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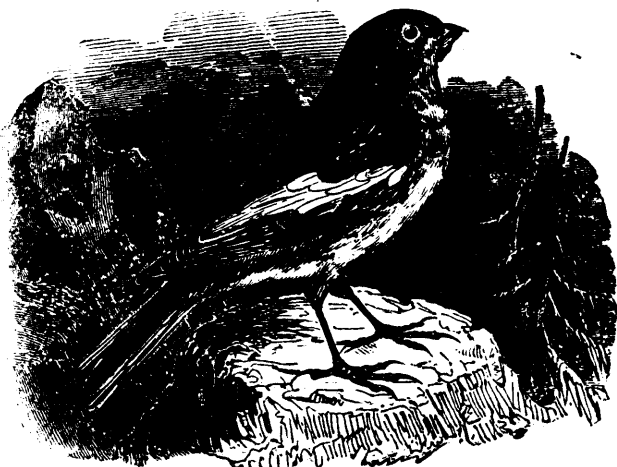


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I. Papers on Natural History.

WANTON DESTRUCTION OF SINGING-BIRDS.

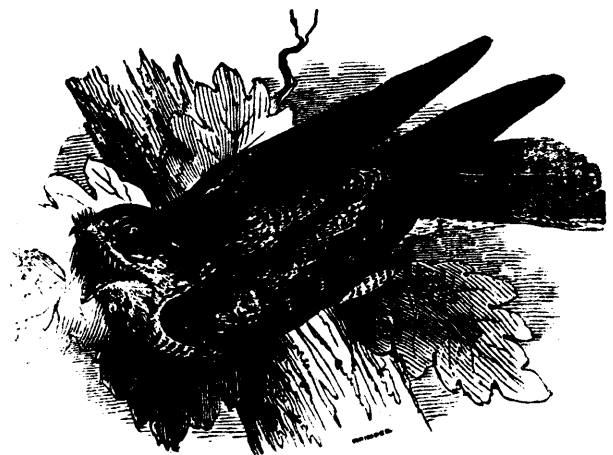


No. 1.—A FINCH (*Fringilla* —.)

Now that the beautiful spring-time has come and is beginning to be enlivened by the cheerful song of the singing-birds, we would interpose a few words of kindly counsel to boys not to destroy them.

Nearly every country in Europe has lately passed some law for their protection, and we believe it is now proposed to do the same in Canada. Capt. Rhodes, President of the Agricultural Board, Lower Canada, in a letter to the editor of the *Quebec Morning Chronicle*, Sept. 8th, stated that "the Board of Agri-

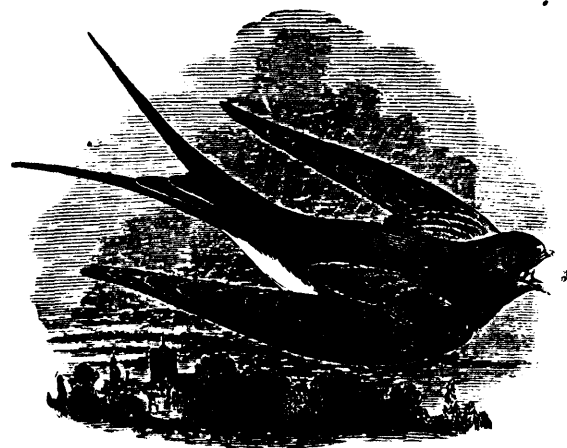
culture, at their meeting on the 6th inst., have resolved to petition Parliament, during its next session, to pass an Act to



No. 2.—THE NIGHT-HAWK (*Caprimulgus Americanus*.)*

prevent the catching and killing of all birds during the months of March, April, May, June, and July.

"I am happy to say agriculturalists are becoming alive to the fact, that birds were created for other purposes than to become



No. 3.—A SWALLOW (*Hirundo* —.)

the target for sportsmen, or the prisoner of the thoughtless child. The destruction of any bird that feeds upon insects or

* Mr. May, of the Educational Department, (who is a naturalist by profession, and who has furnished the notes to this article), states that "this bird is almost identical with the English night hawk, or goat sucker, which has from the earliest times been considered a bird of ill-omen. It is referred to by Aristotle, Pliny, and other

their eggs is an injury to the owner of the land, more particularly in the spring of the year, when birds principally feed upon the eggs of insects. The agriculturists of France are demanding protection for birds at all seasons of the year: we propose contenting ourselves with a demand for protection during the breeding season only."

The destruction of all birds, excepting game to eat, has been prohibited in many of the small German States, on the Rhine, and in parts of Germany. The motives urged are these—wherever the farmers have killed the rooks, jays, and even sparrows, the crops have been less than where they had been unmolested. Very able naturalists have examined this, and have reported that the vast quantity of noxious vermin which the birds destroy, greatly exceeds the small quantity of grain they destroy in searching for the insects on which they feed. Investigation in this country has developed the same fact. The destruction of the birds gives hosts of insect tribes a chance for life, and those feed upon the crops and cause a far more general destruction of fruits, vegetables and cereals than is occasioned by the birds themselves. Now that the Spring has come, and with it the time of the singing of birds, measures should be taken to protect these warblers from murderous attacks of boys. They greatly enhance the beauty of our scenery by their lively, graceful motions and beautiful plumage; and it is delightful to listen to their singing. They are also exceedingly useful in picking up noxious insects and caterpillars. We should, therefore, as a community, consider it a very great privilege to have them; and if we do not protect and cherish them, at all events nothing should be done to drive them away or destroy them.

The people of Australia have gone to a very great expense to import singing-birds, which they have set free in various localities to multiply and render their woods and gardens vocal; and doubtless we would go to a similar expense if we did not enjoy this advantage gratis. In Australia one would no more think of shooting a singing-bird than a lamb or a colt; but in Canada much time and powder are bestowed on hunting down our warblers.

Were the birds of any use when shot, there might be some little excuse; but they are none whatever; and the act of shooting them is mere wanton destruction.

In the New England States, singing-birds are protected by law, which is particularly enforced at the breeding season; and thus it should be everywhere, for thoughtless or mischievous persons have no right wantonly to destroy what ministers so much to the pleasure and profit of society.

In a lecture on Natural History, delivered a year or two since in Barrie, Rev. Professor Hincks thus refers to this subject: "The wanton destruction of birds, which devote their lives to our interests, such as swallows, and others which only threaten us with injury for short periods, and by taking advantage of their natural timidity may be kept from doing us much damage; the best of their time is employed in destroying the farmers' worst enemy. By understanding the history and habits of those animals which destroy our crops and injure the domesticated animals, as well as the nature of the means to be employed in exterminating them, and by knowing the nature of the diseases which attack our vegetables, we are much better prepared to defend our property, less likely to be robbed of the fruit of our labours than if we continue to be the victims of our own ignorance, and are plundered without knowing how to help ourselves. Surrounded by so many beings, both animal and vegetable, which may be made, by ignorance of their properties, to become injurious to us, we should aim at acquiring a knowledge of these, so as to render them on the contrary beneficial.

Mr. Wm. Couper, an amateur entomologist, lately of Toronto, but now we believe in Quebec, thus writes to the editor of the *Quebec Chronicle*, 10th September, on the subject:—

"Since July last, the caterpillars of a destructive moth have appeared in various parts of North America (more confined to the northern than eastern sections), devouring several useful branches of agriculture. This is easily accounted for—the insect has been always in these parts, but happens to be more productive this year. A caterpillar is the product of an egg, the caterpillar being the cradle in which the future moth is being carried about. This reptile form feeds with powerful jaws until such time as the internal animal says—stop, when a change takes place, and this becomes a new form called chrysalis, from which, after a lapse of time, bursts a Lepidopterous moth, which is the product of what is vulgarly called the

eminent writers as deserving of all the imputations which had been cast upon it. It is accused of flying upon soots and sucking them, the result being that the teal would soon after become dry, and the animal blind. It is also accused of inflicting a fatal distemper on weaning calves, should it happen to strike them when in quest of the insects with which these animals are infested. The study of the night hawk's real habits, however, has removed these erroneous opinions.

