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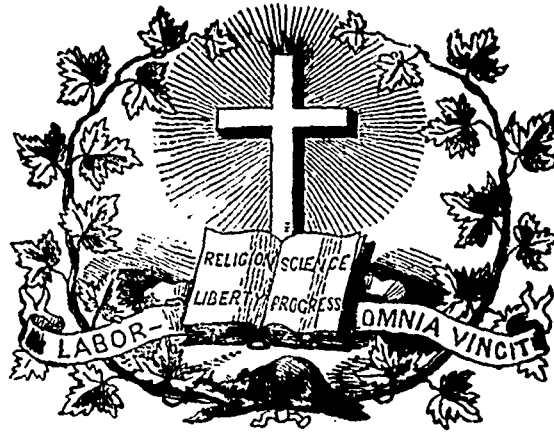
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SUMMARY.—**POETRY:** The New Years Bells.—**Education:** Push on a plea for young children.—**Duties of parents to the schools.**—**Notes of Lessons.**—**On Reading Lessons.**—**Lessons on Arithmetic.**—**On vulgar fractions.**—**Science:** Notes on Canadian butterflies, (continued from our last.)—**OFFICIAL NOTICES:** Nominations of school commissioners.—**Diplomas granted by the catholic Board of Examiners for the district of Quebec,** and by the Boards of examiners for the districts of Sherbrooke and Kamouraska.—**Fourth conference of teachers, Jacques Cartier Normal School.**—**Third conference of teachers, Laval Normal School.**—**Temporary appointment of a professor of music for Laval Normal School.**—**Donations to the Departmental library.**—**EDITORIAL:** To our readers.—**Queries on the school laws.**—**To the Editor of Ohio Journal of Education.**—**Vaccination.**—**American Association for the advancement of Science,** (concluded from our last.)—**Junior department in Bishop's College, Lennoxville.**—**Method of teaching followed in Mr. Arnold's School.**—**Notices of Books.**—**Mr. Lovell's Directory of Canada.**—**Greenleaf's Arithmetic.**—**Dictionnaire Biographique,** par Bibeaud.—**De l'Instruction publique chez les Canadiens-Français,** par D. P. Myrand.—**MONTHLY SUMMARY:** Educational Intelligence.—**Literary Intelligence.**—**Scientific Intelligence.**—**Miscellaneous Intelligence.**—**OFFICIAL DOCUMENTS:** Circular to the School Inspectors.—**Wood Cuts.**—**Illustrations to Notes on Canadian Butterflies.**—**ADVERTISEMENTS.**

Ring in the valiant man and free,
The larger heart, the kindlier hand;
Ring out the darkness of the land,
Ring in the Christ that is to be.

Tennyson.

EDUCATION.

PUSHING ON.—A PLEA FOR LITTLE CHILDREN.

"Push him on, Mr. Lee—push him on; that is all you have got to do. I don't mind terms; only you push him on, and keep him well up to the mark. And don't be afraid of giving him plenty of lessons, Mr. Lee; he's a clever, active boy, and that's the only way of keeping him out of mischief. No use sending children to school to idle their time away—that's my view of the case. Education is a fine thing, Mr. Lee—a very fine thing—and I mean Frank to be a scholar. Hard work and plenty of it—that was the way when I was a boy. I was kept at it morning, noon and night; and see what it has done for me. Yes, Mr. Lee, push him on, and I shall be proud of him "some day." And having thus given his view of the case, Mr. Denton took up his hat, and wishing the teacher good morning, went to his warehouse.

Mr. Denton was a wealthy merchant in the town of H—, a man very much looked up to and respected—a man who paid the best price for everything, and consequently expected the best article; no better kind of goods were to be met with anywhere than those turned out of his warehouse at H—. He also paid the best price for education, and in consequence expected the best article, and plenty of it too. No advocate he for sending children to schools where they left at four o'clock, and had holidays three times a week. He was quite right when he said that education had done a great deal for him. "Hard work, and plenty of it," had laid the foundation of his present standing; it had placed him at the head of one of the most flourishing concerns in H—; it had moulded his rough, firm nature into a form somewhat more befitting the elegancies of the sphere in which he moved—to use his own word, it had "made a man of him." What should it not do for the delicate, excitable, sensitive little Frank, was a question not yet answered.

"Now, my dear, where are your books? You must work hard to-night, for we are late with tea, and if you don't mind you will not have your lessons ready for Mr. Lee by to-morrow morning."

"Oh, mamma, mayn't I just go into the garden a little first, it does look so fine, and I haven't had time to go in all day. Mayn't I go in, mamma?"

"No, my dear; you must wait till the lessons are done. You know you must push on, and have them perfectly done. Lessons first and play afterwards you know—that is the way to be a scholar."

POETRY.

THE NEW YEAR'S WELCOMING BELLS.

Ring out wild bells to the wild sky,
The flying cloud, the frosty light;
The year is dying in the night;
Ring out, wild bells, and let him die.

Ring out the old, ring in the new,
Ring, happy bells, across the snow;
The year is going, let him go;
Ring out the false, ring in the true.

Ring out the grief that saps the mind,
For those that here we see no more;
Ring out the feud of rich and poor,
Ring in redress to all mankind.

Ring out a slowly dying cause,
And ancient forms of party strife;
Ring in the nobler modes of life,
With sweeter manners, purer laws.

Ring out the want, the care, the sin,
The faithless coldness of the times;
Ring out, ring out my mournful rhymes,
But ring the fuller minstrel in.

Ring out false pride in place and blood,
The civic slander and the spite;
Ring in the love of truth and right,
Ring in the common love of good.

Ring out old shapes of foul disease,
Ring out the narrowing lust of gold;
Ring out the thousand wars of old,
Ring in the thousand years of peace.

Frank looked with a sigh at the grass-plot, and his hoop, lying so temptingly there, under the elm tree; then, fetching his books out of the hall, and cleaning his slate, he commenced operations.

"What lessons have you to-night, dear?"

"English history, mamma; and parsing, geography and composition, and Latin grammar, and French verbs, and then this sum in fractions to prove!" and the little fellow sighed again, and looked at his hoop. There was no play to-night, at any rate.

"There, I think I know it now," said he; and laying his tiny hand on the page, so as to hide the words, he began to recite his geographical lesson. The reader will not be surprised to learn his childish pronunciation of the alien words was such as Mr. Lee's German professor would hardly have commended; neither will we inquire too impertinently into the value and permanence they conveyed:

"The Thuringian states comprise the grand duchy of Sachsen Weimar Eisenach, the three Sachsen duchies of Cobourg Gotha, Meiningen, and Alterburg, the two Reus principalities of Greitz and Schleitz, and the two Schwarzenburg principalities of Rudolstadt and Soulershausen. Their united areas are 5,934 square miles, with a population of 970,000." There, I'm glad I've done with that. Now for the sum."

For awhile nothing was heard but the scratching of the pencil and a gentle rustling sound, as the breeze blew the long flower-starred jasmine branches across the window.

"Oh, mamma, my head does ache; can't I finish this sum to-morrow, or ask Mr. Lee to excuse it?"

"No, dear; it *must* be done. You know papa wishes you to *push on*, and learn as much as you can." And Mrs. Denton put another leaf into her Berlin work, and went on with "Queechy."

The little fingers closed over the pencil once more, and the sleepy eyes bent down on their task. But time conquers most things; and when eight o'clock struck the last lesson was mastered, the last verb learned, the last line construed; and with a languid "Good-night, mamma," and a confused conglomeration of Sachsen duchies, verbs, fractions, parts of speech, and Latin numbers, Frank went up stairs to bed.

"Lessons all prepared?" said Mr. Denton, as he came in from business, and stretched himself in the great easy chair.

"Yes, all of them. Don't you think, my dear, Mr. Lee pushes Frank on a little too fast? You know he is but a child yet—not nine years old—and he does not seem well; besides—"

"Nonsense, my dear, nonsense. Why, when I was a boy, I did twice as much. I mean to ask Mr. Lee next quarter about his learning Greek. He's a clever child, and it's a pity he should not be kept up to the mark; besides, you know, he'll never get on when he goes to the grammar school without a good knowledge of the classics, and I'm determined to make a scholar of him—nothing like keeping children up to the mark."

So the subject passed. Mr. Denton was away on business all day, and when he came home Frank was generally gone to bed, so he did not notice the heavy eye and flushed cheek, nor the pale forehead and trembling hand; he only knew that his little boy had begun to construe Casar and work sums in fractions, that he had taken the first prize in history, and could match his compositions with those of the biggest boy in the school; he was going to be a scholar, a credit to the family, as Mr. Denton had made up his mind he *should* be, and that was quite sufficient.

"From the centre A, at the distance A B, describe the circle B C D," murmured little Frank, as the tides of sleep drove back life's weeds and pebbles on the bright shores of dreamland. Yes, *he was* "pushing on;" but *where*? That was another question altogether.

Mrs. Dale, the lady who lived at the cottage a little beyond Mr. Denton's was also a woman who had her own views of education, and always paid the best price for it. She expected the best article too, though not so particular as Mr. D. about having plenty of it. So, though Harry Dale was more than eight years old, he never went to school more than two hours in a day, and the rest of the time was spent in roving with his mamma and sisters through the glens, and woods, and meadows that cluster so closely round the town of H—, gathering wild flowers, ferns, and mosses, and arranging them in vases at home (Mrs. Dale was not so fastidious as some ladies are about having flowers littering the parlor,) learning their names the while, or examining their delicate structure, and listening with eager interest, as his mamma told him stories of distant lands, their trees, and birds, and flowers, and then led him on from this to the kind and loving Father who gave the forest its glowing tints, the birds their voices of music, and all nature its loveliness.

People laughed at Mrs. Dale for calling this education, and expatiated largely on the folly of parents who sent their children to school only a quarter of the time, and yet paid full terms. Divers

were the shrewd predictions as to the harvest which would be reaped from a seed-time so irregular, and many the far-seeing hints which were dropped on the subject. "They knew what would come of such vagaries." "Talk of educating children in fields and meadows—such nonsense." "Sure to make the boy idle and useless." But Mrs. Dale went quietly on; she had her own views of the case, and acted according to them. So at eight years of age Harry had never seen the inside of a Latin grammar; could not, for the life of him, have got further than the second column of the multiplication table; was ignorant of geography, except from his mamma's conversations and the stray books he had picked up on the parlor table; parsing, dates and dictation were strange words to him; and he knew nothing of French save from the little songs Mrs. Dale, sometimes sang to him, with an accent so pure and true. But Harry had a fresh, bright, intelligent soul within him. He would listen, with quick appreciation, as you told him of the wonders of nature and art, of the great men who lived in distant ages, of the strange inventions of genius, and the noble results worked out by patience and perseverance. He was learning to enjoy life, that when time came he might use it wisely and well. There was rich promise of future energy and vigor in those clear, honest eyes of his, the firm bounding step, the guileless, unsuspecting confidence, the fearless innocence with which his glance met yours—promise which after years failed not to realize.

So much for Harry Dale. And the *pushing on*—whither had that tended? There was another grave in the H— cemetery, and the neighbors, as they read on the marble head-stone the touching inscription, "*Aged eleven years*," said, "Very astonishing, isn't it, how soon these clever children always die!"—(*British Mother's Journal*.)

Duties of Parents to Schools.

1. Parents should send their children to school constantly and (1) seasonably.
2. They should see that they are decently clothed, and cleanly in their persons.
3. They should encourage them to respect and obey the rules and requirements of the school.
4. They should encourage them to be orderly in their deportment, and studiously to regard right.
5. They should encourage them to be studious by manifesting an interest in their lessons.
6. They should have a regard for the character of the books their children read, and see that they read understandingly.
7. They should cultivate in their children habits of true politeness and courtesy.
8. Besides visiting the school and co-operating and sympathizing with the teacher, they can do much for its improvement and success, by manifesting at all proper times, and in all proper places, an interest in its welfare, and a deep solicitude for its reputation; by speaking well of the teacher and of all his judicious plans; by palliating or excusing his faults or failings (of which every teacher must be expected to have some), and by inducing their neighbors to visit the school and take an interest in its exercises, thus showing to their children, in the most convincing manner, that they feel that their present employment is an important one, and that the duties of a school are not to be regarded as of little consequence.—(*Ohio Jour. of Ed.*)

Notes of Lessons.

THE STUDY OF READING LESSONS.

This habit of careful study should, if possible, be formed in childhood or early youth, and to the teacher is entrusted, in a great degree, the responsibility of its formation. May it not be done in a way most pleasant to ourselves and to our pupils, and without interfering with the discharge of other duties? Experience convinces me that it is possible; and at the request of a friend; who has approved my plan and rejoiced in its success, I write a brief account of it, with the hope that it may prove of some benefit to others.

Before adopting it, I had often observed with regret, that the reading lessons were regarded by my pupils with little interest. They would come with bright, animated faces to their recitations in history, geography, grammar, and arithmetic; but the appearance of the reading book was the signal for languor and restlessness. Especially was this the case when the lesson assigned had been read more than once. The charm of novelty was gone, and none

(1) With the exception of weak and delicate children who are not to be dealt with like others as seen by the preceding article. (Edr.)

other remained. They were often eager to leave it for one with which they were less familiar, while yet unable even to read the former with correct expression. For a long time I was greatly troubled by their indifference, and endeavoured, in various ways, to give interest to the lesson; gradually I was led to adopt the mode of procedure which I will presently describe.

The reading-book used by the more advanced of my pupils—girls from twelve to fifteen years of age—contains many excellent selections; and from among these I chose a number which I deemed worthy of careful study. I examined each one, and ascertained how much labor it would require to be able to give a grammatical analysis of the sentences, and express their meaning in other words; to explain the historical allusions; and to describe the people, places, and productions of foreign lands, when these were mentioned in the passages studied. Sometimes a single paragraph of a sketch or essay, or two or three stanzas of a poem, would require all the time we could devote to the exercise in one day; sometimes we could easily and profitably take more; but always I endeavoured to assign as nearly as possible that which would demand industry and effort, yet could be prepared without difficulty.

It was pleasant to see the eagerness with which they searched encyclopædias, gazetteers, and dictionaries, to answer their intelligent, thoughtful questions; and to give a clue to guide them out of their perplexities. The class which has recently left the school under my care, for one of a higher grade, entered with peculiar interest and delight into this kind of study; and to illustrate my plan more fully, I will, with your permission, bring them before you.

