regard to its intellectual improvement. In immediate contact with the susceptible mind of youth, the teachers can direct its aspirations and influence its development as no other class of the community is privileged to do.

In this process of youthful training two modes can be adopted. The child can be taught always to depend for his information upon others for ever referring to authority, and thus be made to occupy the potition of an underling and weakling all his days in the arena of thought. Or he can be educated to go to the field of nature, the realms of matter and fact around him, and manfully and independently acquire information for himself, becoming a leader, or at least an independent actor, in the world's great field of intellectual movement.

It is just here where the study of Natural Science is so important in education. It takes us away from a slavish dependence upon authority and teaches us to investigate and ascertain the facts of nature for ourselves. All active, strong and independent minds delight in orignal investigation. It was this that made Galileo, Kepler and Newton distinguished from the general herd of their time. It is this that sets Darwin, Huxley and Tyndal in the forefront of the thought of our age and makes their highest word at present the keynote of the world's intellectual march. All great poets, statesmen and economists won their distinction by industry and truthful observation of nature. And the principle that is good in the higher spheres of action holds also in the more humble. The child delights in original observation. The green fields, 'neath the open sky, the fresh walks of nature, are the class room where it learns its earliest, most readily received and most permanently retained lessons. How rapidly it learns the forms and features, and even the common names, of everything it comes in contact with here! How slowly it takes in the dull lessons of the book, conveyed through the complicated and artificial medium of language! Scientific teaching continues and extends the former of these modes of instruction. For example, if it wishes to inform a child what a cube is, instead of telling it orally, that a cube is a regular solid with six equal sides, it places a cubic body in its hands, lets it see it and feel it, and lets it exercise on it all its powers of perception and intelligence. In this manner the child not only learns its lesson accurately, but has the additional advantage of observing nature for itself, which will become a great part of its business through future life. In the study of natural science, we extend these simple object lessons indefinitely to the most complicated subjects of nature, and, during the whole process, we teach the child to observe nature, to study nature, to command nature, the great world in which we live in and move, and where we each must work out our destiny.

From the very constitution of its being, the unbiassed mind of the child delights in intercourse with nature. A creature of this world, raised from the dust to be the crown and ruler of creation, it exults with every faculty of its nature in intercourse with that great world of being of which it is but an integral part. The glory of the nightly sky, the grandeur of the mighty deep, the rocks' stern majesty, and the meadow's scented beauty, the babbling, crystal streamlets, the murmuring forests, the starry wild flowers, and the woodland songster's grace and melody—all are objects of unbounded joy and interest to the fresh, buoyant soul of childhood.

It is our duty to cultivate this spirit of youth, and to direct and improve it by aiding the child in an intelligent perception of those wonders and beauties which it so much enjoys. With a very little labor children can be taught the proper names of the flowers and plants that crowd round their homes, and of the insects, birds and animals that they meet in their daily rambles. An intelligent tutor will also readily, and almost without labor, instruct in the methods of classification of these, and in an intelligent conception of the great forces of nature. These simple lessons need scarcely interfere with their regular studies, for to most children it is a mere pastime to collect and name the woodland treasures that they delight in. A few short rambles also in company with their intelligent teacher would do much good in directing their observations of nature, so that their own daily wanderings may become sources of instruction as well as of delight. Thus the child's mind will every day gather strength and knowledge as it

"Goes abroad, rejoicing in the joy
Of beautiful and well-created things."

When childhood developes into youth our instruction must take a more advanced character. We must inform him regarding the laws of nature, the operation of those ever-living forces that mould the forms of being, and preserve the ceaseless energy of change and motion throughout the universe. But here the dry instructions of books alone must be out of the question. The youth must learn the operations of nature out in her own field. You tell your boy that the present surface features of the countries round him, the forms of hill and dale, of mountain and of plain, are the result of the operation of physical forces through long past ages. To give him an intelligent idea of this you must show him these forces in operation. You must take him to the rocky shores and show him the deep wave slowly mining at its cliffs; you must point him to the vast spreads of marine alluvium which are building up new lands beneath the restless waters; you must let him see rivulet, and stream, and river, bearing, inch by inch, in their turbid bosoms, the flowing hills to the sea,—and thus exhibit to his gaze the slow, almost imperceptible operations of the eternal laws of nature by which, through ages such immense results are accomplished. You may talk about tht relics of past ages, but to create enthusiasm in youth regarding them, you must take him to the rocky shore and let him handle the treasures for himself; and there, and there alone, will he learn those secret and complicated processes by which Nature changes her most fragile forms into enduring monuments of her history.

You inform your pupil of the grand circulation of the atmosphere, producing the regular flow of the trade and passage winds. Little is the interest which he takes in what seems to him a purely theoretical matter. But, on a golden summer-day, standing beneath the azure vault, you direct his attention to the long, pearly-tinted streamers of war-clouds floating up from the southwest on the bosom of the great passage wind current,—at once his interest is excited, as he stands face to face with the grand phenomena of nature.

You wish to inform your pupil regarding the character of the useful minerals and metals which have done so much for human comfort and improvement in connection with the arts and manufactures, and you find how useless for this purpose are the descriptions usually given. But place specimens of these minerals, in their different forms, in his hand, and at once he has an acquaintance with them such as no oral description could convey.