"In Virginia this bird is called a 'bat,' probably from its nocturnal habits. It is a bird of strong and vigorous flight, and is often seen in our woods and fields darting about in search of the insects on which it feeds.

"We have another species of this genus, the Whip-poor-will, which is frequently confounded with it, although different in its appearance as well as habits. The Whip-poor-will is a solitary bird, being usually found alone in high, dry situations. The night hawks fly in large flocks, and are usually found near marshy places."

army-worm. It may be single or double brooded during the year. In Canada, for instance, the butterfly called the Camberwell Beauty (*Vanessa Antiopa*) produces two broods of the caterpillar during the warm months, while it is very rare in Europe, yet it serves to illustrate climatical influence on animals, no matter what natural rank they hold. To produce such multitudes of caterpillars, it is probable that each parent moth will deposit 800 eggs per annum if single brooded, and twice that number if double brooded. Insects of the Lepidopterous order are liable to be diminished in the *imago* or perfect state; in the *ova* or egg state; in the *larva* or caterpillar state, and in the *pupa* or *chrysalis* forms by influence of climate, such as heavy rains, severe frosts, unusual strong winds; by the failure of their natural food plants; by being taken up as food of young Insectivorous birds,—but the great natural check is caused by insect parasites and severe low temperature. It is therefore probable that the caterpillar, which is so prolific this year, may be, through these causes, greatly decreased in 1862.

"All our small wood-frequenting birds feed their young on insect larvæ, but adult granivorous birds do not. Crows, Grackles, and the Cedar Bird of America destroy the large larvæ of moths and beetles, while at the same time they will overbalance this good by evil, in destroying useful fruits. Such minute insects as *cecidomyia tritici* or *c. destructor* are not molested by birds, but are kept in check by insects of benefit called by entomologists ichneumon flies, &c.

"Through the kindness of a brother entomologist, I have before me the plea of M. Marshal, ex-Deputy of La Meurthe, the Agricultural Society of Toulon, the Acclimatization Society of Nancy, and of M. P. Schœffer, requesting the French Corps Legislatif to take steps for the preservation of those birds that destroy insects detrimental to agriculture. In these petitions, it is stated that 300 species of birds lay their eggs in France, and these are divided into three classes—1st. Noxious, or birds of prey; 2nd. Granivorous, or grain-eating birds, including the omnivora, or species which subsist on animal and vegetable food; 3rd. Insectivora, or insect-eaters. About 200 of these consist of rapacious, gallinaceous, and sub-aquatic or pelagic birds, leaving but 100 species, consisting of omnivora and insectivora, to protect ravages of insects.

"Many of the land-frequenting birds of France change their places of abode annually, and we see the same occurrence taking place in America. As none of the insectivorous birds of France visit this country, I will now dwell on those that do, and I think that, on the whole, the species has been increasing instead of decreasing in America. Wilson studied the birds of North America in 1814, and gave us 283 species; Bonaparte, in 1838, discovered 471; Audubon, in 1844, studied deeply and worked out 506; the Smithsonian Institution published, in 1858, the result of their labours in ornithology, giving us 716, with extra-limital species. Thus it will be seen that instead of the species decreasing in America, the course of nature has been otherwise. The great majority of our little birds (warblers) arrive here in spring, remain a few days, and pass on to the Hudson's Bay Territory, where they bring up their young, returning to southern latitudes as cold approaches. This group, consisting of about 30 species, are all insect-eaters, but confine themselves to dense forests. The actual fly-catchers that remain with us are few in species, and invariably wood-frequenters. The thrushes are also meagrely represented in this latitude, and I often wonder why this is so, as there is no lack of terrestrial shells and aquatic insect larvæ on which they feed. The woodpeckers are all insect eaters, always on trees, picking out the grubs of beetles on which they subsist; hence they may be considered useful in protecting standing timber. The golden-winged woodpecker is a good example of this class—he can either climb trees, or search on the ground for food, and it is interesting to notice one of these birds attack an ant-hill early in spring; he chatters a peculiar song, while with a quick motion of the head it picks up the unfortunate ants, and I have known as many as 600 taken from his stomach. We have also the Nuthatches, Creepers, and Titmice or Chick-a-dee-dee, which are dependent on insects for food, but they are all confined to the forests—all are isolated from civilization. Now, the birds that follow civilization are the omnivoras, such as Crows, Blue Jay, Canada Jay, Cedar Bird, and a few others; the granivora consist of Sparrows and Buntings, which are always in fields and in them rear their young. This is not a reverse of nature, for we cannot compel wood-frequenting birds to follow cultivation, nor can we force granivorous species to the woods.*

* Although Mr. Couper's views as an Entomologist may be valuable, his statements as an Ornithologist are apt to mislead. He says that "the thrushes are meagrely represented in this latitude." &c. We have six different species in addition to the robin (*Turdus migratorius*), which belongs to the same genus. He also states that "the nuthatches, creepers, and titmice are confined to the forests," and that they are all "isolated from civilization." I am surprised at this assertion, for each of these beautiful and active little birds are well known frequenters of our gardens, and the groves in the environs of our cities and towns, and I may venture to say are oftener seen in the aggregate than those referred to as followers of civilization.

In the fall and winter the chickadee not only frequents our gardens, but the wood

The student of entomology discovers that all the larger insects are harmless to agriculture, but not to horticulture. The most destructive insects are all minute—cereal-flies and those attaching themselves to the grasses are very minute; onion and turnip-flies are also small; indeed, the eggs of any of these are not discernible to the naked eye, and I cannot discover among the insectivorous birds, one that takes them up as food.

If farmers would read and study more, and not overlook the minute creatures surrounding them, much of the losses of which they now complain would be avoided. The oat crop of the districts surrounding Quebec was this year attacked by an *aphis*; now, any person who has studied the natural history of these curious insects, and their peculiar mode of production, will at once understand how it is that they are so abundant, and might take steps to protect themselves against their ravages. I would here advise farmers to procure cheap publications on Natural History and what they cannot learn from them they will afterwards ascertain through experience.*

A number of insects prey on *Aphides*, amongst which I may mention the larvae of a lace-winged fly common in this vicinity. Two-winged or *Dipterous* flies feed on them, but the greatest enemy of the *Aphis* are the *Coxinellæ* or lady-birds, of which we have seven or eight species in Canada.—Taking the general view of this comparative subject, I am of opinion that the insects injurious to crops will be put down by insect parasites and low temperature, for it is a well established fact that high and low temperatures are anything but favourable to insect life. The State of New York employs a competent person, Mr. Asa Fitch, as a State Entomologist. He gives the following important caution, dated August 26, 1861:—

"Where a grain field has been infested with the *aphis*, no animal should be pastured upon the stubble of that field for three weeks after the harvest. The lady bugs, or lady birds, which gather in the grain fields to feed on the *aphis*, give out an acrid yellow juice from the joints of their bodies and legs on being handled or otherwise disturbed. This difficulty protects these useful insects from being devoured by birds or other carnivorous insects. And I can readily believe this may render these insects poisonous to any animal eating a number of them. Immediately after the grain is harvested I find these lady bugs so numerous on the stubble, and with their papæ having suspended from the leaves and stems of every weed growing among it, that it will be impossible for an animal to gather a mouthful of the herbage there without taking in some of them. Last Monday morning my neighbour, Alex. L. McNeill, of East Greenwich, turned his hogs into his oat field, the third day after it was cleared of the grain. The best hog in the herd became enormously swollen and died about noon, and others of them appearing to be stupid and unwell, they were immediately removed to other pasturage. I hear it also reported that some eight miles from here a span of horses turned into an oat field both died, swollen in the same manner."

SWALLOWS IN CANADA.†

In reference to the swallow, Mr. May says:—"We have several varieties of these birds; they are the harbingers of our loveliest season, although, as in England, a few stragglers appear here while the weather is rather severe. This fact gave rise to the proverb,—'One swallow does not make a summer.' One variety—the purple martin—is so much a favourite from its social habits, that many persons put up little boxes upon long poles, in their gardens, as an annual place of abode for these little wanderers.