Imagine then a class of sixteen or eighteen girls, ready to begin their recitation, their reading-books open at a description of the river Nile. One of them reads as follows:—

“For many an hour have I stood upon the city-crowning citadel of Cairo, and gazed unweariedly upon the scene of matchless beauty and wonder that lay stretched beneath my view—cities and ruins of cities, palm forests and green savannas, gardens, and palaces, and groves of olive. On one side, the boundless desert with its pyramids; on the other, the land of Goshen, with its luxuriant plains, stretching far away to the horizon. Yet this is an exotic country. That river winding through its paradise, has brought it from far regions unknown to man. That strange and richly varied panorama, has had a long voyage of it! Those quiet plains have tumbled down the cataracts; those demure gardens have flirted with the Isle of Flowers, five hundred miles away; and those very pyramids have floated down the waves of the Nile. In short, to speak chemically, that river is a solution of Ethiopia's richest regions, and that vast country is merely a precipitate.”

After analyzing the sentences and defining the more important words, various questions are asked. For example: Give some account of Cairo? What is a pyramid? Describe the Egyptian Pyramids? What do you know of the land of Goshen? What is an exotic, and what is meant by an exotic land? In what form did those plains come down the cataracts? Give us some account of the cataracts of the Nile. How were those vast pyramids floated down the river. “In short to speak chemically, that river is a solution of Ethiopia's richest regions, and that vast country is merely a precipitate.” Explain this sentence? What is it to speak *chemically*? What is a solution and a precipitate? Why is it correct to use such terms here?

Another paragraph describes the annual inundation of the Nile:—
“The stream is economised within its channel until it reaches Egypt, when it spreads abroad over the vast valley. Then it is that the country presents the most striking of its Protean aspects, it becomes an archipelago, studded with green islands, and bounded only by the Libyan Hills and the purple, range of the Mokattan Mountains. Every island is crowned with a village or an antique temple, and shadowy with palm-trees, or acacia groves. Every city becomes a Venice, and the bazaars display their richest and gayest cloths and tapestries to the illuminations that are reflected from the streaming streets.”

Many interesting questions are here suggested. What are *Protean* aspects, and why so called? Where are the Libyan Hills and the Mokattan Mountains? Describe an Arab village—an ancient Egyptian temple—a palm tree—an acacia. Give some account of Venice. How does every city become a Venice? What is a bazaar?

We followed the study of “The Nile” with that of the poetical “Address to the Mummy in Belzoni's Exhibition.” The manner of treating the first stanza will show the way in which the whole was studied.

“And thou hast walked about—how strange a story!
In Thebe's streets, three thousand years ago;
When the Memnonium was in all its glory,

And time had not begun to overthrow
Those temples, palaces, and piles stupendous,
Of which the very ruins are tremendous.”

The class are asked if they know anything of the author of these lines, and of the traveller Belzoni; and having stated such facts as they have been able to procure respecting them, one is called upon to explain the first words of the poem.

“And thou hast walked about.” The writer speaks as if the mummy were actually before him, while writing. Do you think that this was the case? Lucy may answer.

“I suppose that he wrote the poem after returning from a visit to the exhibition, but remembered so perfectly how it looked, that he seemed still to be where he could see it.”

Has any one a different opinion? Maria, you may give yours.

“I think that he might have composed a part, at least, of the poem while at the exhibition, and then have written it after returning home.”

“How strange a story!” Harriet may tell why it was strange.

“Bodies usually decay in a short time, but this body had lasted thousands of years, owing to its having been embalmed. It seemed very strange to look at it, and remember that so many years had passed away since it was alive, and yet it looked as it did when it used to walk through the streets of Thebes.”

Alice, you may give some account of Thebes.

“Thebes was anciently the capital of Egypt. It is not known when it was founded, but the time of its greatest prosperity was, probably, when David and Solomon reigned in Judea. Its ruins are wonderful. They extend seven or eight miles on both sides of the Nile, from each bank to the enclosing mountains. The most remarkable are the temple of Karnac, the palace of Luxor, and the Memnonium. The mountains are pierced with tombs, many of which are richly adorned with paintings and sculptures.”

The Memnonium is mentioned in the next line. Helen may tell us what she knows about it.

“The Memnonium was the temple-palace of Rhamses the Great. Its ruins show that it must have been a most beautiful specimen of architecture. There is in its grand hall a double row of pillars, crowned with capitals resembling the bell-shaped lotus flowers. These are very large and of a solid stone, but the light and graceful shape of the flower is perfectly imitated. In the outer Court, the fragments of an immense statue lie around its pedestal. Once it must have weighed nearly nine hundred tons; and the head was so large that although several have been cut out of it, its size does not appear to have been lessened.”

Emma may explain the next three lines.

“Time is here compared to a giant of such immense strength that he could throw down the magnificent palaces and temples that had been built with so much labor. But when the mummy was a living man, they were in all their splendor—Time had not even begun to destroy them.”

It is proper for me to say, as I conclude, that I have no desire that such a study of reading lessons should take the place of practice in elocution. I am aware that some time must be given to this alone; but the frequent or occasional study of reading lessons in this manner, will, I think, be attended with two advantages. Our pupils will read them far better, for they will have a more genial sympathy with the writer, and a more intelligent perception of his meaning. At the same time, they will form a habit which will be of indescribable benefit to them in after life—the habit of comparing different views and statements, of trying an author by the great eternal standard of Truth, and of earnestly questioning the Past, the Present, and the Future.—*Massachusetts Teacher.*

Lessons in arithmetic.

ON VULGAR FRACTIONS.

1. Definition of a Fraction.

The difficulties which often occur in explaining to children the various operations in the working of fractions, may, we think, be traced to an imperfect knowledge of the nature of a fraction, and hence it is important that the meaning of the term *fraction*, and of the symbols which represent fractions in arithmetic, should be thoroughly understood.

A fraction signifies generally a *part* or *parts* of a unit or *whole*; for example, if an apple or any object be divided into a number of parts, say three, one part will be a fraction of the whole, no matter how unequally the object is divided. In arithmetic, however, we give a more definite meaning to the term *fraction*, so as to express the value of the part by means of the ordinary characters used in integral arithmetic. A *fraction* is defined particularly as *unity divided into a number of equal parts, and one or more of those parts taken*. Thus, if an apple be cut into five equal parts, one part is called *one-fifth*; two parts, *two-fifths*, and so on, the part being expressed by the symbols $\frac{1}{5}$, $\frac{2}{5}$ &c., the figure below the

line, as denominator, showing the number of equal parts into which the unit is divided, the figure above the line, a numerator, the number of such parts taken.

(a.) The meaning then of the fraction $3\frac{1}{5}$ is three times $1\frac{1}{5}$ of one; or $6\frac{2}{5}$, five times $1\frac{1}{7}$ of one.

Again, a fraction also represents the quotient obtained by the division of the numerator by the denominator. Thus, $3\frac{1}{4}$ means the fourth part of three; for suppose a shilling to be divided into four equal parts, each part would equal $3d$; and three of these parts would equal $9d$; but this is the same as the fourth part of $3s$.

The same may be proved by taking three equal lines, and dividing each into four equal parts, and it will be seen that the fourth part of the three lines is equal to three times the fourth part of one of the lines, for it is obvious that if the thing divided is three times as great as before, any quantity will be three times as small a fraction of it as before.

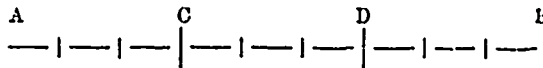
(b.) The fraction $3\frac{1}{4}$ means then $1\frac{1}{4}$ of three, and in the same manner any fraction may be shown to have two distinct meanings.

II.—To multiply a fraction by a whole number, multiply the numerator or divide the denominator.

(a.) Let it be required to multiply the fraction $2\frac{1}{9}$ by three. As the numerator 2 shows the number of ninths taken, by increasing this three times, since $6\frac{1}{9}$ is three times as great as $2\frac{1}{9}$. Therefore, if the ninths remain ninths, or, generally, if the fraction remains of the same name it is multiplied by multiplying its numerator.

(b.) A fraction may also be multiplied by dividing its denominator, for it is evident that if the unit is divided into three parts instead of nine, each part will now be three times as great as before, hence $2\frac{1}{3}$ will be three times as great as $2\frac{1}{9}$, the difference between this and the last case being simply that the fraction is changed to one of another name. The same may be looked at from another point of view. If the same numerator remains, or the same number of parts is taken, by dividing the denominator by three we produce the same result, as if the denominator or the size of each part remaining the same, we had multiplied the numerator by three, and thus had increased the number of the parts, the value or size of each part remaining the same.

The above may be demonstrated in the following manner;—



Take any line A B and divide it into the three equal parts A C, C D, D B, each part will be $1\frac{1}{3}$; and if further divide each of these into three equal parts, each third part of A B will contain three of these parts, each part being $3\frac{1}{9}$ of the whole line. Thus it may be seen that $1\frac{1}{3}$ is three times greater than $1\frac{1}{9}$, $2\frac{1}{3}$ three times greater than $2\frac{1}{9}$, and so on for any other fraction.

III.—To divide a fraction by a whole number: divide the numerator or multiply the denominator.

From the preceding it will readily appear that one third of $6\frac{1}{9}$ is $2\frac{1}{9}$; for by dividing the numerator of the fraction $6\frac{1}{9}$ by 3, and retaining the same same denominator, or in other words, keeping the size of each part the same as before, we have taken one-third of the number of these parts and consequently diminished the fraction in the same ratio. The same may be proved true for any fraction divided by a whole number, provided the numerator of the fraction be a multiple of the divisor.

(b.) Again, it is evident from what has been said above, that we can divide a fraction by multiplying its denominator, i. e., by making the parts into whom we divide the unit smaller. For recollecting that the denominator expresses into how many parts the unit is divided, as the denominator is larger, the number of these parts will be greater, and the size of each consequently less: $3\frac{1}{27}$ will then be seen to be a quantity three times as small as $3\frac{1}{9}$, or $3\frac{1}{27}$ will be one third of $3\frac{1}{9}$. This plan we always pursue, if we have to divide a fraction by a whole number, whose numerator is not a multiple of the divisor. This may be demonstrated as before. Take a line A B and divide it into four equal parts in C, D, A C, D, E B; then A E is $3\frac{1}{4}$ of the whole line. Again, divide each fourth part into four equal portions, one of these latter will be $1\frac{1}{16}$ of the whole line; and as $1\frac{1}{16}$ is the fourth part of $1\frac{1}{4}$, $3\frac{1}{16}$ must be the fourth part of $3\frac{1}{4}$. But $3\frac{1}{16}$ is obtained by multiplying the denominator of $3\frac{1}{4}$ by 4; therefore we divide a fraction by a whole number when we multiply the denominator by the given number.

IV.—A fraction is not altered in value by multiplying its numerator and denominator by the same number.

The fraction $3\frac{1}{5}$ is equal to the fraction $12\frac{1}{20}$; for by multiplying the numerator 3 by 4, we have shown that the fraction is increased four times, as four times the number of parts are taken, and by multiplying the denominator by 4, the value of each part is diminished four times, so that the one operation neutralizes the other. This may be illustrated by taking £1 as the unit, then $3\frac{1}{5}$ of £1 = $3 \times 4s.$ = $12s.$, and $12\frac{1}{20}$ of £1 = $12 \times 1s.$ = $12s.$, so that the two fractions $3\frac{1}{5}$ and $12\frac{1}{20}$ are the same in value.

The same may be shown independantly, thus:—Generally, it is evident

that if the parts are smaller, there must be a greater number of them taken, so that we may have a quantity as great in value as before. Also, if the parts are half as small, the number taken must be twice as great; if three times as small, the number must be three times as great, and so on. This consideration proves the truth of the theorem, that we do not alter the value of a fraction by multiplying its numerator and denominator by the same number.

(Papers for the School-Master.)

SCIENCE.

Description of four species of Canadian Butterflies.

(Continued from our October issue.)

GENUS II., PIERIS. Schrank.

PONTIA, Fabricius, &c.

Palpi, short cylindrical, moderately compressed, three jointed, the last joint as long or longer than the preceding; antennæ long and slender, terminated by a somewhat abrupt, compressed, obtuse club, consisting of seven or eight joints, and grooved on one side; wings opaque, and thickly clothed with scales; anterior pair nearly three-cornered, the apical angle not very acute; posterior pair rounded, partly embracing the abdomen, and the discoidal cell closed; legs long, slender, and alike in both sexes, the anterior pair being perfect; tarsi terminated by two equal sized hooklets much curved, each having a small tooth on its under side; between these hooklets is a long fleshy cushion, and each is laterally defended by a long conical hirsute appendage; eyes naked; head rather small. Larvæ cylindrical, elongated and fleshy, with numerous points or larger tubercles, which emit pale hairs, and are arranged in regular transverse series; the head small and rounded. Pupæ angulated, with a short process in front of the head, and with a projecting lateral appendage behind each of the wing cases, they are attached by a tuft of silk at the tail, and a loose girth round the middle of the body. They do not constantly place themselves in one position with the head upright, but undergo this state in various positions.

This genus is very extensive, the species being distributed over most parts of the globe, but especially in the intertropical parts of the old world, the western hemisphere being comparatively poor in species. The prevailing colour is white, more or less pure, with a black border to the anterior wings, variable in width but seldom wanting. Some of the exotic species are much more varied in their colouring. The underside of the posterior wings generally differs considerably from the upper, and is often very agreeably varied with brilliant colours. The sexual differences in certain species are very conspicuous but in others much less so, the females being distinguished from the males only by a somewhat broader band, or by having the upper wings more rounded at the apex. Such of the larvæ as are known feed almost exclusively on the Cruciferae, especially the species of *Brassica*, as well as on the *Residua* *Tropæolice* and *Capparidæ*. In some years certain of the common English species abound to an astonishing extent, and at such times the cabbages and other cruciferae in gardens, almost disappear under their attacks. It is nearly the only genus of Diurnal Lepidoptera injurious to man and to keep them in check Providence has provided several small species of hymenopterous parasites, (*Microgaster glomeratus*, &c.) which live within the body of the caterpillar till the latter is about to assume the pupa state, when they issue from its body through a multitude of minute holes and spin their cocoons of yellowish silk in little heaps on each side of the now shrivelled skin of their victim which then falls lifeless to the ground.

Only three species are found in North America. They are *P. oleracea*, *protodice*, and *casta*. The two first of these occur in Canada, and the third which is very closely allied to *oleracea*, but differs in being less strongly marked, and in having no tinge of yellow on the underside, is described by Kirby in his "Northern Zoology" as inhabiting the Hudson's Bay territories. *P. cleomes* of Boisduval is an *aporia*.