In all the arts, an acquaintance with natural science is of great importance; but to none is it of equal benefit as to agriculture. Oldest of the human arts, this yet has most to learn and most to improve. Agriculture deals so largely with the laws and operations of nature that it has everything to learn from Natural Science. The great business of our Island Province is agriculture, and in the education of our youth the study of Natural Science is of the utmost importance, as laying the true foundation of an agricultural education.

In every operation which the farmer undertakes, from the preparation of the soil and the making and application of manures to the gathering and husbanding of crops and the rearing and care of stock, he would be guided, instructed and assisted by the teachings of natural science. The physical and chemical constitution of the soil, and its relation to the air, heat and moisture, the germination of the seed, the growth and development of the plant, and its relations to all atmospheric and meteoric agencies; the conditions of the maturing and ripening of the crop, the relations of the latter to the animals which it is destined to support, and a thousand other questions which we cannot now specify, are all the proper subjects of natural science, and never can be properly understood without a knowledge of those laws of nature which it is the province of natural science to explain. As an agricultural community, we want natural science taught in our schools. Our youthful farmers have a right to be taught the constitution and qualities of rocks and soils, and the laws which regulate the lives of the animals and plants with which they have every day to deal. It may seem difficult to teach science in our common schools, but the way to accomplish it is to have it taught faithfully in the Normal School, and let the teachers go to the country qualified to give a definite amount of instruction in this line. No complicated apparatus will be required. The well-instructed teacher will find his apparatus ready at hand in the field of nature. A visit to a neighboring field will enable him to point out, with the greatest facility, the difference between a fertile sandy-loam and an unproductive clay. The wet, retentive character of the latter, with its useless growth of coarse vegetation, its lateness and difficulty of tillage, can all be shown in a moment, and the operation of the natural laws involved explained with the greatest clearness and force on the spot. So with the principles of tillage and the action of fertilizers, the laws plant-growth and nutrition. All these need more wit and intelligence on the part of the teacher than complicated apparatus for their proper explanation.

An acquaintance with natural science enables a man to be an original thinker, investigator and operator in agriculture and all the useful arts. It would free our youths from the slavery of menial positions in city life, and send them forth to be engineers, contractors, miners, explorers, and tillers and owners of the soil. A crying evil of our times is that our towns are being overcrowded with an ill-fed and idle population, while the great natural resources of the country are neglected. For this our educational system is largely responsible. We instruct the youth in all the refinements of language and calculation necessary for success in the marks of trade, in city life; but of the more manly methods of thought and investigation necessary for dealing with the uncultured fields of nature we teach them nothing. The result is, that, with the grand inheritance of an unoccupied empire before them in the Dominion of Canada, our youth are cowering in the cities, in place of going forth to claim the boundless riches of the land. Instruction in natural science would give our young men a taste for and an ability to deal with the rude fields of natures, which would make them the successful explorers, pioneers and cultivators throughout this broad Dominion.

But not only in a pecuniary way is the study of nature required. We need it for the sacred purpose of the soul's high development. Slowly, but surely, through the ages past, has the awakened human intellect been grasping the facts of nature, and gradually disinthralling itself from the slavery of tradition and superstition. In our own day the advance in philosophy has scarcely been less marked than that in the fields of art; and every advance in thought has simply been co-ordinate with the march of scientific discovery. Natural science is leading the world's thought because the facts of nature are the only true foundations of all our knowledge. The treasures won in this field are the richest jewels of modern thought, the crown of the world's proud realm of intellect. Every vigorous mind delights in the contemplation of these, and in the pursuit for itself of similar methods of investigation. But if we refuse to instruct our youths in the elements of science, we bar them from the the field where the highest laurels are won, we prepare them to be underlings in the world of thought and leave the richest laurels and highest honors to be won by others.

"Higher, higher will we climb
Up the mount of glory,
That our names may live through time
In our country's story."

Excelsior! is the aspiration of every noble, youthful spirit. It is our duty to direct its energies into those lines of thought and study which will lead to the highest and happiest results.

Ch'town, Oct. 9, 1891.

Can You Dress a Doll?

The Queen wishes a large number of dolls dressed for its Poor Children's Christmas Tree for 1891, and in order to interest girls and young ladies to assist in this work, they offer a Prize Doll Competition to those who dress a doll for the purpose. This competition is open to girls under sixteen years of age, residing in Canada or the United States, duplicate prizes being given for each country. The Queen furnishes the dolls, charges prepaid. They are to be dressed and returned before December 1st, 1891.

The cash prizes of each $50, $25 and $15 and many other prizes of value will be given for the best dressed dolls, according to merit. Send ten three-cent stamps, and receive, charges prepaid, one full-bodied imported Doll, a lithograph plate illustrating ten dressed dolls in colors, and three months' trial subscription to the Queen.

The Queen is Canada's popular family magazine. It is a large 48-page monthly publication, devoted to ladies and the family circle. It has more than double the circulation of any other publication in Canada. Subscription price, only $1.00 a year. Address THE CANADIAN QUEEN, 58 Bay Street, Toronto, Canada.

sept22—t t s tf

Gold has been found in the bed of Beaver Creek, between Plevna, Addington county, and Lavant, Lanark count, Ont.

"MARY, before you put baby in the bath, use the thermometer to get the temperature of the water." "It's no use," says Mary, "for sure if the water's too hot the baby will all be red; and if the water's too cold the baby will all be blue—and that's all that's about it." If Mary used Campbell's Quinine Wine she wouldnot be so cranky. oct 20tf

The drouth in New York state threatens to interfere with traffic on the Delaware and Hudson canal, owing to low water.