"Almost the whole life of these birds is passed in the air: they commence their aerial evolutions at break of day, and continue until the dark curtain of night begins to gather around us.

"The swallow is frequently alluded to in the Holy Scriptures; and even from these casual notices we find that the inspired writers were well acquainted with the habits, migrations, &c., of these birds,—a fact worthy of note, since we know that the infidel asserts that the natural history of the bible is not correct.

"Nos. 2 and 3 both belong to the tribe *Fissirostres*,—nearly all of whose members feed upon the insect hordes whose ravages, if unchecked by the feathered tribe, would not only blight the prospects of the husbandman, but would in some countries absolutely drive both man and beast before them."

A late number of the *Leader* contains the following:—"The little swallows are always considered the harbingers of fine weather. When we see dozens of these birds playing about, on wing, getting

shed is a favourite place of resort, where it may be seen searching the bark and decayed wood for insects and their larvae.

Wilson says "We with pleasure rank this little bird among the farmer's friends, and trust our rural citizens will always recognize him as such."

I have no doubt that omnivorous and granivorous birds are oftener seen in cultivated fields and gardens than in the woods and prairies, from the fact that the progress of agriculture, by multiplying their sources of subsistence also increases their numbers.

* A large variety of publications of this nature are kept at the Depository of the Educational Department Toronto, and are supplied to School and Municipal Libraries.

† See illustration (No. 8) on page 49 of this Number.

ready to take up their lodgings about the roofs of stores and houses, summer may then be looked for. Below are the dates at which swallows have been seen in the western part of Toronto for the past nine years:—

1854	.....	April 11	1857	.....	April 26	1860	.....	April 19
1855	.....	" 10	1858	.....	" 16	1861	.....	" 18
1856	.....	" 17	1859	.....	" 11	1862	.....	" 17

ABSENCE OF THE SPARROW IN AMERICA.

The Hon. Grantley F. Berkeley, who a year or two ago visited the Western prairies to enjoy Buffalo hunting, states that the domestic or house-sparrow is not to be found in North America. When we consider that this bird is found in various parts of Europe, North and South, in North Africa, the Levant, the Himalaya mountains, and other parts of India, but is wanting in North America, it is not merely interesting, but highly suggestive, for it points to some climatic influence which may affect that peculiar species of the feathered class.*

THE SPARROW IN FRANCE.

A petition to the French Senate for the protection of little birds, says:—"Of the suspected little birds, the one that enjoys the worst character is the sparrow, so often pointed out as an impudent pilferer. Now, if the facts mentioned in the petitions are exact, according to the opinion of many this bird ought to stand much higher than he is reputed. In fact, it is stated that, a price having been set upon his head in Hungary and in Baden, this intelligent *proscrit* left those countries, but it was soon discovered that he alone could manfully contend against the cockroaches and the thousand winged insects of the lowland, and the very men who offered a price for his destruction offered a still higher price to introduce him again into the country. * * * It was a double expense—the ordinary punishment of hasty measures. Frederick the Great had also declared war against the sparrows, which did not respect his favourite fruit, the cherry. Naturally, the sparrows could not pretend to resist the conqueror of Austria, and they emigrated; but after two years not only were there no more cherries, but scarcely any other sort of fruit—the caterpillars ate them all up; and the great King, victor on so many fields of battle, was happy to sign peace at a cost of a few cherries with the reconciliated sparrows. Moreover, M. Florent Prévost has shown that, according to circumstances, insects form at least one half—often in a much larger proportion the food of the sparrow.—It is exclusively with insects that this bird feeds its young brood; behold a remarkable instance:—At Paris, where nevertheless, the fragments of our own food provide abundant aliment for the sparrow, two of those birds having made their nest on a terrace of the Rue Vivienne, the *elytres* (upper wings) of the cockroaches thrown out of the nest were collected; they numbered 1,400. Thus one little *menage* had destroyed 700 cockroaches to feed one single brood."

2. UTILITY OF BIRDS IN DEFENDING FARM CROPS AGAINST THE ATTACKS OF INSECTS.

The harvest this season in France, it is said, will fall much short of former averages; and one of the principal causes assigned is the increasing destruction of late years of the smaller kinds of birds, for the various forms of French cookery. It is well known that some kind of birds in particular feed on the larvae of insects, which if allowed to mature often prove injurious and sometimes destructive to the crops both of the farm and the garden. In matters of this kind nature has beneficially established a wise system of self adjustment and compensation, whose economy it is unwise and often fatally injurious to disturb. Rookeries in Europe have sometimes been complained of by the neighbouring farmers as the birds will devour sown grain unless prevented by artificial means. But in cases where rookeries have been broken up, the crops have in all cases been found to have been afterwards attacked by insects in an unprecedented degree, and in many instances the farmers have prayed for the restoration of these interesting and useful communities.

* Though we have not the house-sparrow here, we have several other species. Our first spring visitant is the song-sparrow (*Fringilla melodia*), which is noted for its melody and richness of voice. It is also of a social disposition. These birds frequently build their nests in the small shrubs in the Normal School grounds. About four or five years ago, a pair built their nest in a shrub in front of one of the windows: when the weather became warm the window was opened, and the female was at first very much disturbed; but it gradually became so accustomed to its exposed situation that it would allow persons to stand watching it when the window was opened.

The most familiar and domestic of these birds is the chipping sparrow (*Fringilla socialis*). It builds in the trees in our gardens and streets, and picks up the crumbs in our yards and at our doors. Wilson says,—"I have known one of these birds attend regularly every day during a whole summer, while the family were at dinner, under a piazza fronting the garden, and pick up the crumbs that were thrown to him."

From a report read before the French Senate, praying for the protecting of those birds which destroy insects hurtful to our crops, we find it stated that the wireworm consumed £160,000 worth of corn in one department alone, and was the cause of the three deficient harvests which preceded 1856. Out of 504 seeds of colza, all but 296 had been rendered worthless by insects, entailing a loss of oil equal to 32.8 per cent. In Germany, according to Latrielle, the *Phalaen monacha* consumed whole forests. In Eastern Prussia three years ago, more than 24,000,000 cubic metres of firs had to be cut down, being so destroyed by insects. Man is unable to cope with these destroyers of the produce of his labours. His eye is too dull to perceive, and his hand too slow to catch them. Without the aid of birds he would be vanquished in the struggle. The commission, while it excludes birds of prey from its protection, partially includes buzzards and rooks, because the former consumes 6000 mice yearly, and the latter an incalculable amount of wire-worms and other grubs. Sparrows are re-habilitated, and their usefulness shown by reference to the facts, that when their destruction was attempted in Hungary, winged insects increased so rapidly, that rewards for the destruction of sparrows were suppressed, and given for bringing them back. Frederick the Great ordered the destruction of sparrows, because they ate his cherries; but in two years time he found his cherries and all other fruits devoured by caterpillars. In a sparrow's nest in a terrace in the Rue Vivienne were found the remains of 700 Tipulæ, the larvæ of which turn to wire-worms—the greatest enemy the gardener and farmer have to contend with. Owls, and birds of that class, which agricultural ignorance pursues as birds of evil omen, ought to be welcomed. They are ten times more useful than the best cats, and not dangerous to the larder. The martins that were killed were found to have in their stomachs the remains of 543 insects. In order to protect these insect devourers, the report proposes the prohibition of all means of destroying birds save by fire-arms, with the exception of nets for wild ducks and palmipedes generally. The report also proposes the prohibition of bird-nesting, and destruction of eggs and the young birds."