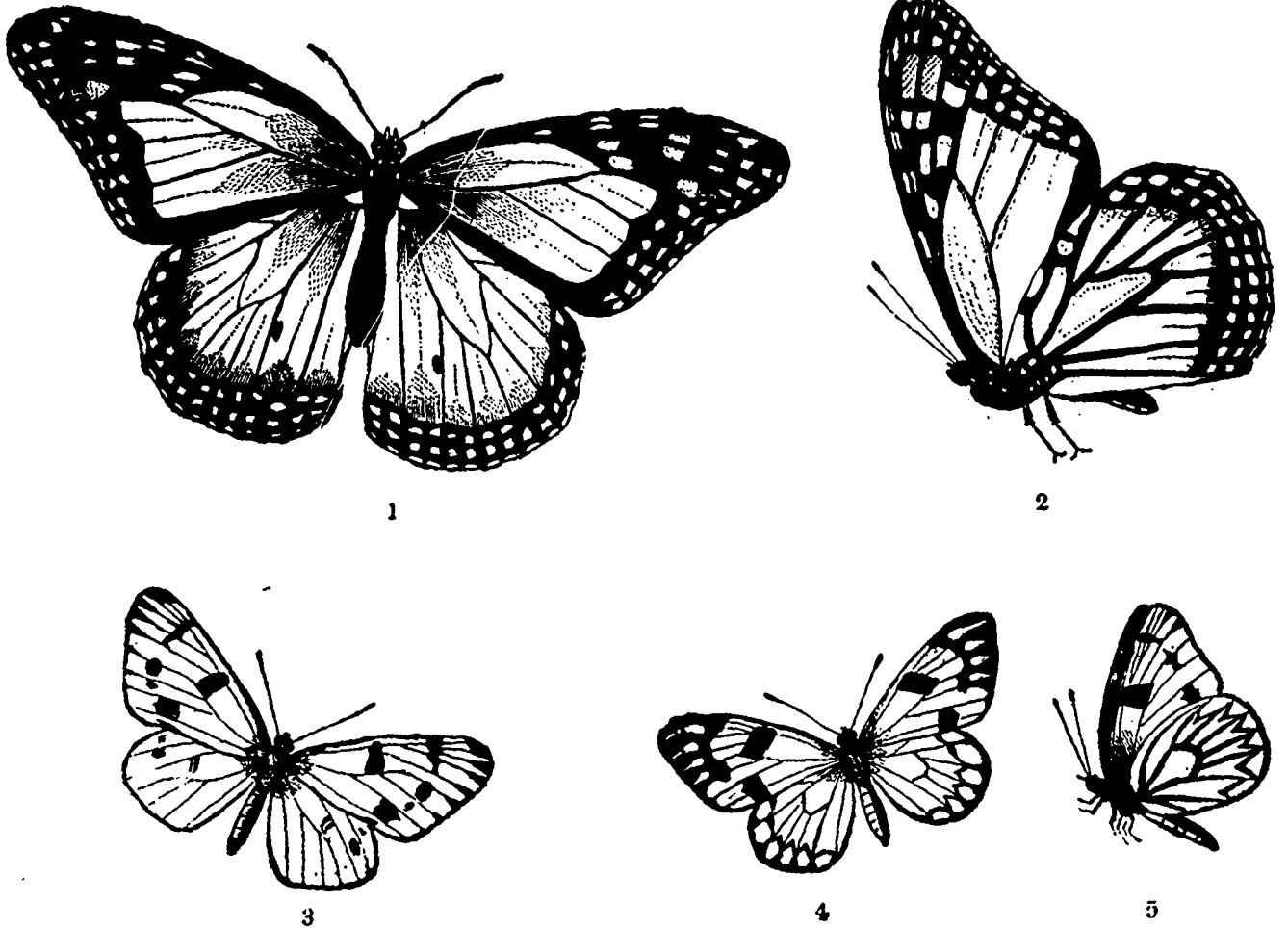
Species 1.—*PIERIS OLERACEA*, THE GREY-VEINED WHITE.

Pontia oleracea (Harris), Emmons, Agri. N. Y. Ins., p. 204. All the wings above pure white, the base and tips slightly dusky, the nervures blackish brown, and strongly marked; underside also white, slightly tinged with yellowish green, the nervures on the posterior pair edged with dusky scales; antennæ with the club black, tipped with brownish white, the rest brown palest on the underside, and faintly annulated with white; palpi white, thorax and abdomen black, clothed with whitish hairs; legs black; expansion of the wings 2 inches.

Dr. Harris, who first named this species, states that the female

lays her yellowish eggs upon the leaves of cabbage, radishes or turnips about the first of June; that they are hatched in about a week, and that the caterpillars attain their full size in three weeks; they measure an inch and a half in length, and are of a pale green colour, and feed indiscriminately upon every part of the leaf. They remain about eleven days in the pupa state.

This species is not mentioned by Boisduval. It appears in May, and continues up to September. It is common in the Northern States, Upper Canada, and the Eastern Townships. It also occurs about Montreal, St. Hilaire, and Quebec, but does not appear to be very numerous at either of these places, and we do not remember to have noticed it at Sorel.



Species 2.—*PIERIS PROTODICE*.

Plate vi., fig. 3, male; 4, female; 5, female underside. *Pieris Protodice*, Boisduval and Leconte, Ico., &c., des Lépidoptères, &c., de l'Amér. Sept. t. 1, p. 45, pl. xvii, fig. 1, 2, 3.

The anterior wings are white with a large, black, trapezoid spot placed in the middle before the margin, and an oblique, spotted black band, most defined at the anal angle. They have besides, along the margin near the tip, four or five triangular black spots placed upon the nervures. The posterior wings entirely white with sometimes a small group of blackish atoms near the costa. Underside of the anterior wings nearly the same as the upper but the black spots rather paler. The posterior wings slightly tinged with yellow and with a blackish spot upon the edge of the discoidal cell. They are also marked by a marginal mark formed of blackish atoms hardly distinguishable from the ground colour. Antennæ black, tipped with white; abdomen greenish black.

The female is distinguished from the male, which we have just described, by the following characters: the black on the anterior wings above, is more intense, and underneath, they are a little tinged with green at the tips; the posterior wings on the upper side are white a little tinged with greyish, and the hind margin blackish, and marked with five or six white trapezoid spots; their underside has the nervures greenish brown, and a marginal band of the same colour.

Boisduval says this pretty species is rather rare. It appears in the spring, and about the end of June, round New York. It is also found in Connecticut, and we have strong reasons to believe it occurs in the neighborhood of Montreal. Having now described all the Canadian species of the first family of Diurnal Lépidoptera we reach the second the Heliconiidae, which, however, is represented in this country by a single species only.

FAMILY 2. HELICONIIDE.

This family may be easily distinguished from the preceding, by having the anterior pair of legs very small or rudimentary in both sexes, and folded up, not being fitted for walking. They thus appear to have but four legs and are termed *tetrapods* (four-footed.) The joints of the anterior tarsi are very indistinct, and very slightly den-

- 1 *Danaus Archippus*.
- 2 ————— (Underside.)
- 3 *Pieris Protodice*, (Male.)
- 4 ————— (Female.)
- 5 ————— (Underside.)

tated at the extremity. In some genera, however, the first pair of legs, though small, has nearly the same structure as the others. The tarsal unguis or claws of the hind legs are simple, large, and very strong. The antennæ are long, and placed close together at the base, and in general have the club very gradually formed and elongated; in some species they are almost filiform, whilst in a few others the club is rather abruptly clubbed. The palpi are wide apart, slender, cylindrical, rather short, and densely clothed with hair-like scales; the terminal joint generally very small. The abdomen is elongated. The wings large, in some triangular, in others oblong and narrowed. The caterpillars are cylindrical and elongated; they are very variously ornamented, some being glabrous, with several long fleshy prolongations, others are covered with slender spines and tufts of hairs, others again are entirely smooth, and some are clothed with long white hairs. The chrysalides are suspended by the tail, and never supported by a band in the middle. This very numerous family contains some of the most beautiful and remarkable amongst the Diurnal Lepidoptera. Some of the species, especially of the typical genus *Heliconia*, having the wings so scantily covered with minute scales, that these organs are completely transparent. This genus, (*Heliconia*), is very extensive, but is exclusively confined to the new world, where its metropolis is in the West Indian Islands, and South America. One species is, however, met with in Georgia and Florida, and is common in Mexico.

The Heliconiidae may be conveniently divided into two sub-families, viz., *Danaidi* and *Heliconiidi*, the former of which is alone represented in Canada.

SUB-FAMILY.—DANAIDI.

This contains some very large and handsome species. They are mostly inhabitants of the intertropical regions, of the old world where they appear to take the place of the *Heliconiidi* of the western hemisphere.

Palpi wide apart, and not rising above the top of the head, their second joint is a little longer than the preceding; club of the antennæ very gradually formed; the wings large, with the discoidal cell of the posterior pair closed; thorax strong and thick; abdomen rather long; anterior pair of legs not fitted for walking, their tarsi hardly distinguishable into five joints, but generally consisting of a single piece with several crowded spines at the extremity. The Larvæ are glabrous, cylindrical, rather long, provided with two, four, six, eight or ten fleshy prolongations, which are segments. The pupæ are shortened, cylindrical, without angulosities, and ornamented with brilliant golden spots.

One of the species which inhabits New Holland, it is said, sometimes appears in such vast numbers as to darken the air by the clouds of them.

It is divided into several genera, only one of which inhabits North America.

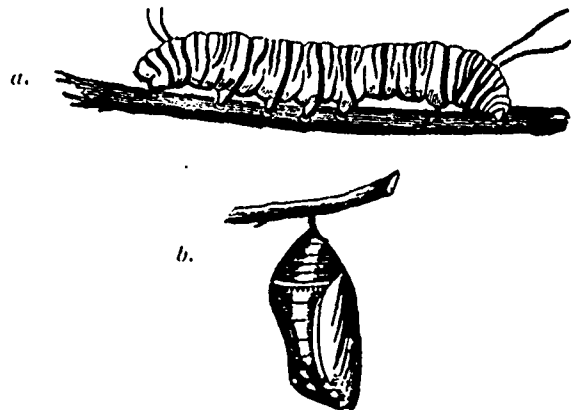
GENUS I.—DANAIS, Boisduval, EUPLEGA. Fabricius.

Head a little smaller than the thorax; antennæ rather long, with a pretty thick, gradually formed, and slightly curved club. palpi widely separated, with the last joint minute, globular and ending in a point, the second long and thick, the radical one above one-third of its length, and all the joints straight, rather broad, and thickly clothed with hairs; abdomen somewhat thin and nearly as long as the posterior wings; wings large, with the margins a little sinuated, the upper pair triangular, the second pair have in the males towards the anal angle, sometimes a blackish pocket or hollow, and sometimes a very black spot divided by a greyish line in relief, placed at the extremity of the nervure; anterior tarsi slightly articulated, but very indistinct, and scarcely any projecting points in the room of the claws.

All the species have two marginal rows of spots. Some have the ground colour of the wings rufous with the border black, others are black, with the longitudinal lines and scattered spots of a greenish yellow. The head, prothorax, thorax and breast spotted with white. The Larvæ generally feed on *nerium*, *asclepias*, *synantheum*, and other plants of the same family. The Pupæ are short, smooth and round, and suspended by the tail.

Two species are found in North America, viz: *D. archippus* and *Berenice*; the first of these alone occurs in Canada. The true country of this genus is the Indian Archipelago, China, Bengal, &c. It also inhabits Africa, and accidentally the south of Europe.

SPECIES 1.—DANAIS ARCHIPPUS. The Storm Fritillary. pl. vi, fig. 1., male, 2, underside.



a, The Caterpillar, b, The Chrysalis.

Danais Archippus, Godart, Enc. Method, ix, p. 184, N, 28, 1821. Boisduval et Leconte, Ico., &c. des Lépidoptères, &c., de Pamer, Sept., t. 1, p. 137, pl. 40, fig. 1-4, 1833. Gosse, Canadian Naturalist, p. 262, 1840.

Papilio Archippus, Fabricius, Ent. Syst., 111, 1, p. 49, n. 151, 1794. Smith & Abbott, Lepid. of Georgia, vol. 1, tab. vi. 1798.

Papilio plexippus, Cramer, pl. 206, fig. E. F., 1779.

Danaus plexippus, Emmons, Agri. N. Y., Ins. p. 202, pl. 38, 1854.

Papilio Megalippe, Hubner, Exot. Saml, 1806.

The four wings are a little sinuated, fulvous above, with a rather brilliant reflection, and the nervures dilated and black. The hind margin is also black, with two rows of white spots, in some individuals a portion of these spots are fulvous. The anterior wings have at the tips a large patch of black upon which are placed three oblong fulvous spots, preceded internally by eight or ten smaller white or yellowish spots, spreading themselves along the middle of the costa, which as well as the inner margin is also black. The underside of the wings is much like the upper, but the spots on the hind margin are larger, and all are white. The ground colour of the posterior wings is a bright nankin yellow, with the nervures very slightly bordered with whitish spots. The notches on the margins of all the wings are bordered with white. Expansion of the wings about 4½ inches. The caterpillar is white, transversely banded with black and yellow. It has two pairs of black flesh prolongations, the first pair is placed on the second segment, and the other, which is much the longest, on the eleventh. It feeds on various species of *asclepias*, and probably in this country, principally on *A. Syriaca* or milk-weed, the "cotonier" of the French Canadians, so well known for its large pods filled with elastic, silky filaments, and from the young shoots being eaten, in early spring, like asparagus. In July its large clusters of purple blossoms are a great resort for moths of various families, and the beautiful chrysomela *Labidomera trimaculata* feeds on its milky leaves.

The Chrysalis is of a delicate green, sprinkled anteriorly with golden dots and marked upon the back a little beyond the middle, with a semi-circle of the same colour, bordered underneath by a row of minute black spots, placed very closely together.