We append an extract from another source, in reference to rooks versus grubs:—

"The grubs of the tipula family are amongst the most destructive enemies the gardener and farmer have to contend against. Their eggs are deposited in the soil. As the grubs are hatched they commence an active attack on the roots of most plants. The perfect insect appears in August, and is well known in Scotland as Daddy Longlegs—in England as Gaffer Longlegs, Tom Taylor, or Tommy Longlegs. Their operation, being carried on underground, enables them to elude the vigilance of man, but the instinct of the rook is a match for them. It has been calculated that a family of rooks will consume 3,847 grubs per day. Supposing the consumption to be continued throughout the year, it would amount to 1,404,156; and supposing a single grub to destroy as many plants of wheat or other crop as might grow upon a space of nine inches square, a family of rooks would preserve from destruction more than two acres of corn. If we extend our ideas further, and suppose all these grubs to live and propagate their species, it is more than probable that if this one species of bird alone were extinct, the labour of the husbandman would be nearly, if not altogether in vain. Man therefore, should be aware how he disturbs the balance of power maintained throughout the whole animal kingdom."

The power of reproduction in insects is often truly astonishing, and their destructive influence on cultivated crops, and sometimes even on the trees of the wild forest is equally remarkable, as our farmers of late years in particular, are but too well acquainted. The study of the formation, changes and habits of these little creatures is exceedingly interesting, and is pregnant with valuable practical results. A correspondent in a recent number of the *Ohio Farmer*, speaking of the increase of insects, says:

"It is a well-known fact in natural history, that there is such a thing as alternate generation; and it is an equally well-known fact to entomologists, that there are viviparous and oviparous generations of the same insect, during the same year. May not the first generation of the army worm be oviparous, and the succeeding generation be viviparous, as in the following case of aphides. All the aphides, it has been well ascertained, which appear in the spring are exclusively females, no males being found till the autumn; and these females are endowed with a fecundity almost incredible. M. Latreille says that one female during the summer months, will produce about twenty-five a day, and M. Reaumur calculated that one aphis may be the progenitor of 5,904,900,000 descendants. It is not necessary for the young female aphides produced during the summer to pair with a male, which, indeed, would be impossible, as no males are then to be found; yet these females go on producing each their twenty-five a day of living young ones, all of which become, in a short time, as fertile as their parent. The following calculation of the fecundity of a species of aphides, from Prof. Owen's

lectures on "Comparative anatomy," will offer some explanation of the extraordinary numbers in which these creatures sometimes occur. The *aphis lanigera* produces each year ten viviparous broods, and one which is oviparous, and each 100 individual.

Generations	Aphis produces.
1st	1
2nd	100
3rd	10,000
4th	1,000,000
5th	100,000,000
6th	10,000,000,000
7th	1,000,000,000,000
8th	100,000,000,000,000
9th	10,000,000,000,000,000
10th	1,000,000,000,000,000,000

—Canadian Agriculturalist.

3. THE FIRST ROBIN OF SPRING.

Hail, singing symbol of the Spring,
With all thy flowery train;
To every valley of our land
We welcome thee again.

Come to the pine and maple tree,
To groves of willow come;
The buds are weary waiting thee
To woo them into bloom.

Here is your very same snug nest,
Built in the ancient barn,
Made soft with feathers from your breast,
And downy shreds of yarn.

Then fill the little nest with love,
And all its wants relieve,
Among the twilight tinted grove
Slow waving in the eve.

Fresh greenness, full of fragrant flowers,
Shall glorify the glade,
And fruits abundantly will bless
Thy sweet domestic trade.

When wintry tempests from the sky
Frowned on our landscape lone,
We longed to see thy form fit by,
As in the summer gone.

We long to see the oriole,
The robin and the jay,
Fly through the firmament, and cheer
Our labor all the day.

And through remembrance of past mirth
May with thy song return,
So many joys with thee have birth,
Remembrance shall not mourn.

Then welcome, symbol sweet of Spring,
With all thy sunny train;
To every valley of our land
We welcome thee again.

4. A GANNET IN CANADA.

A strange bird, obtained by Mr. Alfred Dulmage, in the township of Oshawa, was lately forwarded to Toronto as a contribution to the University Museum. Professor Hincks has pronounced it a Gannet or Solan Goose, which, though known to frequent the Labrador coast, is a very rare wanderer so far inland as the shores of Ontario. There was no previous specimen of it in the University collection.

5. THE COTTON PLANT.

Cotton is an annual plant. Early in March the seed is sown in rows like corn; in the spring months it requires a warm sun. The blossoms, which begin to appear the last of June, resemble those of

the hollyhock. It grows in the form of a bush, with an average height of four and a half, and on rich bottom lands, sometimes reaching eight feet. The picking of this staple of the South is more tedious than its cultivation. Commencing the first of September, it usually continues till New Year's. A common hand will pick daily about sixty pounds of clear cotton, and when the crop is heavy a group of hands are often to be seen picking on one side of the field, and others ploughing for a new crop on the other side. Among the large planters it is not unfrequent to see a single field of five hundred acres. Cotton exhausts the soil more than corn or grain. About three hundred thousand bales are annually raised in the middle portion, and three hundred and eighty thousand in the whole State. The average weight of a bale is nearly five hundred pounds, and the average price at the plantation is about ten cents per pound. A planter with forty hands will raise about two hundred bales annually, which at the above stated price amounts to ten thousand dollars—a very handsome yearly income. The cotton growers with a judicious use of their profits, would become a very wealthy community.

6. THE COTTON PLANT IN INDIA.

It is said that in India the cotton plant is blooming over tens of thousands of acres of lands formerly abandoned; mulberry plantations in the northwest creep up the mountain sides as in Lombardy, and grain is springing up in immeasurable quantities.

II. Papers on Practical Science.

1. PAPER MANUFACTURES IN JAPAN.

Speaking of the Japanese, a writer in *Blackwood's Magazine* says: "It was wonderful to see the thousand useful as well as ornamental purposes to which paper was applied in the hands of these industrious and tasteful people. Our paper-machie manufacturers, as well as the continental ones, should go to Yeddo to learn what can be done with paper. We saw it made into material so closely resembling Russian and Morocco leather and pigskin, that it was very difficult to detect the difference. With the aid of lacker, varnish, and skillful painting, paper made excellent trunks, tobacco bags, cigar cases, saddles, telescope cases, the frames of microscopes, and we even saw and used excellent waterproof coats made of simple paper, which did keep out the rain, and were as supple as the best mackintosh. The Japanese use neither silk nor cotton handkerchiefs, towels or dusters; paper in their hand serves as an excellent substitute. It is soft, thin, tough, of a pale yellow color, very plentiful and very cheap. The inner walls of many a Japanese apartment are formed of paper, being nothing more than painted screens. Their windows are covered with a fine translucent description of the same material. It enters largely into the manufacture of nearly everything in a Japanese household, and we saw what seemed balls of twine, which were nothing but long shreds of paper rolled up. If a shopkeeper had a parcel to tie up, he would take a strip of paper, roll it quickly between his hands, and use it for the purpose, and it was quite as strong as the ordinary string used at home. In short, without paper all Japan would come to a dead lock; and, indeed, lest by the arbitrary exercise of his authority a tyrannical husband should stop his wife's paper, the sage Japanese mother-in-law invariably stipulates in the marriage settlement that the bride is to have allowed to her a certain quantity of paper."

2. HEATING AND LIGHTING CITIES BY THE POWER OF THE TIDES.

Sir Humphrey Davy once remarked, that people need have no anxiety in regard to the exhaustion of the coal mines, for long before that was effected, some cheap mode would be discovered of decomposing water, and this would furnish an unlimited supply of fuel. This prophecy is already accomplished. If all the coal mines in the world should spontaneously take fire and burn up, it is now in the power of science and art to extract boundless quantities of heat and light from the rivers and seas. By magneto-electric machines water may be decomposed without any expenditure except that of mechanical power, and some recent improvements in these machines, by which their power of decomposition has been greatly increased, have suggested this article.

In a recent number we pointed out the superiority of hydrogen over all other substances for heating purposes, and on page 280, vol. 3, is an illustration of the apparatus by which the gas is produced for the purpose of lighting the city of Narbonne. As hydrogen can be obtained in unlimited quantities merely by mechanical power, we have only to make suitable arrangements to avail ourselves of the great forces of nature in order to get all the fuel and light we want,

without any current expense whatever, except the trifling one of keeping the apparatus in order.