This is a common species throughout the middle States and the West Indies. It is more abundant in Upper than Lower Canada, but is by no means uncommon in the latter. It appears in July, and there is but one brood during the season. We remember it being named to us, in our early entomological days, as the Storm Fritillary. We have retained this name, although not strictly correct, for it does not belong to the same family as the Fritillaries. It is, however, a very appropriate appellation, as it appears to be most active when the atmosphere is charged with electricity, and often, in those death-like calms which precede a thunderstorm in this country, when not a breath of wind ruffles the glassy surface of the water, and the lurid clouds are hurrying up from the horizon, one of these splendid butterflies may be seen floating past on the sultry air, like a herald of the approaching storm. It generally flies in a slow and heavy manner near the ground, but occasionally soars to a great height in the air. Professor Emmons has repeated an old error in his work on the Insects of New-York, by calling this species *plexippus*, and moreover misspells the name of the genus. He also for some reason not obvious to us, places two species of *Nymphalis*,

(*N. disippus* and *ursula*) with it in the family Heliconiidae, which he inserts between Papilionidi and Pieridi! *N. disippus* is certainly very similar in colour and markings, but the venuration of the wings is totally different, and the discoidal cell of the posterior wings is open, instead of being closed as in the present species.

FAMILY 3.—NYMPHALIDÆ.

Palpi close together, very erect, densely clothed with hair-like scales, the front of the two first joints almost as broad as their sides, which are also broad; antennæ long, generally furnished with a more or less distinct club which is never hooked; anterior legs entirely rudimentary in both sexes, and quite unfitted for walking; the hind legs with only a single pair of spurs at the extremity of the tibia and the tarsal unguis strongly bifid; posterior wings strongly grooved and their inner margins almost meeting beneath the abdomen, which rests upon them, and then discoidal cell generally open. The caterpillars are cylindric, variable in structure, but generally clothed with numerous strong spines; others have the body smooth, with the head or tail forked. The chrysalides are naked, sometimes armed with small conical protuberances, generally ornamented with metallic colours, and suspended by the tail only.

The species of this family are very numerous and beautiful, and are found in every part of the world, and almost all our commonest butterflies belong to it. They are mostly of the middle size, and few rival the gigantic proportions of some of the Papilionidae. It is divided into four sub-families, viz: *Argyniidi*, *Vanessidi*, *Nymphalidi* and *Satyridi*, all well represented in Canada. Generally, the sub-families are placed in an inverse order to that which we adopt, but for various reasons we adhere in this respect to the arrangement pursued in Humphreys' and Westwood's British Butterflies.

In his work on the Butterflies of North America, M. Boisduval places the *Lycenidae* between the *Papilionidae* and the *Heliconiidae*, on the ground that their pupæ agree with the first family in being supported by a girth round the middle. As, however, there appears to be a natural gradation from the *Papilionidae* to the *Heliconiidae* and *Nymphalidae*, we have followed the arrangement adopted by most English authors.

SUB-FAMILY 1.—ARGYNNIDI.

Palpi long, ascending, closer together at the base than at the tips, second joint the largest, the third small and variable in shape; antennæ long, terminated by a suddenly formed, rounded, compressed, somewhat spoon-shaped club; head broad; anterior legs rudimental in both sexes; discoidal cell of the posterior wings open. The caterpillars very spinose. It is divided into several genera, of which three, viz: *Agraulis*, *Argynnis* and *Melitæa* inhabit North America, but the two last only are met with in Canada. They are termed Fritillaries, (derived from the Latin word *Fritillus*, a chess-board) in allusion to the underside of their posterior wings being generally chequered with silver spots, and various colours, something in the manner of a chess-board.

GENUS 1.—ARGYNNIS.

Head large, as broad as the thorax, which is thick and strong; eyes very large and naked; palpi very hairy, erect, rather wide apart, the terminal joint small, naked and terminating in a point; antennæ rather long, terminated by a very suddenly formed, broad, compressed, spoon-shaped club; abdomen shorter than the posterior wings; wings slightly sinuated; anterior legs rudimental in both sexes, but differing in the following particulars:—in the males they are not only much more hairy than in the females, but are entirely destitute of articulations, which in the females they are much less hairy, and distinctly composed of five joints, even without denuding them of scales, each of the joints having two short spines at the extremity on the inside.

The two genera *Melitæa* and *Argynnis* are so closely allied, it is difficult to give satisfactory characters by which to distinguish them, but the present may be known chiefly by the silver spots which ornament the underside of the wings, being large and conspicuous, and by the tessellate appearance of their upper side.

The larvæ are thickly clothed with spines, two on the first segment next the head being rather longer than the rest. They feed principally on plants of the genus *Viola*. The pupæ are angular, ornamented with spots of gold or silver and marked with two rows of spots on the back.

The ground colour of the upper surface of the *Argynnes* is fulvous or reddish brown, marked with a row of sinuated black lines (somewhat resembling written figures) occupying the central cell of the anterior wings, and with several rows of black spots running parallel to the hind margin. It is, however, the beautiful silvery mark-

ings on the underside for which they are most remarkable, and which afford the best means of distinguishing the species from each other.

Boisduval describes nine species as being found in North America. We shall describe four as Canadian, of which two are doubtful natives, and of the rest three inhabit Labrador, and the other two the southern States. Very few of the caterpillars of the American species are known, and we are therefore unable to furnish figures of them.

Species 1.—*Argynnis Idalia*.

Godart, Encyclop. Method ix., p. 263, No. 20.

Papilio Idalia, Fabricius, Ent., Syst. 111, 1, y. 145, No. 446.

Cramer, pl. xlv., D.E.F.G.

Drury, Ins. 1, tab. xiii, fig. 1, 2, 3.

Argynnis Idalia, Boisduval, lco., p. 147, pl. 43, fig. 1, 2.

Argynnis Ideaba, Emmons, Agri. N. Y. Ins., p. 212.

Anterior wings on the upper side fulvous, with fifteen black spots, the five first linear, and situated on the discoidal cell, the next forming a zig-zag transverse band across the middle of the wing, the rest round, smaller, and disposed in a line parallel to the hind margin; the hind margin is covered by a large black band, dentated internally, divided in the male by a row of fulvous lunules, and in the female by a row of white spots; the latter has also some white spots opposite the tip, where the black border is considerably dilated. Underneath, these wings are nearly the same as on the upper side, except that the terminal band is less marked and the spots by which it is divided are arrow-shaped, and pearly white. The posterior wings are bluish-black, with the base reddish-brown, traversed, behind the cell by two rows of large white spots, the outer of which are yellow in the male; underneath this pair of wings is very beautiful; the ground-colour is brown, marked with about 22 pearly white spots, arranged in four rows, parallel to the hind margin; the seven composing the marginal row are somewhat crescent-shaped, each surrounded by a black line, the next near the base are of different shapes; the costa and inner margin are bordered near the base by a streak of pearly-white; the notches of the wings are edged with white; abdomen blackish, the thorax covered with fulvous hairs.

It is found in the neighbourhood of New-York and Philadelphia, and may possibly occur in the Eastern Townships and Upper Canada. It also inhabits Jamaica.—(*Canadian Naturalist*.)

OFFICIAL NOTICES.

His Excellency the Governor General has been pleased to approve of the following appointments, viz:

SCHOOL COMMISSIONERS.

County of Megantic.—Ireland, Messrs. Charles Philippe Emery, Jonathan Thurber, John McLean, Robert Bennett and Edward Redman.

County of Levi.—Notre Dame de la Victoire, Mr. Pierre Barras.

CATHOLIC BOARD OF EXAMINERS FOR THE DISTRICT OF MONTREAL.

Misses—Marguerite DeMontigny, Angéline Serre dite St. Jean, Philomène Thérien, Marie Edwidge Bissonnet, Céline Roy, Angéline Carrière, Marguerite Roy, Marie Broulard, Philomène Nadeau, Henriette Robillard, Aurélie Cardinal, Eulalie Loupret, Marie Larivière, Philomène Gauthier, Emilie Miron, Clotilde Girard, Adeline Valquet, Eulalie Bourgaud, Marcelline Hubardeau, Justine Gagné Catherine McGinnis, Dames, Pierre Laporte and C. Brunet, Messrs Phocas Duplessis, Camille Girouard, Ovide Chapleau, Edouard Fortin, Joseph Germain and Gédéon Guertin have received diplomas authorising them to teach in Elementary schools.

F. X. VALADE,
Secretary.

CATHOLIC BOARD OF EXAMINERS FOR THE DISTRICT OF QUEBEC.

Misses Anastasia Duff, Aurelie Bertrand, Luce Catellier, Philomène Bazin, Nathalie Corriveau. Messrs, Louis Lemay, François A. Allard. Misses Catherine Turgeon, Zoé Gagné, Marie Eliza Plante, Justine Laflamme, Vitalline Bilodeau, Henriette Bernier, Ursule Bouffard and Aurélie Demers have obtained diplomas authorising them to teach in Elementary schools.

C. DELAGRAVE,
Secretary.

PROTESTANT BOARD OF EXAMINERS FOR THE DISTRICT OF QUEBEC.

Mr. John Purdy has obtained a diploma authorising him to teach in Elementary schools.

D. WILKIE,
Secretary.

BOARD OF EXAMINERS FOR THE DISTRICT OF SHERBROOKE.

Misses Maria Louisa Watier, Catherine Grace, Rowena Osgood, Ruby Ann Forbes, Sarah Ranfill, Deborah Holbrooke, Achsah Hurd, Marcella O'Connor and Messrs William E. Jordan, William H. Mago, Henry Shurliff and Patrick Fitzsimons, have received diplomas authorising them to teach in Elementary schools.

S. A. HURD,
Secretary.

BOARD OF EXAMINERS FOR THE DISTRICT OF KAMOURASKA.

Misses Adelaide Bégin, Euphémie Bégin et Emilie Ansbrow have obtained diplomas authorising them to teach in model or in superior primary schools.

Misses Arthémise Groudin, Gracieuse Lévasseur, Angèle Nicknen, Basile Pelletier et Henriette Ansbrow have obtained diplomas authorising them to teach in Elementary schools.

P. DUMAIS,
Secretary.

FOURTH CONFERENCE OF TEACHERS RESIDING WITHIN THE LIMITS ASSIGNED FOR THE JACQUES CARTIER NORMAL SCHOOL.

This conference will be held at the Jacques Cartier Normal School Notre Dame street on Friday the 29th day of January next. Two lectures will be delivered in the occasion.

D. BOUDRIAS,
Président.

THIRD CONFERENCE OF TEACHERS RESIDING WITHIN THE LIMITS ASSIGNED TO THE LAVAL NORMAL SCHOOL.

The third conference of the teachers residing within the limits assigned to this Normal school will be held at Quebec in the Normal school on Friday the 15th day of January next, at ten o'clock in the forenoon; lectures will be delivered by the Professors of the Normal school and by several of the teachers.

By order,
C. J. L'ÉVEQUE LAFRANCE,
Secretary.

LAVAL NORMAL SCHOOL.

Mr. Ernest Gagnon associate professor of this school, being now absent on leave, Mr. Adam Tuote has been permitted to act as his substitute pro. tem :

DONATIONS TO THE DEPARTMENT LIBRARY.

The superintendent of Education acknowledges with thanks the following donations to the library of the department.

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From Messrs. Martin and Hill of Montreal : *Longfellow's poems*, 3 vol. in 12o.

Julouin by Boswell, 1 vol. in 8o and *Livingston's travels in South Africa*, 1 vol. in 8o.

From Mr. Chagnon, assistant-secretary of the board of Agriculture; *The Agricultural Journal for Lower Canada*, 2nd and 3rd vols, le *Journal d'Agriculture pour le Bas-Canada*, 5th vol, le *Journal du Cultivateur*, 3rd vol. and the *Farmer's Journal*, 4th vol.

SITUATION WANTED.

Michael C. Healy, a native of Ireland, aged 27 years and unmarried is desirous of obtaining a situation as teacher in a Commercial or Elementary School.—Answers to be directed to the Education Office, Montreal.

JOURNAL OF EDUCATION.

MONTREAL, (LOWER CANADA) DECEMBER, 1857.

To Our Readers.

This is the last number of our first volume, and we would certainly lack gratitude towards the Canadian public if we did not tender them our acknowledgments for the support we have received at their hands. To our brethren of the press, we owe our best thanks for the countenance they have generally given to our efforts in the cause of public instruction. Journals of Education, destined for the teacher and the student, and by their cheapness, to parties generally unable to procure other periodicals, may be called the pioneers of journalism. The other newspapers more universally useful, will soon follow in their track. If on no other ground, we maintain we would have on that one alone, a claim to the indulgence and sympathy of the press generally. But apart from this perhaps selfish consideration, we are sure our confrères will not fail to see a great many other and better reasons why they should encourage the circulation of our periodical.

We have already stated that the publication of two journals of education, with the same legislative grant which is barely sufficient to support only one in Upper Canada, requires from the public some little exertions in the way of subscriptions, and we are the more at liberty to urge the matter that we derive no personal benefit from our labors in that respect, inasmuch as that duty has devolved upon us at our own suggestion, while we enjoyed our present salary. The amount of subscriptions will always be applied to improving the journal by illustrating it with engravings, in publishing supplements and perhaps in issuing it bi-monthly in 1858, if the public encouragement warrants us in so doing.

We must now apologize for the many irregularities which have occurred in its publication during the present year, and which arose from circumstances altogether beyond our control, and also for the typographical errors with which our pages have been frequently defiled, to our great sorrow, and notwithstanding all our efforts to avoid them.

Apart from these, which seem to be one of the necessary evils of editorship, we must confess we have ourselves committed many errors, and we shall now proceed to point out some of them in the following:—

Corrigenda.

Page 53—Mgr. Laval's name was not "François Xavier de Laval Montmorency," but "François de Montmorency-Laval"—The date of his bulls was "3rd June, 1658," and not "1657."—"Father Lalemant" instead of "Lalemand."—Mr. de Bernières was not the "Abbé de Bernières," he was a layman. We owe these corrections to Mr. J. Viger.

Page 70—To the names of the first Canons given of the See of Quebec in that page, must be added those of Jean Dudouyt, Jean Gaultier, Thomas Morel, Pierre de Caumont, Benoit Duplessis, Charles Amados Martin, and Jean Guyon. Mr. Dudouyt, who was in France when appointed, never took possession of his office. MM. de La Colombière, De Leuzas, Le Vallet and Morin became members of the Chapter afterwards, but were not among the first appointed. For this information we are indebted to the Rev. E. Langevin.

Page 85—The two classes of philosophy were at the Jesuits college, but the young men who followed them were boarded at the Seminary. Michel de Salaberry was the father, not the uncle of the hero of Chateaugay.

Page 114—"Mr. Emile Dupont who has just now obtained one of the prizes offered for the best essays on the weevil and other parasites of the wheat, was brought from France to be placed at the head of a model farm."