The tide, as it sweeps through Hell Gate four times in the twenty-four hours, probably exerts sufficient power to turn enough magneto-electric machines to decompose water and furnish hydrogen for all the mechanical and domestic purposes for which fuel and light are required in this city!

Here is an opening for a discovery which will be eminent among the marvels even of this wonderful age. In place of the enormous expenditure at present incurred for fuel and gas, our steam engines may be driven, and our dwellings may be warmed and lighted by the perpetual and undiminishing power of gravitation.—*Scientific Amer.*

3. POISON IN CARDS, CANDLES, AND TOYS.

The habitual employment of a most violent and subtle poison in the daily affairs of life is a matter of vital importance to every person in the kingdom. A few weeks ago we took occasion to warn our readers against the dangers which they were most likely to encounter from the use of a popular tint of green for decorating their walls. We propose now to call attention to the other guises under which this insidious poison lurks. The green color of arsenite of copper, which acts as a snare, tempting the eye and throwing even the wary off the guard by its brilliancy, is so beautiful that it is scarcely to be wondered in these days of outward refinement, in which nothing will sell which has not an attractive exterior, that this lovely but fatal pigment should be largely employed by ignorant or unprincipled manufacturers. Green is so favourite a colour that we need scarcely move from our desk to find an illustration for these remarks. Let us submit to our ammoniacal test this delicately-colored apple green card of invitation to an aristocratic *conversazione*. As if conscious of its guilt it turns pale, and bleaches at the first touch of the alkaline liquid, and the tell-tale azure tint of the ammonia discloses arsenite of copper as plainly as tests can speak; while, if an affirmation is wanted, Reinsch's test will precipitate before our eyes the identical arsenite employed. An envelope covered internally with an opaque green glaze is next tried, and after the abundant indications of arsenic which that affords, there is no wonder that persons have complained of their tongues breaking out in sores after having sealed up many of these adhesive envelopes. Suspicion next falls on a green taper used for sealing letters; this, upon the question being properly applied, confesses that it also contains arsenic, and reveals the cause of the unpleasant garlic odour always perceptible when lighted, and to which numerous headaches had been referred. The same strong odour of garlic was, a few years ago, constantly perceived when some kinds of mould candles were burned; it proceeds from the presence of an oxide of arsenic diffused throughout the atmosphere. This body was formerly used to enhance the beauty of and remove the crystalline appearance from the wax, but now improved chemical means have rendered its employment unnecessary. But glazed envelopes, enameled invitation cards, and wax tapers are not actual necessities of life; can we say the same for the next thing upon which the eye falls—a baby's toy? Purchased at the well-known Lowther Arcade, and selected from thousands of similar articles, what parent would hesitate to place so attractive or gaily coloured a toy into a child's hand? They will, however, pause when we tell them that every square inch of that pretty green Noah's Ark has enough arsenic on it to kill a strong man, and so carelessly laid on that when snatched from a child's mouth (for what baby does not instantly begin sucking a new toy?) its lips are quite green from the pigment rubbed off it.—*London Record.*

III. Papers on Physical Science and Geography.

1. THE GRAND SURVEY OF BRITISH AMERICA.

THE OREGON BOUNDARY LINE DEFINED.

A number of the non-commissioned officers and men of the Royal Engineers who left England some years since, for the purpose of making a complete survey of the British Territories in Western North America, have returned to England. They arrived at headquarters, Chatham, a short time since.

The chief duties in which the detachment of Royal Engineers were engaged was in tracing the boundary of the Oregon Territory, and in laying down the boundary line between Frazer river and the extreme termination of British territory in Central North America. The labor required on the part of the Royal Engineers engaged in the undertaking was severe and exhausting, as the boundary had often to be carried across dense forests, in which the party of surveyors were literally compelled to hew their way. The men employed received a high scale of working pay, in addition to their regimental pay. The remainder of the officers and men of the expedition will shortly arrive in England.

2. GEOLOGICAL SURVEY OF NOVA SCOTIA.

With reference to this survey, we find the following in the report of the proceedings of the Legislative Council in our sister Province:—"Hon. Sol. General, by command, laid before the House a letter from Hon. Provincial Secretary to Mr. Dawson, Montreal, dated 30th July, 1861, making inquiries as to the person to make a geological and mineralogical survey of the Province, the time such a survey should occupy, and the cost; also Dr. Dawson's reply, dated 3rd September, 1861, recommending Sir William Edward Logan; also the following communication from Sir William Edward Logan, dated Montreal, August 30th, 1861:—

"MY DEAR SIR,—I do not think it would be safe to state the sum that it would probably cost, to make a general geological examination of Nova Scotia at less than £1,000 per annum, continued for five years. The examination would be such a one, as would give a fair idea of the mineral resources and physical structure of the country, and might, at a subsequent period, be carried into further detail, if it were required. A portion of the amount and time would be devoted to the working up and publishing the results."

"I am, &c., W. E. LOGAN.

"Dr. Dawson, McGill College, Montreal."

"[Dr. Dawson says that the above statement of Sir W. E. Logan supposes the employment of two field geologists, and that he (Dr. D.) would be happy to undertake, in connection with Sir W. E. Logan's arrangements, the determination and description of the fossil plants and land animals of the carboniferous rocks, to which he has for some time specially devoted his attention, and in the preparation of a complete account of which, as far as known, he had already made some progress. This, Dr. Dawson states, he would be prepared to do free of expense to the Province. Dr. Dawson also observes that the estimate of expense is intended to include the detailed working up of the paleontology and economic geology and mineralogy of the Province, and the final publication of the whole with suitable illustrations.]

"Hon. Sol. General thought that the proposed survey was one of the most valuable objects that could be accomplished.

"Hon. Mr. Dickey concurred with the last speaker."

3. GEOLOGY OF NOVA SCOTIA.

The St. John (N. B.) *Colonial Empire* says, that Nova Scotia has secured the services of Sir W. E. Logan, to superintend its geological survey, and hopes the New Brunswick Government will also employ him. It would be a great benefit to have the surveys of the three provinces carried out upon a uniform plan. The Nova Scotia gold which was lately exhibited at Dalhousie College, and intended for the International Exhibition of 1862, was sent to England by the Europa. It consists of two boxes, containing bars of gold, gold dust, and gold bearing quartz, and its value is \$6,297. The gold of Nova Scotia appears chiefly to exist in certain parallel lines, which probably extend in some instances almost the entire length of the Province, or to the distance of 200 miles in the direction of the strata.

4. DISCOVERER OF FRAZER RIVER IN CANADA.

Mr. John A. Frazer, of Belleville, writes a very interesting letter to the *Intelligencer* of that town, in which he mentions the fact that his father, now an aged man of 86 years, residing near Cornwall, while in the service of the North-west Company, was the discoverer of the great river of British Columbia, and named it after himself:

"In the year 1792, at the age of 16, my father became an articulated clerk to the North-west Fur Trading Company, which had its headquarters at Montreal. In the year following he was sent to Lake Arthabasca, which was then the principal trading post of the Company west of Grand Portage. In 1802 he became a partner, and in 1805 he came down from Fort Arthabasca to Fort William, and was then nominated to cross the Rocky Mountains—to extend outposts, and form trading connections with the Indians. In August, 1805, he left Fort William, and reached the foot of the Mountains; his route lay through the Lake of the Woods, Lake Winnipeg, up the Saskatchewan for a short distance, past Cumberland House on the Saskatchewan, then up English River as far as Isle la Croix, then up Buffalo Lake, then over Portage la Cache in the Arthabasca River and Lake to Fort Arthabasca, which was the rendezvous of that department—then up Peace River to the foot of the mountains to a place which he named the Rocky Mountain Portage, where he left two clerks (named James McDougall and Archibald McGillivray) and 12 men.