This is a most egregious blunder, and the worse of it is that we cannot vent our spleen on the individual who misinformed us, having heard the statement made without remembering by whom or where. "Emilien Dupont" is a *nom de plume* assumed by the Revd. Mr. Provencher, curé of St. Joachim, who wrote the essay. For this important correction we are indebted to the Revd. C. F. Cazeau, G. V. of Quebec.

Page 156—We copied the following inadvertently from an English newspaper: "France has also lost Mr. de Custine, who wrote very interesting memoirs on Russia, and was the son of the marquis de Custine, one of the generals of the Republic, who was sentenced to death under the Convention and had a most marvellous escape."

This is erroneous. Mr. de Custine was the grandson, not the son of the Comte (not *marquis*) de Custine, who was one of the generals of the French army at the time of the Revolution. Both the general and his son were executed.

We shall be extremely thankful to any of our readers who will point out to us errors in any of our articles or in the extracts given from other papers. Accuracy ought to be one of the characteristics of an educational periodical, and if it is not always to be obtained *de prime abord*, why, it may be arrived at by due corrections.

We shall continue in our next number our articles on the COLLEGES OF CANADA. The McGill University having the first complied with the request we made for notes and drawings, will be, as a matter of course, the next institution taken up.

Queries on the School Laws.

The following questions having reference to the administration of the laws for the promotion of education, with the answers and solutions subjoined, will, we feel certain, prove both interesting and instructive to commissioners, trustees and all others connected with the execution of the school acts.

I.

(1).—Asked, whether a school teacher can, under the provisions of the act, 19 vict., cap., 14, Sect. 12, demand any indemnity from the commissioners, should they neglect to give him the three months notice, that they will no longer require his services in accordance with the circular no. 12, issued by the late superintendent of Education.

Answer.—Whenever the engagement entered into between the commissioners and the teacher is not continued for another year without the latter having been previously, (that is, three months before,) notified of their intention to cancel their engagement, as required by the said circular No. 12, the teacher has the right of demanding an indemnity from the commissioners unless they can prove that they were justified in dismissing him,—and this indemnity can be paid to him by the superintendent of Education under the 12th section of the act 19 Victoria chapter 14.

Examples.—An indemnity of £10 was paid to Mr. Joseph Desrochers, that amount having been deducted from the grant awarded

to the school commissioners of Sorel; and another indemnity of £5 was paid to Mr. F. X. Besset teacher, which sum was deducted from the amount granted to the school commissioners of St. Alexandre d'Iberville.

II.

According to the provisions of the 18c clause of the act. 12 Victoria, chapter 50, the amount awarded to each municipality must be distributed between the majority and the dissentients attending their respective schools.—Asked, Does this have reference to children attending all schools within a municipality, or only those under the control of the municipality.

To this question it was answered, that the report of the number of children attending the schools, which, according to the requirements of the 18c section of the act 12 Vict, cap 50, must be made to the Superintendent of Education, can only comprise those children attending the common schools under the control either of the Commissioners, or the Trustees of dissentient schools.

III.

Asked—If teachers, either male or female, who have obtained certificates of capacity from any school Inspector, are obliged notwithstanding, to obtain diplomas from the Boards of Examiners.

Answer.—All teachers whether male or female must obtain diplomas.

IV.

Asked.—Whether the girls schools referred to in the 30th section of the act 9th Victoria Chapter 27, and also in the 14th section, of the act 12th Victoria, chapter 50. within any school district, should receive an amount proportionate to the total number of boys and girls of age to attend school, within such school district, or only, according to the number of girls actually attending that particular school?

Answer.—The girl's school within any school municipality must be considered as a school district, and the portion of the legislative grant accorded to it, must be determined by the number of children, (of whatever age or sex, or whether there be a boys model school or not within that particular school district,) of age to attend school, residing within the school district in which the girls school has been established.

V.

School houses were built in four school districts at the general expense of the municipality. Subsequently, at the request of the rate payers, the school commissioners erected four new school districts, under the express condition however that each district should build its school house at its own expense, Asked, was the decision of the school commissioners legal.

—The answer to this question was in the affirmative.

VI.

Asked—Does the fortieth part of the total amount of the assessment, which a seigneur, belonging to a different creed from the majority, is bound to pay, belong to the rate payers constituting the majority of a municipality, or to the dissentients, forming the minority.

Answer.—As this tax of a fortieth is in fact nothing more than a rate on a particular kind of property, it must be disposed of in the same manner as any other kind of tax; and therefore if the seigneur, resides within the municipality—the head of a family and a dissentient—his fortieth should form part of the funds placed at the disposal of the dissentient schools; but if he be a non resident, or if being a resident he is not a dissentient, whether protestant or catholic, his amount of assessment forms part of the revenue of the majority.

To the Editors of the Ohio Journal of Education.

We have now on our table, we believe, all the Journals of Education published on this continent, all those published in France, and most of those published in England. The only paper which has not yet condescended to exchange with us is the one above named. The extracts we see in other papers make us feel its want most seriously. We have regularly mailed our paper to the address of the editors, (Columbus) and we have besides, written twice to inquire whether they had received our publication and intended or refused to exchange. There is too much unanimity, too great a fellow-feeling among all those engaged in the great work of public instruction, that we should not fancy that some error in the post office, at the bottom of this misunderstanding. We beg of our coterriters of the Michigan and of the Wisconsin Journals of Education to copy the above.

Vaccination.

This is a very important subject connected with education. Many schools, as may be seen by the reports of the inspectors of preceding years, have been closed during the winter, on account of the raging of small pox in their districts. We know of one college, the directors of which, are now thinking of suspending the classes from the same cause.

In France and in Germany we believe that no pupil is admitted into any institution of learning without first producing his certificate of vaccination. In the absence of a law of this nature in Canada, we hope our teachers and school inspectors will take advantage of the following extract from our esteemed cotemporary to urge on parents the importance of a practice which will be the means of saving, in many cases, the lives of their children, and of exempting them from bearing the stigmas of this cruel disease.

VACCINATION.—In the second number of our first volume we wrote a long article in favour of compulsory vaccination. Just at that period the subject was being agitated in England, and a bill was subsequently carried through both Houses of Parliament, the provisions of which made it obligatory on all persons in the United Kingdom to have their infants vaccinated within three months after their birth. Great dissatisfaction has been expressed by the medical profession against the working of the bill, but we have not seen any objections advanced against its principle. Nor can we conceive what argument can be reasonably brought forward in support of a voluntary system of vaccination, in view of the important fact, that in those countries where the compulsory system obtains, small-pox is scarcely known, whereas, in other places, where non-compulsion is the rule, the disease prevails extensively, and is very fatal.

In the following countries, where vaccination is compulsory, there were, in every 1000 deaths,—in Prussia, 7.5 of small-pox; in Bohemia, 2; in Lombardy, 1.5; in Venice, 2.2; in Sweden, 2.7. In Copenhagen during thirteen years—from 1811 to 1823—there had not been one fatal case of small-pox, in a population at that time of 100,000. In London, on the other hand, where it is permissive, there were in every 1000 deaths, 16 of small-pox; in Glasgow, 36, and in Greenock, 34.6. In Montreal, from December 1846 to March 1848, inclusive, there occurred 5,811 deaths from all causes; whilst during the same period there were 87 deaths from small-pox, the mortality from this loathsome disease, as compared with the mortality from all diseases, for one year and three months being 16 to every 1000. And if we were to deduct the 1462 deaths which took place in June, July and August of 1847, during which three months typhus fever was epidemic, the proportion would be much greater. There were, from the 2d November 1852, to the 1st January 1853, 286 persons interred in the Roman Catholic burial places of the city. Of these 286, eleven died of small-pox; the proportion to 1000 being 31.1. From the 1st January to the 30th of June, 1855, the number of interments was 1065, of which 58 died from small-pox. The mortality rising in these eight months to the high ratio of 54.1 in every 1000 deaths from all causes. In that part of the Census Report of the Canadas relating to "deaths and causes of death," we find it stated that out of 5636 cases of death, in which the causes were specified, occurring in Upper Canada, 38 were from small-pox, or an average of 6.5 in every 1000. In Lower Canada, however, out of 6500, there were 147, or 22.6 to every 1000. These imperfect statistics are sufficient to show that in this country small-pox is far more prevalent and fatal than most persons imagine, and that it is incumbent on our legislature to adopt proper measures to protect the community from its ravages. As we have said before—In estimating the merits of this question, more should be taken into consideration than the immediate mortality of, and alteration of features left by the disease. From its usually attacking persons while they are in a state of infancy or childhood, before the processes of growth and development have proceeded to any extent, those who recover are left in a condition not at all favourable to the production of robust healthy manhood. The whole mass of blood has been poisoned, and the system has received a shock from which it seldom completely recovers. Infirmity of constitution, and consequent liability to various diseases, is entailed upon the individual for life. Nor is it physical perfection alone that is interfered with. The retarding and deteriorating influences date their origin from an attack of small-pox, are quite as inimical to mental as to bodily development.

We have been led to pen these remarks from having read in the *Toronto Colonist* of the 4th november: the following notice of a petition, presented by Dr. Rees to the Legislature. The arrangements which he desiderates are excellent, but it is our firm opinion that until vaccination be made compulsory, small pox will constantly be found in our midst, and that it will, as usual, add materially to the mortality bills of the Province:—

"We have been favoured by Dr. Rees with an examination of a volume received of no ordinary value, entitled the "History and Practice of Vaccination," published by the General Board of Health, London 1857, and presented to both Houses of the Imperial Parliament by command of Her Majesty. Its importance at the present moment, when that scourge, Small Pox, has appeared in several parts of the Province, will be readily appreciated. Dr. Rees presented a petition, at the last session of the Legislature, praying that measures may be adopted and means provided to secure free vaccination to the inhabitants of this Province, and a Bill was accordingly framed and passed the Upper, but was lost in the Lower House, purely owing to the lateness of the season. The following is the prayer of the petition:—

"That Your Petitioner is strongly impressed with the necessity of some more stringent Legislative provision for the encouragement of the practice of Vaccination in this Province.

That with the view to effect the same, your Petitioner humbly solicits of your Honourable House the passing of a Bill requiring all Hospitals throughout this Province, which are now, or may hereafter be, in the receipt of Public Aid, to keep on hand, at all times, an adequate supply of Vaccine matter, for the undermentioned purposes, viz.:

Firstly.—In order to the Free Vaccination of all indigent persons who may personally apply to receive the same, at certain times to be set apart in each Hospital, for that purpose; such opportunity to be afforded at least twice in each and every week.

Secondly.—In order that all Practitioners of Medicine in this Province, or persons who may be authorized by the Superintendent General of Indian Affairs to make such applications on behalf of the Indian Tribes in Canada, may be at liberty to apply to, and receive from all such Hospitals reasonable supplies of Vaccine Matter, under the authority and direction from Trustees of such Institution.

And your Petitioner furthermore solicits that any such Bill may contain a Provision requiring all Hospitals in this Province, receiving Public Aid, to report to the Legislature within fourteen days after the commencement of each and every Session, the number of persons who have applied for and received free Vaccination in such Institution within the year, also the number of Medical Practitioners supplied, together with the rules and regulations imposed in reference to the same."

By reference to the Journals of the Legislature, it will be seen that the practice formerly pursued on an alarm of small-pox breaking out, was to issue an order in Council for general vaccination at the public expense throughout the Parishes—an expense which may be in future saved to the amount of thousands of pounds by adopting the above Bill, besides saving the lives of whole villages of the aborigines, who, when once the disease appears amongst them, are invariably swept off. The difficulty experienced by the medical profession throughout the Province in obtaining genuine vaccine virus, might also be in future effectually obviated."—*Montreal Medical Chronicle*.

American Association for the advancement of Science.

(Continued from our last.)

Mr. Gibbons, of the United States Mint, read an interesting series of papers on the weights and measures of various countries. It appears that the Celts used brass and iron rings by weight for money. Gold ring money of the Celts was also annually dug up in Ireland. The old pound of the Saxon was called *easterling*; from that came the modern sterling. In 1266, by consent of the whole Realm of England, it was determined that the silver penny, called *easterling*, should be round and should be of the weight of 32 grains of wheat taken from the middle of the ear. Twenty of these penny weights were to make an ounce. Troy weight is supposed to have been derived from the Eastern nations, and transmitted first to Troyes, in France, from Cairo during the crusades. In England, a statute established a common standard by which silver and wheat were assumed to be the natural test the one of the other. Unfortunately, neither was exactly suited for the purpose. It had been

found by experiment with white and red wheat from North Carolina, (which were reported the best at the London Exhibition,) that of red wheat 40 to 43 grains were required to balance a grain of silver, and from 28 to 35 or 36 grains of white wheat effected the same thing. In short, grains were not intended to serve as a just measure for perfect comparison, multiplication or division. Again, there was no such thing naturally as pure silver. It was produced only by art, and imperfectly reduced silver could not offer any just rule for the adjustment of weights and coinage.

Among Eastern nations carat grains were used to determine the weight of pearls and precious stones. Originally a bean, the *karat* was thought when dry to vary very little in weight. A natural section divides this bean into halves, which are again cut into quarters and are again divided, the smaller divisions being used to mark the different degrees of firmness of gold and silver. The Chinese use a peculiar kind of pea and grains of Indian corn. In Sumatra grains of rice are used. Thus, a gardener's trade basket seems to have afforded all the standards required, and all the weights wanted by our ancestors, until nearly the close of the last century. The greatest discrepancy nevertheless existed between these original standards of weight, some grains weighing twice as much as others. Hebrew writers say that the barley corn was an element in the valuation of the shekel. The lecturer gave the history of the several coins and their relative value. Speaking of the standards of value established at different times in the United States and British mints, he stated that the coin had a somewhat depreciated value, established by an arbitrary rule adopted for the purpose of convenience, as compared with the original standard in Spain. According to the present value of the ounce *avoirdupois*, the shekel would be worth 63 cents or about an English half crown. The *avoirdupois* weight can claim a very remote antiquity. The word dollar was derived from the Greek *eidolon*, *idol* or *image*. This derivation arose from the fact of coins being issued from the temples, the image of the deity stamped upon them, being a guarantee of the purity and due weight of the coin. If such is the case, no wonder that so many of our fellow-citizens worship the dollar, the old and modern *idol*!

Professor Le Conte read a paper to prove that solar light does not seem to exercise any sensible effect upon the combustion, contrary to the popular belief that fire will not burn well in sunshine.