"He then continued his route with six men to the summit of the mountains, and reached a small lake of about 12 superficial miles in extent, which discharges down both sides of the mountain, and is either the source or a tributary to the Peace River, and is situated in

about latitude 55°. At this lake, which he afterwards called McLeod's Lake (out of compliment to one of the north-west partners), he left three men to form acquaintance with the Indians, and in November he returned with his remaining three to the portage at the foot of the mountains, where he had left the fourteen. At this portage he passed the winter of 1805-'6. In the month of May, 1806, he sent two canoes loaded with furs to Arthabasca, with a report of his proceedings, and went again up the mountain with six men and a clerk named John Stewart, reached McLeod's Lake by a devious course to the South. In this course he touched Frazer River—which takes its name from him—but which he then supposed to be the Columbia. He went up a tributary of the Frazer River, and called it Stewart's River. Doubts now arose in his mind as to the "Frazer"—which he called the "great" river—being the Columbia. About 120 miles up the Stewart's River he built a house, and called the place New Caledonia. Here he left Mr. Stewart and two men, and crossed westerly into the open country, and built another house near a lake, which he called Frazer Lake. He was now with four men, in the midst of Indians who had never before seen or heard of the "pale-face."

"From this lake my father returned and passed the winter with Mr. Stewart. In the early part of 1807 he sent dispatches, with what furs had been collected, to Arthabasca, and asked for an increased force of clerks and goods. In the fall of 1807 he received two canoes loaded with goods, and two clerks, named Julius Quesnel and Hugh Ferres (the former was afterwards an M.P. for Montreal). These gentlemen brought dispatches from the Company, recommending my father to trace with all possible speed the "great" River to the sea—they being apprehensive that the Americans would get ahead of the British in that quarter, particularly as in the previous year (1806) Captains Lewis and Clarke had gone down the Columbia, and were extending American authority along the western coast of America; and Astor, on the part of the Americans also, was looking anxiously towards that section. The Company, therefore, urged my father to spare no expense in achieving the object of their desires.

"In the summer of 1807 my father built another trading house on the Frazer River, in lat. 54°. In May, 1808, he started from Stewart's Lake with four canoes and sixteen men, exclusive of Messrs. Stewart and Quesnel, leaving Ferres and two men in charge of a post at the mouth of the Stewart River—reached the ocean early in July, and remained but a short time there, on account of the hostilities of the Indians. From the time he left Ferres until he arrived at the sea, he met numerous and large bodies of Indians, speaking several different languages. They assembled to see the wonderful "pale faces" that were come amongst them. An idea may be formed how they regarded white men from the fact that when hundreds of them were congregated together, at the distance of a single rifle they would fall on their faces on the ground, so great was their astonishment.

"This sketch will apprise you of three facts:—First, that the Frazer River takes its name from my father, now an aged man of 86 years. Second, that he gave the name of New Caledonia to the country through which it flows. Third, that his exertions and enterprise in all probability secured to the British Crown what promises to be a province surpassing in every element of national greatness even our own Canada, the "brightest jewel" in the British Crown.

5. A PRIMITIVE EUROPEAN STATE.

Andorre is a little state still holding the independence it derived from Charlemagne, too poor in modern times to provoke annexation, yet too hardy to have been subdued by its mediæval neighbours, firm and free amid every external change; with a constitution older by four centuries than Magna Charta, yet still subsisting, almost unaltered, six centuries after Magna Charta had become the basis of our laws; where even Metternich would have been deemed a revolutionist, and Ricardo have been certainly denounced as an impostor; the last people in Europe to profit by the intelligence which Christianity carries in its train, yet among the first champions in Christendom against the Moorish power; a people with whom the peaceful spirit of Arcadia breathes amid the military laws of Lycurgus, a race of shepherds and farmers all trained to arms, with a history unknown to Europe, though it nevertheless cherishes the memory of its Morjartens and its Tells; a state more ignorant of the arts than the Valais, yet not less jealous of spiritual encroachment than Geneva; its valleys among the most fertile even of the south, yet approached only over mountains snow-clad in mid-autumn; a people whose Doges are peasants and whose Rothschilds are pedlars; possessing the choicest Latin manuscripts of the ninth century, yet disdaining the innovation of a printing-press even in the nineteenth; a republic without a road, without a navigable stream, and nearly without a house; where railways and telegraphs would be classed only with the griffin and the genius which the valour of its ances-

tors had driven out—such, in few words, are the salient characteristics of the little people of whom we write. Andorre is a republic isolated by mountains on every frontier, included neither in France nor in Spain, but intervening between the two countries, and (so far as their frontier and Government are concerned) much more ancient than either. It lies between the Pyrenees of Arriège and the Pyrenees of Catalonia. The republic consists chiefly of three valleys, one of which runs parallel with, and the two others transversely to, the great ridge of mountains that connect the Atlantic with the Mediterranean shore. The Andorrian magnates are but patriarchal peasants, possessed of flocks, of herds, of lands in the valleys and on the mountain sides, occasionally of forges of iron; but dressed indistinguishable from their humblest dependants, often labouring with them in the field, and nearly as thrifty in their domestic economy. The present Syndic, in his rural life, will serve as a fair example of the ruling class. He was lately seen again by an English traveller, who revisited Andorre in search of bears and wolves and mountain scenery, and primitive antiquity in modern days. The head of this venerable State was found at Canillo, his country seat; his threshold entered through a yard, his portals guarded, not by a gendarme, but by an enormous hog, his dwelling itself the first essay, it might be thought, of Europe in domestic architecture, its ground-floor a storehouse for firewood, its floor above devoted to the provident art of drying fruit of the earth for winter use, its kitchen (in which dinner was both cooked and served) so contrived that guests and viands were smoke-dried with just equality, its cabinet of state a balcony overlooking the glen below. The Syndic himself—Don Gil Areny by name—with all his plainness and simplicity, possessed something of what Lord Carlisle would call “very distinguished manners.” There was a calmness and dignity about him not unlike the manner of the Turk, which is often referred to a long habit of national independence. He could read Latin in print and manuscript, and he was acquainted with the intricate contractions of the different periods over which the public charters extended. He could also talk French, though with a strong Catalonian accent, which sounded every final vowel. But of things external to the republic his knowledge was assuredly not extensive. He was conversant enough with politics and events, to inquire whether the Russian War was yet concluded, and whether China was an English colony. He knew not that we were a sea-girt isle, nor that we possessed other ships than those petty merchant vessels which traded with Barcelona. He was equally curious and informed touching our literary institutions. He knew that our sovereign was by title Empress, and that we possessed great landowners like those of Andorre. But of an Indian Empire or a free Parliament he had never heard; nor had Lords and Commons made themselves known between those ridges of the Pyrenees. But one English name vaguely dwelt in proud individuality in Andorre, and on that name the whole interest of the republican functionary was fixed. “Je n’ai jamais entendu,” he demanded at length, “ni de votre chambre des pairs, ni de votre chambre des députés: mais qui est ce grand homme Pal—mèr—ston?” Here was certainly triumph of individual over collective and even traditional fame. The name of Lord Palmerston had been heard by the chief of an independent government to whom the two most illustrious assemblies of Europe were unknown.—*Edinburgh Review*.

IV. Papers relating to Railways.

1. RAILROADS IN CANADA.

Persons who are fond of dwelling on the dark-side of a subject; whose writings, speeches, and conversations are eminently calculated to make one miserable, have never done lamenting the existence of the public debt; but they never by any chance drop a hint that we have something equally substantial and indispensable to shew for our money. We have over 1,000 miles of interior navigation to improve. Costly canals had to be dug, harbors to be constructed, lakes to be deepened, lighthouses to be built, rivers to be straightened, and rapids so formidable that they seemed to defy navigation, to be rendered harmless. All this had to be done upon water. Upon land, common roads had to be made, and bridges to be constructed over an infinity of rivers, creeks and streams. For the convenience of the lumbering trade, which employs some 25,000 men, booms and slides had to be constructed. In respect to railroads, too, we have done more than any other country of equal population. Canada has more railroads than Ireland, with its 6,000,000 or 7,000,000 inhabitants; it has more than Scotland, with all its enterprise and capital, and iron and manufactures; more than any one of the New England States, which were settled a century and a half before Upper Canada, though these States are not wanting in enterprise or wealth; more than the three Atlantic states of New Jersey, Delaware, and Maryland.