Two other papers were read, one by Professor Bache on the great tides of certain bays and estuaries and another by Professor Henry on the formation of ice crystals.

Dr. Smallwood read a paper on the presence of ozone and on its effects on the atmosphere.

"Schonbien, in 1840, applied the term ozone to the peculiar smell which is perceptible during the action of the electrical machine, and also during the decomposition of water, by the galvanic apparatus. It was subsequently ascertained that a similar smell is developed by the influence of Phosphorus on moist air, and also by a great many chemical changes, and for some time its existence was recognized by its smell, or odour, alone; but in April, 1848, Schonbien became possessed of another of its characters, viz: its oxidizing principle, and it is this property which it possesses more particularly, when we direct our attention to its presence in the atmosphere, although these oxidizing properties may be common to some other bodies, as nitrous acid, which is said to be generated in the atmosphere by atmospheric electricity.

"When largely diffused in the atmosphere, it causes like chlorine (to which it is somewhat allied) very unpleasant sensations, such as difficult respiration, and it acts powerfully on the mucous membrane, it kills small animals very quickly; it is insoluble in water, and oxydizes very quickly all metallic bodies, and it has the power in a large degree, of destroying *miasma* arising from the decomposition of animal and vegetable substances, and Schonbien came to the conclusion, that its formation depended upon the action or formation of atmospheric electricity, and he referred the beneficial effects of thunder storms, to the action of the ozone formed, neutralizing the *miasma* arising from the decomposition of animal and may be vegetable substances, and it possesses in a powerful degree bleaching properties, and in this it is again analogous to chlorine.

"Since Schonbien brought its properties before the scientific world, it has received more or less attention both from the physician and the meteorologist.

"It has been advanced, that during the presence of cholera and other epidemic disease, its absence was remarked, while on the other hand, when the atmosphere has indicated a great amount present, diseases of the lungs and mucous membrane have been more prevalent, it has been still further stated that its action on the vegetable kingdom is similar in its effects as in the animal econo-

my; the potato disease or rot especially, and other diseases in vegetables have, it is said, been caused by either its absence or presence, in too large quantities.

"It would far exceed the limits of time allotted to me to enter fully into the progressive steps of the investigation or history of ozone, for it has engaged the attention of physicians in England, and on the continent of Europe, and I am happy to say, that some members of the American Association have devoted considerable attention to it, and I have deemed it of sufficient import, to lay before the section the result of some eight years of investigation, or nearly 6,000 observations during the visitation of the cholera in 1854, and I heartily trust that the Association may, by its influence, extend these observations through the whole of the United States territory, and, as far as practical, throw some light on its action in the animal and vegetable kingdom, and I am sure a subject of so much importance, and which must (if we are to believe the report of some investigators) exert an influence on both the health of animals and of plants, will be at once a sufficient ground for extending such observations, which should be as uniform as possible.

"The method of estimating and detecting the amount of ozone, is by what is called the *Ozoneometer*, which is nothing more than slips of paper, wetted with the solution of starch and iodide of potassium; these become blue on exposure, owing to the oxidization of the potassium by the ozone, and the setting free of the iodine, the formula I used, and the one generally adopted is 3 i of starch boiled in 3 i of distilled water, and when cold 10 grains of the iodide of potassium is mixed with it, it is quickly spread on paper and dried in the dark, and must be kept in a dry place, and free from light until required; when they are placed in a situation shaded from the sun and rain, these strips are one-half inch wide, and from three to four inches long. Dr. Moffatt, an eminent English physician and who has paid much attention to the subject, places his slips of paper in a box, without a bottom, so as to be excluded from the light; but so far as my observations go, I have found so little difference in the two methods, that I have continued that of Schonbien's, as I have before stated, and expose the slips of paper to light, but excluded from the sun and rain. The amount of ozone present is estimated, in 10ths the deep shade or saturation, being 10, and diminishing in depth of shade to 0.

"It has also been asserted that slips of paper placed at high elevations, have exhibited a deeper shade. To test this fact, I exposed slips of prepared paper at an altitude of 80 feet, on the top of a pole or mast, which is used for collecting atmospheric electricity and as far as my observations go, I could detect no appreciable difference from those exposed 5 feet from the ground, and if I might be permitted to suggest, that to insure uniformity, the elevation of 5 feet might be considered the standard height, and which is at once convenient and far enough removed from the effects of terrestrial radiation or deposit of dew, leaving it of course to observers to adopt at the same time, any other method which might suggest itself, during the observations on this phenomenon.

From observations made by Dr. Smallwood at St. Martin, from the year 1850 to 1856 exclusively, the Doctor has come to the following conclusions: 1st, the presence of ozone in the atmosphere is accompanied by a low reading of the barometer, which generally continues while the ozone period lasts; this period is accompanied or terminated almost invariably by precipitation in the shape of rain or snow; 2d, the presence of ozone will take place at all temperatures as low as 20° below zero, and as high as 80°, and at all the intermediate temperatures, and it is generally in larger quantities during a fall of snow than of rain; 3rd, the psychrometer is a certain indication of the presence of ozone, for it would appear that a moist state of the atmosphere was necessary for its production or development, for when the difference between the dry and wet bulb thermometer is little, the presence of ozone in considerable quantity is always noticed; but when the difference between the two thermometers is considerable, no ozone is appreciable by the ozoneometer; 4th, during the past seven years there were 918 days in which rain or snow fell, and during the like period there were 816 days in which ozone was present in large quantities, showing a remarkable coincidence; 5th, southerly and easterly winds being the point from which our rain or snow generally comes, are for the most part present during the indications of ozone, while on the contrary northerly or westerly winds very rarely accompany its development.

Dr. Smallwood concluded with the following remarks:

"In reviewing these observations, there is no condition of the atmosphere appreciable by our instruments, that indicates the presence of ozone except the presence of vapour or humidity.

Schonbien has asserted that a high electrical state of the atmosphere was always present when ozone was developed, and that the

amount depended essentially on the amount of atmospheric electricity. From the comparison of nearly 6,000 observations on the electrical state of the atmosphere, and the amount of ozone taken at the same hour, at this place, and carefully compared, I have not found that opinion sustained, neither have I found its amount or presence influenced by the appearance of the *aurora borealis* which has also been said to be the case.

From these observations it would appear that a moist and humid atmosphere was necessary for the development of ozone, and this may account in some measure for its more constant presence and its greater quantity, in proximity to the sea. So far as its effects on the production of disease in plants, especially the potatoe, and to which it has been more especially referred; it is almost certain that one of two causes must have given rise to the lamentable failure in this useful vegetable, either that the soil must have furnished the medium of disease, or the action of the atmosphere upon the leaves and stem of the plant,—the causes which act upon the stem and leaves, involve the action alone of Atmospheric Influences, while those that act through the medium of the soil are more numerous.

In this neighbourhood the disease showed itself after rain followed by a hot Sun, the atmosphere being loaded with moisture or vapour—just the condition essentially proper for indicating the presence of Ozone—the disease was much more extensive on wet and clayey soils than on sandy or dry ones.

It cannot be doubted that an agent so active as ozone, if really present, must exert a great influence on the health of individuals as well as animals and plants, the manner of its production, whether by chemical action or electricity, or magnetism, demands from us further investigation, and these investigations should be carried out with uniformity for the sake of careful comparison—one point should not be overlooked, that is, to mark carefully the amount of vapour present in the atmosphere, as the intimate connexion between them is too prominent to escape observation.

I have, as you will perceive, offered no theoretical deductions: if, as your continental brethren assert, it does possess such powerful and wonderful properties, it must be evident that the American Association should at once take up the subject, in a way that we may arrive at important conclusions. I should not be justified in expressing a doubt on the labours of others in this Department of Physical Science, neither do I think it fair to offer any conclusions until our observations are more extended, and it is with this intention that I have brought it before the Association, hoping that between now and our next meeting, we may be able to investigate and compare observations so as to give it a proper place in this department of physical investigation."

Another very interesting paper on the meteorology of the vicinity of Montreal, was read by the same gentleman. From his observations, it appears that the temperature of the air for the last seven years, on the Isle Jesus, an island separated from the island of Montreal and from the main land north of it by two branches of the Ottawa, exhibited a yearly mean of $41^{\circ} 56'$. The highest temperature in the shade on record was $100^{\circ} 1'$, and the lowest range was $36^{\circ} 2'$ below zero, giving a climatic range of $136^{\circ} 3'$; the hottest month is July, and the coldest month is February, the warmest part of the day in summer is at 3 p. m., and in the winter season at 2 p. m., the coldest part of the day in winter is at a little before sunrise.

The following description of our climate will prove interesting and is pleasantly written.

"The song Sparrow- (*Fringilla Melodia*)—The harbinger of the Canadian spring generally makes its first appearance the first week of April. Frogs, *Rana*, are first heard about the 23rd of April. Shad, *Alosa*, are caught the last week in May. Fire-flies, *Lampyrus corusca*, are first seen about the 24th of June, and the Snow-bird, *Plectrophanes nivalis*, generally makes its first appearance about the 20th of November; Swallows, *Hirundo rufa*, about the 18th of April. Our winter generally sets in about the latter week of November or the first week in December, and is ushered in by a fall of snow from the N. E. by E, and this is the point from which our winter storms come. Rain generally comes accompanied with a wind from the S. S. W. or S. E., and also from the N. E. by E.

We have generally a few days of that poetic season, the Indian Summer in November.

"The years last loveliest smile,
That comes to fill with hope the human heart;
And strengthen it to bear the storms awhile,
Sill winter's days depart."

Our snow storms of winter are from the N. E. by E, and for some hours before they form, the Eastern horizon becomes gradually covered with heavy *strata* clouds of a deep leaden hue, the upper strata of clouds are generally a mixture of *Cirri Cumulus*

and *Stratus*, moving from the South, but the surface wind is from the point I have stated N.E. by E., the wind during these storms often attain a velocity of some 30 or 40 miles per hour, the barometer is falling and the thermometer somewhere about zero, the Psychrometer indicates an increasing amount of moisture, the Electrometers indicate a very high tension of Negative Electricity, often an amount of 300 deg. in terms of Volta's No. 1. Electrometer, and sparks are constantly passing between the receiver and discharger for hours.

Minute but perfect crystalline forms of snow commence to fall, and may continue for some 48 hours, and I have seen some 12 or more inches of snow fall during this time. Precipitation then ceases; the wind veers *always* by the N. to the W., or W. N. W., with a velocity of some 30 miles per hour, (this is our cold term); and the wind carries the loose finely crystallized snow in clouds before it, this is in Canadian parlance a "Poudrieric." The wind is intensely cold; the thermometer during this period attains a minimum of some 30° below zero. The sky is partly covered by *cumuli* clouds, with a few *strati*—the electrometers still indicate a high tension, but of an opposite or *Positive* character, this Westerly wind may last some 48 hours or more, and lulls down at sunset; may be of the second day into a calm. The blue tint of the sky is very deep, and the rays of the setting sun throws a red or orange shade on the snowy scene, and the atmosphere attains a greater dryness, the electrical action gradually ceases with the wind.

Our thunder storms of summer, which give a yearly mean of 14 (for the same period of 7 years) are of short duration, forming generally in the W. or N.W., and the electricity varies in kind.

The months of April, May and June bring returning summer; the nights of July and part of August are generally oppressive, the temperature often remains at 70° during the night: but the Canadian autumn is very pleasant. The woods with its leaves of a thousand varied tints, and the blue and cloudless sky, with frosty nights, reminds us that the good times of the merry sleigh bells are near.

Notwithstanding these vicissitudes and extremes of temperature, the soil is very productive and vegetation prolific and rapid; and it has again pleased an all-wise Providence, during the present year, to crown the labours of the Canadian husbandman with a beautiful and abundant harvest."

Before concluding this long series of articles on the proceedings of the scientific congress, which honored Montreal by its presence, we must say a word of three eminent men who died between the meeting at Albany in 1856 and the last one in Montreal.

Mr. W. C. Redfield, the meteorologist, Professor Bailey of West Point, and Prof. Tuomey of Alabama. Professor Bailey had been elected at Albany as president of the then next meeting; and it was one of the most touching features in the opening of the congress at Montreal that professor Caswell, the Vice-President, in his inaugural address, had to allude to the death of him who had been intended to fill the very chair from which he was speaking. Although a proficient in chemistry, mineralogy and botany, Professor Bailey had been especially devoted to microscopic research and with the exception of what Ehrenberg has done, the microscopic geology or microgeology of America had been mainly worked by him. He has also done a vast deal towards raising the standard of microscopic manufacture, through his discriminating use of tests and his influence. He was a professor of chemistry, mineralogy and geology in the Military Academy at West Point. He died of consumption on the 26th of February last. "His life without reproach (say's Silliman's "Journal) his gentleness and modesty, his earnestness for truth "rather than self, his untiring energy even when his physical system seemed to be dissolving away from his spirit, make a character that excites love as well as admiration.

Professor Tuomey died at Tuscaloosa on the 30th of March last. He had been one of the active geologists of the Southern states, and among them had taken the lead through his research and publications. In 1844 he was put in charge of the geological survey of South Carolina, and four years afterwards published his final report. Subsequently, he was appointed to the chair of geology of the University of Alabama, Tuscaloosa, and to the charge of the geological survey of that State, which positions he held when he died. He has been actively engaged on his explorations during the year past, and both the State and the University have experienced a great loss in his decease. In connection with Dr. Holmes, he has had in hand the publication of a splendid work on the Fossils of South Carolina, which has not been surpassed in the country for the beauty of its palaeontological illustrations.

We happen to have been personally acquainted with Professor Tuomey, and in addition to the pleasure of meeting him at Professor Hall's in Albany, during the scientific congress, we had the good

fortune of travelling, and of spending a day with him, on our return, at the Falls of Niagara. We can therefore speak *en connaissance de cause* of his affable, unpretending and charming manners, and of the charm and interest of his conversation.

Perhaps our readers will allow us to mention an incident, which, though apparently trifling, will testify to his readiness for any act of kindness. Three Italian franciscans who were with us at the falls and could hardly speak English, fell into a quarrel with some of the not overscrupulous cabmen of the place, who were exacting from them undue charges. The cabmen went and lodged a complaint with a justice of the peace, and while we were discussing with them and helping the Reverend gentlemen with our advice, Mr. Tuomey did that which we ought certainly to have done before him; he went down quietly to the justice of the peace and paid the amount of the demand and costs. This appeared to us still more creditable when we reflected that the learned geologist did not belong to the same religious persuasion as the parties whom he helped so readily, and when we found that he pertinaciously refused to allow us to share in his good action, by refunding at least one-half of the small amount he had disbursed.

In this *compte-rendu* of the transactions of the American association, we are sorry that we have had to omit, partly for want of space and partly on account of their dry technical character, several valuable papers. Among the remarkable speeches, we should have liked to give at full length, is the valedictory address which professor Hall, the gentleman who presided at the Albany meeting, had to deliver in Montreal according to rule. But this learned geologist and paleontologist whose name is so well known in America and in England, does not require our limited means of publicity to extend his reputation.

Our object was chiefly to call the attention of the professors of our colleges and of the youth of Canada to those scientific debates, trusting that they may be encouraged thereby in the prosecution of physical and natural science, and at some future day give to our country that *éclat* which the mother countries France and England, have so nobly obtained. So note it be!

Bishop's College Lennoxville.

We have received the prospectus of the Junior branch or preparatory department of this excellent Institution, which is now in operation. It is under the immediate charge of the Rev. James W. Williams M. A. of Pembroke College Oxford, Rector, assisted by experienced masters.

It consists of two divisions, the one, the upper or collegiate department, composed of pupils preparing for college, or for the learned professions; the other division or school, composed of such pupils as may subsequently enter the college, or who are preparing for mercantile or other pursuits.

The course of instruction will comprehend, the English language, literature and composition, the French, Latin and Greek languages, ancient and modern History &c., &c. Also special instruction, in classes, in singing, linear drawing, surveying, chemistry and book-keeping.

The academic year extends from 31 August to 6th July, being divided into three terms, and the Tuition fee of £9.0.0 per annum is divided as follows viz.

Academical Terms.

- | | |
|-------------------------------|---------|
| 1. From August 31 a Decr. 20. | £3.15.0 |
| 2. " January 6 a April 6. | 2.12.6 |
| 3. " April 6 d July 6. | 2.12.6 |

No extra charges.

All payments whether for tuition or board, are to be made in advance, at the commencement of each term, to the Bursar of the college.

Method of teaching in Mr. Arnold's School.

Huntingdon, Nov. 26, 1857.

Dear Sir,

Would you do me the favour to give a place in your Journal of Education to the enclosed outline of a system of teaching adopted by Mr. H. Arnold, one of the teachers of the protestant school Commissioners of the City of Montréal? It embodies some of the most improved methods of teaching, and should be widely disseminated in our schools.

I have the honour to be,

Dear Sir,

Yours very respectfully

JOHN BRUCE, Ins. of Schools.

METHOD.

I. A, B, C, Class. This class is taught in a very interesting way: letters

are described and explained so as to make the learning of the alphabet, a pleasing exercise. By supposing parts of letters left out or cut off, other letters are formed, which the scholar has to name. This commands attention and exercises the understanding. Sometimes an addition to a letter is supposed, by which a different letter is formed, which makes the child compare and consider. In writing letters to form words, (the simplest of course at first, the same method of explaining—describing—omitting and adding is continued, by which the whole process of teaching and training is interestingly followed up. To make the children familiar with the shapes of letters, and impress them more on the mind, they are made to form them by movements of the hand, or give their shapes, as nearly as they can by finger-positions.

2. The next division in advance is taught and trained in the same intelligent and pleasant way.—The general rule is, that no part of the lesson is passed till read correctly, and every word is understood, separately and combined, the teacher always leading the class, showing them how to read, as this respects tone, manner, enunciation and orthography. Thus all improper habits in reading are prevented, and proper habits are early formed.—'Prevention is better than cure.'—Care is taken that every word is distinctly, slowly, and correctly pronounced, first separately, then in union with other words.—In questioning the class not a little interesting information is thrown in; and the explanations of the teacher are given in a familiar, and in an inviting manner, and calculated to draw out the ideas of the children, and aid in generating others.—The different meanings and various applications of words are also attended to, and successfully, even at this stage of advance.

3. Third form or division. This class is taught in nearly the same manner as the preceding. But more attention is paid to vocal modulation and emphasis. Test questions are answered with books closed, but when under training, with books open. Spelling is particularly attended to, and in such a way as to seem to draw the attention of the class.

Much is done in training the mind in this class. Mr. Arnold's great aim at this stage of advancement is to show the children how to think and speak correctly, and how to use words in sentences of their own construction.—When it is found that they understand their lesson, they are then made to read it through and through individually, till they become as familiar with its correct reading, as with the meaning of words and the different truths contained in the lesson.—As the reading goes on, the slightest error is promptly corrected. This is generally done by himself; and the scholar is not allowed to stumble two or three times over a word, or any parts of what he reads, without any other hint than "that's not right, try again". And when the correction is made it has to be repeated till fixed in his mind. When time admits, an outline of the lesson is given—orally or in writing.

4. Fourth Class.—The efficiency of the course of training gone through in the lower classes shows manifestly in this division. Here every care is taken to prevent the formation of any disagreeable or incorrect habit. Manner, tone, ease and correctness of pronunciation, accentuation, proper pausing, &c, are carefully attended to, and the class appears to take as much interest in the work, and in trying to come up to the teacher's standard as himself. This is altogether attributable to the teacher's method of conducting the class, especially, to his mode of questioning and giving illustrations.—No inattention is observable.

His method of reading and explaining new lessons, those especially to be prepared at home, deserves particular notice.

To make them understand the lesson they are to prepare, every word phrase, &c., even to the title of the lesson, and number of the page, (supposed to require explanation,) is explained, as plainly and familiarly as possible: and the classes made to explain in turn the teacher's explanation, and remarks over and over, for thoroughly impressing them on their minds. The lesson is first read through, slowly, with distinct enunciation to show the connexion of the passage-lesson; then, from stop to stop—the children pronouncing simultaneously every word—imitating the teacher in tone, manner emphasis, &c., as closely as possible; and, lastly, words to them difficult of pronunciation, or whose meaning they do not know, are run over, pronounced and explained—the children being questioned as he proceeds, and made to repeat his definitions and illustrative remarks, which prevents inattention and makes them more than passive recipients. They are thus prepared to study at home what they understand, and they come next morning generally well prepared for class-teaching, on the same lessons.

5. The class of the fifth division in advance, is exercised and trained in the same intelligent manner. And the degree of correctness and taste with which they all read, shows that they understand what they read. No stammering, hesitancy, or blundering of any kind is observed; and the least defect in tone, manner, emphasis, &c., is instantly checked and the correction well repeated by the scholar—the teacher first showing how the correction is to be made.

After the reading, questioning and training part of the work is gone over, when time admits, exercises in definitions, of words, paraphrasing, simple and enlarged, are given. The excellent effects of these are very observable in the correctness of their definitions of words, and the readiness with which they apply words in sentences of their own construction.

Constantly practising pupils in oral composition and paraphrasing cannot be too strongly recommended. Such exercises will facilitate written composition and paraphrasing.

Mr. Arnold leads his pupils to the habit of thoroughly reviewing their lessons. He stops at the end of a sentence, or paragraph and calls upon this boy or that girl to give him the substance of what has been read.

This cultivates the habit of attention—(one grand part of every man's education—) and strengthens the memory.

6th Class.—The reading of this class, (which is the most advanced in his school,) is fluent, and generally expressive. The merits of tasteful reading, and the principles of Education are attended to more in this class; but less of the elementary minutiae of training. The proper places to attend to these are the lower classes. But the study of words is more followed up, and written composition and paraphrasing are more practised. Dictation exercises are regularly given, and they are required to give outlines of their reading lessons in their own words as much as possible.

As reading is decidedly and by far the most important part of a pupil's secular education, it is satisfactory to see that so much more attention is now paid than formerly to this Branch.

After reading, with its concomitant exercises, is gone through, a few minutes of recess are given, then exercises in ciphering are given on Black boards and from books. On these the different classes are variously exercised. The mechanical part of the work is first done, then follows the training to expedition and correctness; after this, processes and principles are explained; first by the teacher, then in turn by the scholars; and test questions are put at the same time to ascertain their knowledge of the application of rules and questions to affairs of life.

Part of morning and afternoon school hours is devoted to reviewing certain rules in the higher classes. Those in the most advanced class get generally *promissious test sums* to work at home. On these they are questioned next morning, before they proceed to the work of the day. The lower classes also get suitable exercises of the same kind.

Grammar.—Much of the elementary part of grammar is taught and with much success, orally. Nearly all the classes are at first thus taught. In teaching it, each part of speech is taken up, explained, and illustrated, till the pupil is familiar with it, and can in turn explain and exemplify it themselves, in sentences of their own construction. In fact, their grammar exercises or training, are made to embrace from the beginning, Orthography; Etymology, syntax, composition; study of words: and reading or Lexis. In teaching the declinable parts of speech, each form of the word declined is explained in application, as cases, genders, and numbers of nouns; degrees of comparison of adjectives; numbers, genders, cases and persons of pronouns; and the various forms—simple and compounds of verbs. The other parts of speech are taught in the same way, namely, by examples—given orally or in writing. The scholars daily conversation in school is made an instrument for training them in the proper application of words. All solecisms in their answers to questions, or in speaking, are immediately corrected the false syntax pointed out and a reason given for its correction. In this way his scholars are taught to speak with grammatical accuracy from the very beginning of their school career.

Geography.—The elements of geography and a knowledge of maps. The mouth and the map are the two agents by which children should be indoctrinated into the mysteries of geography. We should commence with the inculcation of *ideas*, not of mere words. After the children are taught what geography is, the use of maps in teaching it, and how intelligently to read these, the physical character and features of countries should be explained—taking first the most prominent and striking parts, as land and water, mountains, rivers, lakes, extended plains and valleys, islands, &c. In describing these the attention of the children should be directed to the most interesting and remarkable things about or belonging to them.

Geography, like any other branch of education, can be taught efficiently only when decomposed into its elements, and these elements made to take some natural or convenient arrangement.—In teaching these, each, in proper sequence, should be taken up, explained, described, and a knowledge of it communicated in a manner interesting and winning.—Suppose the subject of the day's lesson to be a *river*: speak of it to the class with reference to its source or sources, its course, value to the country through which it flows, length and extent of its basin, its magnitude, towns, villages, public works, &c., along its banks, its fish, &c., its course might be sketched on the floor or black board, first by the teacher, then by the pupils. After making them thus familiar with rivers, water might be taken up as a suitable lesson, then land, &c., &c.

But besides the lessons generally devoted to this subject, a large portion of the fundamental facts of history might be given to the pupils.—In teaching geography, it must ever be borne in mind that names given without attached ideas, are almost certain to be soon forgotten, except by very retentive memories. Connecting interesting facts with names, greatly aids the memory.—Such are the methods employed by Mr. Arnold in teaching this interesting branch of Education, and hence his success. His method of putting questions appears to be his great force. Questions properly put, give life and zest, to school exercises; and just as a teacher can use them effectually, so will be his power to interest, to rouse, to instruct

Notices of Books.

CANADA DIRECTORY FOR 1877-78.—John Lovell, publisher, editor and printer. This work, as a directory and book of general reference, is as complete as could possibly be desired. Mr. Lovell, whose ability as a printer is universally known, has even surpassed himself in the typographical execution of this work. The mass of

information of all kinds contained in this enormous volume is really startling. It is a political, topographical and statistical dictionary of the whole province, with all the details that can possibly be imagined. Attached to it is an excellent map of the two Canadas, expressly prepared and corrected according to official information obtained from the topographical and geological departments. The cost of this publication, from the number of agents employed by Mr. Lovell, in collecting information from all parts of the country, amounts to about \$50,000. The price is \$5 per copy. We would call the attention of our readers to that part of the work which refers to public instruction, and of which, the Superintendent of Education for Lower Canada has caused 500 copies to be struck off, in pamphlet form, which it is his intention to distribute among the different schools. We must add that these 500 copies cost the department nothing, and that they are due to the liberality of Mr. Lovell. We hope that the public will bear this in mind, and not prove ungrateful.

We extract the following historical sketch from Mr. Lovell's pamphlet.

"The Government of Old France had given a great deal of attention to the subject of public instruction in Canada. The first school in this country was the Jesuits' College, opened at Quebec by Father Le Jeune in 1632. The Seminary of Quebec was founded by Mgr. De Laval in 1662. The College of St. Sulpice at Montreal, and the Nunnery of the Ursulines at Quebec, were also among the first schools opened in this country. The Frères Charrons, a religious order, and subsequently the Frères des Ecoles Chrétiennes, also had schools for elementary education in Canada under the French régime, but they were discontinued after a short time. The pious Marguerite Bourgeoise, whose name is now pronounced with veneration by all Canadians, founded, in 1553, the order of La Congrégation de Notre Dame, which has now 40 schools in operation, with about 7000 pupils. The Franciscans had a good many elementary schools for boys before the Conquest, and the Jesuits supported out of their revenues several lay teachers, who were mostly old pupils of their college. The two orders having been suppressed during the first years of the new régime, there remained for a long time scarcely any other schools but the two Seminaries of Quebec and Montreal, the Convents of the Ursulines at Quebec and at Three Rivers, and the schools of the Congregation of Notre Dame at Montreal and at several villages throughout the country. Indeed, although the Sisters did not admit boys into their schools, a great portion of the education received by the men in the country parishes, is due to them; many a mother who was taught by them, having in her turn educated her own children of both sexes.

"Lord Dorchester, Governor of the Province of Quebec, appointed, in 1789, a commission to inquire into the subject of education. That commission recommended the establishment of an elementary school in each parish, of a model school in each county, and of a non-sectarian university. The whole was to be endowed with the Jesuits' estates and by grants from the Crown lands. Bishop Hubert opposed the plan, whilst his coadjutor, Bishop Bailly, supported it; and ultimately it was dropped by the Government. In 1801, the Royal Institution for the Advancement of Learning was created; but the members of the Board being composed of men with whom the great majority of the people had no sympathies, and the teachers being mostly imported from the United Kingdom and without any knowledge of the French language, it was a decided failure. After twenty years of existence, it had 37 schools and 1048 pupils. It reached as a maximum 84 schools and 3675 pupils. In 1824, the Legislature passed an Act, entitled, "An Act for the Encouragement and Endowment of Elementary Schools in the Parishes." That Act provided for the establishment of one school in each parish, through the agency of the *fabriques*, which are corporate bodies, instituted under the old laws of France, consisting of the *curé* or rector and of the *marguilliers* or churchwardens. It provided that whenever the parish would number more than two hundred families, a second school could be opened. The *fabrique* was authorized to acquire and possess one acre of land whereon to build a schoolhouse, and to apply one fourth of its revenue to the maintenance of the schools.