Besides the railroads within the Province, others beyond the opposite Sarnia, to Detroit; and the Great Western has aided the Detroit and Milwaukee line by a loan. Nearly every one of these roads has received government assistance, either directly or indirectly. The Grand Trunk, the Great Western and the Northern have been directly aided by government loans; and the Buffalo and Lake Huron, the London and Port Stanley, the Erie and Ontario, the Cobourg and Peterboro'; and the Port Hope and Lindsay have all been aided by loan raised on the credit of the Consolidated frontier have been built and aided by Companies organized in Canada. The Grand Trunk Company has built 59 miles of an extension, within the State of Michigan, from the river Ste. Claire, Municipal Loan Fund.—*Leader*.

The following is a list of railroads in Canada, chiefly compiled from the late Railway Report of Samuel Keefer, Esq. :—

	MILES.
The Grand Trunk (in Canada)	873
The Great Western, and Branches	345
The Buffalo and Lake Huron.....	162
The Northern	95
The Montreal and Champlain (in Canada).....	82
The Port Hope, Lindsay, and Beaverton	60
The Prescott and Ottawa	54
The Brockville and Ottawa	63
The Cobourg and Peterboro'.....	28
The Welland.....	25
The London and Port Stanley	24
The Erie and Ontario	17
The Grenville and Carrillon.....	13
The St. Lawrence and Industrie.....	12
The Stanstead, Shefford, and Chambly	45
Arthabaska and Three Rivers Railway.....	35
Continuations of Canadian Railways in the U. S. ...	227

Total miles of railway actually open 2,160

2. RAILROADS IN CANADA IN 1858 AND 1862.

At the end of 1858, there were in Canada 1614 miles of railway. Since then, 249 miles were completed in 1859, and 29 miles in 1860; so that on the 1st January, 1861, there were 1881 miles of railway, and on the 1st of January, 1862, 1933 miles of railway in operation in Canada, under sixteen different corporations. To these ought perhaps to be added 227 miles worked in the United States by the Canadian companies, viz., from Port Sarnia and Detroit, 59 miles; and from the Canada boundary to Portland, 168.—Total, 2160 miles.

3. RAILWAY EXPLORATION IN THE LOWER PROVINCES.

The exploration for the continuation of the St. Andrew's Road to the Canadian frontier, and for a connection with the Grand Trunk at River du Loup, of which we have already spoken, has advanced so far that we are enabled to announce that a satisfactory line has been found throughout the greater portion of the whole distance from the Murquart to the St. Lawrence. The point at which the greatest difficulty was anticipated and about which serious doubts were first entertained, was, of course, the crossing the height of land separating the valley of the St. Lawrence from that of the St. John. Of this obstruction Major Robinson thus speaks in his celebrated report:

“The fifth and last obstacle to be overcome, and which cannot be avoided by any of the routes, is the mountain range running along the whole course of the River St. Lawrence in a very irregular line, but at an average distance off from it of about twenty miles. It occupies with its spurs and branches a large portion of the space between the St. Lawrence and the Restigouche rivers. The rocks and strata composing the range are of the same character and kind as the Tobique range. The tops of the mountains are as elevated in the one range as in the other.

“The exploring parties failed in finding a line through this range to join on to the direct line through New Brunswick, but succeeded in carrying on the Eastern or Bay Chaleurs route, owing to the fortunate intervention of the valley of Matapedia River.

“The line which was tried and failed, was across from the Trois Pistoles River by the head of Green River, and down the Pseudy, or some of the streams in that part running into the Restigouche River. A favourable line from the Trois Pistoles was ascertained along the Eagle Lake and Torcadi River, as far as the Rimouski, and it is probable that, by ascending this river, and descending the Kedgwick River, this line, route No. 4, could be completed.

“But it is not probable that it could compete in favourable grades with the Matapedia.”

This "direct line" of which Major Robinson speaks above is described amongst the other four routes in the commencement of his report.

"Commencing at the harbor of Whitehaven, near Canso, at the north eastern extremity of Nova Scotia, thence along the Atlantic coast to County Harbor and valley of the River Ste. Mary, thence by or near to Pictou and along the northern shore to Bay Verte.

From Bay Verte to or near the Bend of Petticodiac, thence across to Boistown, and northerly to the Restigouche River, crossing it several miles to the east of the Grand Falls.

"From thence by the most direct and practical course to the Trois Pistoles River and along the right bank of the St. Lawrence to Quebec."

Of course with anything but the New Brunswick portion of this route we have now nothing to do. Since Major Robinson wrote his report, the 31st of August, 1848, Nova Scotia has commenced her Railway lines and is far advanced with them. So far the question of route is decided. We have to deal only with New Brunswick; and in New Brunswick there are at this day probably but two routes which will be considered.

One is the North Shore route, as described by Major Robinson, as follows: "From Bay Verte to Shediac, thence by a north westerly course, crossing the Rivers Richibucto and Miramichi above the flow of the tide, so as not to interfere with the navigation. Then by the Northwestern Miramichi to Bathurst, on the Bay Chaleurs, along the coast of this Bay to the Restigouche River, and by it and by the Valley of the Matapedia to the St. Lawrence, and by the right bank of the St. Lawrence to Quebec."

The other route would be to take advantage of the roads already built, connecting the St. John and Shediac Road with the St. Andrews and Woodstock road, carrying the latter to the East bank of the River St. John, and continuing it on to the Riviere du Loup.

By the North Shore route Major Robinson finds a gap through the mountain range between us and the St. Lawrence; by the "direct line," he finds none, and of course this applies to the route which we have indicated up the valley of the St. John. We need scarcely say that the obstruction has always been urged strongly against the Western route.

That argument is now removed. We are informed on excellent authority that Mr. Rubridge, who had charge of the exploration on the part of the Grand Trunk, has completed it, and returned home to report his success.

The route pointed out to us as that found feasible is by the east side of Lake Temiscouta, thence by the Tuladi lakes, and the stream on which they lie, and thence by a branch of the Trois Pistoles into the valley of that stream, and thence to the St. Lawrence.

That this project of carrying the continuation of the St. Andrews road across the river and forward on its East banks and the discovery of the line above described, puts a thoroughly new face on the question of the route of the International line, and places the St. Andrews road before the country in an entirely new character, we shall, we think, be able to shew in future articles.—*Woodstock, N. B. Journal, Dec. 12.*

4. HISTORICAL SKETCH OF THE HALIFAX AND QUEBEC RAILWAY.

In 1838, on the establishment of Transatlantic Steam Navigation, Lord Melbourne's administration directed Lord Durham to report upon the best mode of opening up a communication between Halifax and Quebec.

In 1839, Lord Durham, in his Report on British North America, strongly urged the construction of a railway.

In 1843, a survey for a military road was made at the instance of the Home Government, but afterwards abandoned in favour of a railway.

In 1846, the Right Hon. W. E. Gladstone, the present Chancellor of the Exchequer, then Secretary of State for the Colonies, organised a survey for a railway by Royal Engineers.

In 1848 that survey was completed; and the Report thereon, by Major Robinson and Captain Henderson, was presented to Parliament in February, 1849.

Canada, New Brunswick, and Nova Scotia, contributed £30,000 to expenses of that survey.

In 1851, Lord John Russell's administration, through Lord Grey, the Colonial Minister, in a despatch to the Governor General of British North America, dated the 14th of March of that year, pledged the Imperial guarantee, or to advance the money from the British Treasury, on an estimate that the line would cost £5,000,000 sterling.

In 1852 that pledge was renewed by Lord Derby's administration, but fell into abeyance on a question of route; but the pledge has never been withdrawn.

Canada has since that time made 2,000 miles of railway westward

from Quebec, and also 114 miles of the line from Quebec towards Halifax; New Brunswick has also made 110 miles of the line extending from Shediac to St. John; and Nova Scotia has made 60 miles of the line extending from Halifax to Truro, and a branch line to Windsor of 38 miles.