"In 1829 an Act was passed providing for the election of school trustees in each parish or township,—for the payment of a salary of twenty pounds to each teacher whose school would number twenty pupils, with an addition of ten shillings for each pupil belonging to any poor family taught free in the school. The same statute provided also that the Government was to pay one half of the building of school-houses, under certain conditions; the whole amount not to exceed £2000 per annum. Several Acts were subsequently passed amending and extending those previous Acts. They contained provisions for aid to colleges and girls' academics, and various sums

voted to Mr. Perrault and to the Quebec Education Society for the introduction of the Lancasterian system, A deaf and dumb institute at Quebec was also provided for, and, under the auspices of Mr. Ronald Macdonald, who had been instructed by Mr. Leclerc, himself a disciple of the Abbé de Lépeé, it realised every expectation.

"Various wise enactments for collecting statistics, for visiting schools by Members of Parliament, and for the distribution of prize-books, were made. One of the statutes provided also for the erection of a normal school; and the Rev. John Holmes, principal of the Seminary of Quebec, was sent to Europe with a view of visiting the normal schools of the old world, and of procuring professors, books, apparatus, and collections of natural history. He returned towards the end of 1836, with Mr. Regnaud, the director of a normal school in France, and Mr. Findlater from Scotland. A Normal School was opened in Montreal; but the troubles having broken out a short time after, and the Constitution having been suspended, the school had to be given up. Mr. Findlater went back to Scotland, and Mr. Regnaud, finding employment here as a land surveyor, remained in the country. The provisions for the maintenance of the Common Schools having been allowed to fall through by the Legislative Council, during its quarrels with the House of Assembly, the system which had been gradually maturing itself, was destroyed. This was the second great blow aimed at the educational institutions of Lower Canada. The first was the confiscation of the Jesuits' and Franciscan estates, shortly after the Conquest. When the second calamity befell us, there was under the operation of the law 1600 schools, wherein 40,000 children were taught; most of which had to be closed. In the meantime, however, several colleges had been erected and were in a most flourishing condition. When Lord Durham came here, with all the powers and attributes of vice-royalty, he found, as he has stated, Lower Canada in the anomalous position of a country where superior education was amply provided for, while nothing almost was done for elementary education. In his Report, he paid however to our classical institutions a just tribute of praise.

"After the Union of the Provinces, the Legislature passed, in 1841, a law for the establishment and maintenance of public schools. It provided for the appointment of a Superintendent of Education for the whole Province, and appropriated a sum of £50,000 for the support of common schools, to be apportioned between the several municipal districts in proportion to the number of children of school age in each of them. The Hon. Mr. Jamieson was appointed Superintendent under this law; but to meet the wants of the two sections of the Province, the Rev. Mr. Murray and Dr. Meilleur were also appointed Superintendents, the former for Upper and the latter for Lower Canada. Dr. Meilleur had been for several years a Member of the Provincial Parliament of Lower Canada, and had published various elementary works. He had also been one of the founders and directors of the College of Assumption. In 1845 another law was passed, applying chiefly to Lower Canada, and providing for the appointment of a Superintendent for each section, and containing a great many new regulations, that had been omitted in the first law. This was again superseded by the law of 1846, which is the foundation of the several laws now in force. One of its most important features was that it made the assessment compulsory, and did away with the voluntary contributions. That important step was however altered in 1849, when a law containing various amendments, most of which, giving to the Superintendent powers of a quasijudicial nature in matters controverted between the parties to the school law, restored the voluntary contribution; which however at present, in most of the Municipalities, the good sense of the people has set aside for the legal assessment. It also contained new provisions concerning the monthly fees, and the powers of the Boards of Examiners. Another law, passed in 1851, provided for the establishment of a Normal School and for the appointment of School Inspectors. In 1855, Dr. Meilleur resigned his office, and was appointed to that of postmaster at Montreal. He left a name untarnished for his assiduity, perseverance, and integrity, and, considering the great difficulties he had to contend with, by the violent opposition to school assessments made in several parts of the country by contemptible seekers of popular fame, justly branded with the French name of *égoïstes*, he may be said to have been generally successful in his administration. He was succeeded by the Hon. Pierre J. O. Chauveau, who had been a Member of Parliament for the County of Quebec during eleven years, and had filled successively the offices of Solicitor General for Lower Canada and of Secretary of the Province.

"In his first report, Mr. Chauveau recommended various reforms; and for the accomplishment of most of them, two laws were passed in the session of 1856. One of them chiefly relates to superior, and

the other to elementary education. The most important features of this new legislation consisted in providing for the distribution through the Superintendent, and on his report, of the annual grants to Universities, Colleges, Academies, and Model Schools; the creation of several Normal Schools instead of one; the publication of Journals of Education; the appointment of a Council of Public Instruction; and the creation of a teachers' pension fund, on the same principle as that of Upper Canada. With the exception of the appointment of the Council of Public Instruction, these measures have all been carried into effect. There are now published two Journals of Education, one in French and the other in English. They are issued alternately every fortnight, are conducted by the Superintendent with an assistant for each of them, and, with the exception of the official notices, the articles and selections are different in each. The price of subscription is one dollar for each. Teachers are allowed a copy of both, or two copies of either, for the same price. It is sent free to public institutions, and to the School Commissioners for their use and that of teachers unable to subscribe. Each number contains one or more illustrations. The issue of the *Journal de l'Instruction Publique* is 4,000 copies, that of the *Journal of Education* 2,000. The former has nearly 900 paying subscribers, the latter about 300.

The Jacques Cartier and McGill Normal Schools were inaugurated in Montreal on the 3rd of March 1857. The Laval Normal School was opened at Quebec on the 15th of May. The McGill Normal School is intended for Protestants, and the teaching is carried on chiefly in the English language; but the French language is also taught with great care. The two others are intended for Catholics; and the teaching is carried on chiefly in French. The English language is however taught to the French pupils; and arrangements have been made that instruction may be also imparted to any English pupil-teacher in his own vernacular. In their Model Schools there are French and English teachers, about an equal number of children of each origin, and the two languages are placed precisely on the same footing. The McGill Normal School started with the boys' and girls' department in full operation. The girls' department of the Laval Normal School was opened on the 15th of September. The girls are boarders at the Ursuline Convent, but the instruction is chiefly imparted to them by the professors of the Normal School. The girls' department of the Jacques Cartier Normal School is not yet organized.

The Model Schools attached to the McGill Normal School number 220 children, those of the Laval Normal School about 300, and that of Jacques Cartier 82. The pupils of the Jacques Cartier Normal School who have obtained diplomas have all been hired, with salaries of, from £90 to £120, exclusive of lodging.

Besides carrying into effect the several provisions of the laws above mentioned, Mr. Chauveau has also re-organized the department by the appointment of more clerks and a better division of labor; he assisted in the organization of the Associations of Teachers in connexion with the Normal Schools; caused the distribution of prize-books by the Inspectors on their visits; and formed the nucleus of a departmental library, which numbers about 3000 volumes. The pecuniary responsibility of the office has been greatly increased by the new law; and from the 1st of January to the end of August 1856, 677 17s. 10L, were distributed through the Education Office. The correspondence is also daily increasing. During the first six months of 1857 no less than 3,824 letters and reports were received, and 10,557 letters and circulars sent from the office of the Department."

THE NATIONAL ARITHMETIC on the inductive system, combining the analytic and synthetic methods, forming a complete course of higher arithmetic, by Benjamin Greenleaf, A. M., Boston, 1757; 1 vol. large octavo 414 pages.

This work seems to have been compiled with great care, and is highly spoken of by our American exchanges.

DICTIONNAIRE HISTORIQUE des hommes illustres du Canada et de l'Amérique par Elbaud jeune, Montreal, 1857, 380 pages in-12o. This interesting work has been published in numbers, the last of which is just issued. It contains information which could be found nowhere else, on most of the public and literary men of Canada, from the earliest history of the colony to the present day.

ÉTUDES sur l'Instruction Publique chez les Canadiens-Français par M. D. P. Myrand—Quebec, J. T. Brousseau. First edition 16 pages royal 8o.; second edition 24 pages 8o.

M. Myrand has already given two editions of this valuable pamphlet, containing the reprint of a series of articles which appeared in the *Courrier du Canada*, and to which we alluded at the time of their publication. The second edition was got up at our special request, and is revised and improved by the addition of summaries to each chapter.

MONTHLY SUMMARY.

EDUCATIONAL INTELLIGENCE.

—The trustees of the University of Virginia have appropriated \$1500 for the establishment of a gymnasium for the use of the students. The common schools of California are required, by legislative enactment, to make the "scientific development of the human body" a prominent feature in their course of educational training. They must have proper apparatus for and teachers of gymnastic exercises. The schools of Sweden and Germany are generally provided with all the necessary means and appliances for the systematic prosecution of gymnastics. In Upper Canada, they are being generally introduced in all the public schools, and we trust it will soon be the case in Lower Canada. The three Normal Schools and Saint Mary's College have given the example, and we trust it will be soon followed up by all other schools and educational institutions.

—From statistics collected by us during the past year, it appears that at the various assizes and sessions of this county and city, held in the year, 476 prisoners have been placed on the calendar for trial. Of these, there were but two of superior education, while no less than 294 could neither read nor write! Of those who could read and write well there were but 20, five could read well, but were unable to write; whilst 121 could read but imperfectly. The remaining three did not appear. Surely these facts bear witness far more efficiently than any labored argument, to the necessity of educating the lower classes.—*Worcester Herald.*

—Pictures! pictures! hang your walls with pictures. Let your children remember the sweet engravings of home. Cherish that innocent love of the beautiful.—*Rhode Island School Master.*

SCIENTIFIC INTELLIGENCE.

—Several fires have recently taken place in France through the fall of ignited aerolites. A scientific review states that it is most probable that the burning of several houses, which has never been accounted for, has had the same cause. He points out the fact to the attention of criminalists, and questions whether several alleged cases of arson could not be explained away in that manner. We would not wonder if aerolites were to supersede *utibis*, the favorite mode of getting rid of accusations of that nature.

—Marquis Maximilian Spinosa, a celebrated naturalist of Genoa, died in the month of October at Tassicola, at the age of 78.

—Mr. Leverrier has read a memoir at the Academy of Sciences, on the telegrams received at the Observatory from the several observatories of Europe. The Observatory of Paris is now connected by the iron wires with 14 stations in France, and with the following foreign places, Brussels, Madrid, Genoa, Rome and Turin, to which in a few weeks will be added Vienna, Berlin, St. Petersburg and Lisbon. He complains of the opposition made by the English telegraph companies, but says that he hopes to succeed in obtaining the aid of the British Government. The meteorological reports of the western coast of Ireland are very desirable for the progress of science, and he hopes they will soon be laid weekly on the bureau of the Academy with all the others.

OFFICIAL DOCUMENTS.

[CIRCULAR No. 25.]

EDUCATION OFFICE, Montreal, 5th Nov. 1857.

To Esquire, Inspector of Schools.

SIR,

You will at an early date receive a case of books which will be forwarded to you by

You will distribute these books conformably to the instructions contained in my circular No. 20.

You will also remark that, thanks to the liberality of the Government, I am this year enabled to transmit a number of books more proportionate to the number of pupils attending the schools in your district than I have hitherto been enabled to do.

In the distribution of these books you will be particularly careful in ascertaining the religious denomination to which the pupils belong, so as not to give to them, other books than those especially intended for the scholars of that particular creed.

To the books now sent I am enabled to add the following pamphlets.

1o. Essay on the insects and diseases injurious to Wheat Crops, by H. Hinds, Esq.

2o. Essai sur les insectes et les maladies du blé, par Emilien Dupont.

3o. Etudes sur l'instruction publique chez les Canadiens-Français, by D. P. Myrand.

4o. Notes and statistics on public instruction in Canada, from Lovell's Directory of Canada.

These pamphlets will be distributed by you during your visits to the several schools, to the teachers; and you will, recommend that the subjects therein treated on, should be read and explained to the pupils in familiar lessons or lectures.

Should you have any of these pamphlets left after having distributed them among the teachers, you will please retain them, for distribution among the scholars, as prizes.

You will please subscribe your name to the receipt at the foot of the duplicate list accompanying this letter, and return it to this office with as little delay as possible.

I have the honor to be,

Sir,

Your obedient servant,

PIERRE J. O. CHAUVEAU,
Superintendent of Education.

FRENCH BOOKS.

Bibliothèque de la Jeunesse Chrétienne de Mame, série in-8o
do do do do in-12
Bibliothèque de l'Enfance, do do in-18

Fables de Lafontaine

Les Servantes de Dieu en Canada

Abrégé de l'Histoire du Canada de Garneau

Fables de Paul Stevens

Traité de l'Agriculture Flamande

N. B. Lafontaine's Fables, Garneau's History of Canada and the treatises on Natural Philosophy and Chemistry, and other sciences, can be given to protestants, the other french books are to be distributed among catholic pupils only.

ENGLISH BOOKS.

(For Protestants only.)

Miller's Illustrated London Library, (selected)

Home Books, by Cousin Alice

(For Catholics only.)

Sadlier's Popular Library

Canon Schmidt's Tales

Boyhood of Great Painters

(For both Catholics and Protestants)

Popular and Modern Tales, by Madame Guizot

Stories for Children, by Miss Edgeworth

Canadian Settler's Guide, by Mrs. Trail

The Child's Book of Nature

Salmon Fisheries of Canada, by Nettle

Canada at the Universal Exhibition, by J. C. Taché

Pretty Little Poems for Pretty Little People

Hodgins' Geography and History of British North America

Aesop's Fables

Gay's Fables

Gems of Fables

Book of Birds

Book of Animals

ADVERTISEMENTS.

UNIVERSITY OF BISHOP'S COLLEGE.

JUNIOR DEPARTMENT
AND
GRAMMAR SCHOOL.

RECTOR—The Rev. J. W. Williams M. A.

ASSISTANTS—M. Arthur, D. Capel and M. John J. Procter.

MORION—Mrs Holgate.

This Institution reopens after the Christmas vacation on Wednesday, January 6th.

Prospectuses may be obtained at Messrs Hill and Martins, and at the Christ Church Vestry. Little St. James St.

In further information apply to the Rector.

Lennoxville, Dec. 10th 1857.