The length of line remaining to be constructed is 350 miles, and which can be fully completed and equipped for £3,000,000 sterling.

In the autumn of 1858, Canada, New Brunswick, and Nova Scotia, made joint application to the Imperial Government, expressing their inability to complete the undertaking without Imperial aid.

Canada, New Brunswick, and Nova Scotia have granted to Her Majesty £60,000 per annum, and all the ungranted lands within ten miles on either side of the line, and a free right of way through all private property, providing Her Majesty's Government will, by themselves, or through the instrumentality of a private Company, complete the railway.

Her Majesty's Government are asked to give £60,000 per annum for the carriage of the mails, military stores, and troops between Halifax and Quebec, and with that and the provincial grant guaranteed for a series of years, by the Imperial Government, the necessary capital can be raised to complete the railway.

Against the foregoing sum of £60,000, the Governments of Canada, New Brunswick, and Nova Scotia, estimate a saving to the Imperial Treasury of £70,000 per annum, exclusive of the great saving the railway would effect in the Imperial Military expenditure, which amounts at present to about £420,000 a year.

Upwards of £20,000,000 of British capital, invested in Canadian railways, is in great jeopardy, owing to the want of access to and from the Atlantic through British Territory.

The Grand Trunk Railway was constructed on the distinct assurance that the line would be continued through New Brunswick and Nova Scotia to the Atlantic by the Imperial and Provincial Governments.

Canada during last Session, and New Brunswick and Nova Scotia have, during the present Session of their several Parliaments, unanimously passed joint addresses to Her Majesty from both branches of their several Legislatures, asking for such aid as will secure the immediate construction of this railway.—*Mr. Nelson's Report, July, 1861.*

5. INTERESTING RAILWAY STATISTICS.

The following curious calculations, showing the importance of railways as an aid to agriculture, are extracted from a recent American lecture:—

RAILROADS AS AIDS TO AGRICULTURE.—From a copy of an address on this subject we give a most interesting extract:—"In this connection, the means of transportation enjoyed in our day are worthy of remark. The improved sailing vessels, the steamer, and even the common waggon, are each and all superior to any machine known before the present century. Their importance in the production and distribution of wealth is so great, that an adequate statement would seem fabulous. But I can only mention particulars of one branch of our transporting machinery—the railroads, which are now become to the internal industry and commerce of the country and agency of incalculable value.

"Six years ago, in addressing the people of a portion of this State on the advantages and growth of railroads, it seemed extravagance when I predicted that thirty thousand miles of railroad would be made in the United States by 1860; yet railroad authorities now say that the prediction is already history. A late publication, the *Railroad Record*, gives the figures of our present establishment as follows:—

Whole length of railroads—miles	30,000
Fuel consumed yearly—as wood in cords	3,000,000
Persons employed of all grades—number	80,000
Locomotives—number	6,000
Passenger cars—number	5,000
Freight cars—number	80,000
Aggregate cost of railroads	\$1,175,000,000
Gross annual revenue	\$ 120,000,000

For labour and materials alone, the annual outlays of these roads are told by millions. Eighty thousand employees, at an average of only one dollar a day each, take twenty-five millions a year in wages. These employees may be taken to represent each a family of four persons; giving some three hundred and twenty thousand persons dependent on the railroads for subsistence—one-tenth as many people as all the colonies had in the Revolution. The meat and bread alone of this army are estimated at from ten to twenty millions of dollars a year going to the farmers. The annual outlay for locomotives is about ten millions, and for cars about five millions more; so that the three items of wages, engines and cars, amount to forty millions of dollars a year! For timber, iron, paints, mechanical

aid, &c., in keeping up the roads, millions more are paid, going to the farmers, the merchants, and the mechanic. The fuel alone, estimated as wood in cords, requires a yearly outlay of about six millions of dollars; and at fifty cords to the acre it would require 60,000 acres each year to supply the demand—nearly three six-mile square townships. Part of the fuel, however, is coal; but agriculture feeds the miners and grows the materials to clothe them and to light the underground chambers where they work. It is difficult to conceive of the magnitude of this railroad system. The track laid in the United States is more than long enough to reach round the globe. You might imagine it an iron equator belting the earth, with enough left over for a lateral branch to the North Pole! Or, you may imagine the diurnal rotation of the earth checked for a moment, and this length of railroad set up on end, pointing towards the moon, and it would reach one eighth of the distance to that luminary! The 6,000 locomotives, end to end, would reach fifty miles—say from St. Louis to South Point; and the 5,000 passenger cars would extend to Osage. The 80,000 freight cars, end to end, would reach about six hundred miles—say from St. Louis to Independence and back again. Coupled in a line the locomotives and cars of all kinds would more than reach from St. Louis to Pittsburgh; and if they were all moved forward in procession, at the rate of 60 miles an hour—faster than the average flight of birds—it would require a long summer day for the train to pass any one! What a wondrous and sublime mass of mechanical achievement! and all the creation of about thirty-five years! in a country where different sections now threaten to overturn the Government! What are the Pyramids, the Appian Way, of the Chinese Wall in comparison?

“Suppose these 6,000 locomotives all assembled in a field—their black bodies covering about sixty acres of ground, and then—all to whistle at once! What an anthem to civilization! the *Te Deum* of labour, art, and science! the psalm of progress! But the interesting facts to agriculture are these: that the railroads carry crops to market, and bring merchandize in return; that they economize the time of the people by rapid journeys; and that the human force operating the vast concern must have food and raiment supplied by agriculture. With the extension of agriculture by new and enlarged farms, and better culture, these roads will increase; new lines, new tracks, more tracks, more cars, and a larger number of employees, will inevitably follow. Consumption of farm products will be immensely increased. For transporting facilities create markets; and they not only insure to the farmer better prices for what he sells, but bring to him cheaper what he buys.”—*Amer. R. R. Review.*

6. RAILWAYS IN THE UNITED KINGDOM.

Ten thousand four hundred and forty-three miles of railway were open in the United Kingdom of Great Britain at the close of last year. One hundred and sixty-three millions four hundred and thirty-five thousand six hundred and seventy-eight passengers, besides forty-seven thousand eight hundred and ninety-four holders of season tickets, travelled by railway during the course of the year, giving an average of nearly six journeys for every person in the kingdom.

V. Papers on Practical Education.

1. PRIZES—APPROVED MODE OF SCHOOL EXAMINATION.

A person writes to ask which is the best and fairest mode of awarding School prizes. His query having been referred to the Head Master of the U. C. Normal School for reply, Mr. Robertson gives the following as the result of his experience in such matters. It is the plan adopted in the Normal and Model Schools:—

Prizes or Premiums are best decided by written examinations.

A series of questions on the subject on hand is drawn up and a copy given to each pupil, a sufficient time allowed for answering, and the answer written out in presence of the examiner. The questions are numbered and a numerical value affixed to each. In Arithmetic, Algebra and Geometry, any mistake in an answer deprives it of any value; in other subjects, if the value of the question be (suppose) 8, a partial answer may receive some lower amount, say 3, 5, &c., according to its merits. Let the total values of all the questions amount to some specified sum (usually 100) then the total value of all the answers in any paper will indicate the standing of its writer; complete answers to all the questions will amount to 100 and the highest total will mark the best answer.

A prize in reading may best be awarded by the examiner hearing all read and selecting a few best, then the best of these, &c.

The prize for good conduct may be awarded on the recommendation of the teacher based on his knowledge of the pupils during a

given period. This will be aided materially by the practice of keeping (as should always be done) a careful record of the conduct of each pupil as regards *demerit* marks for lateness, absence or any other neglect of duty.

2. PRESENT INCOMPLETE EXAMINATION OF TEACHERS.

Besides the text book examination, we submit the propriety of something additional. I am aware there is no law enabling the examiner to enforce answers in the department proposed; nor would we insist upon answers where reluctance was obvious—yet we propose the asking of these questions, believing the very asking in many cases would accomplish the end proposed. Among others we propose the following:—

1. Do you think the teacher ought ever to allow himself to use profane or vulgar language either in the presence of his pupils or elsewhere?
2. Should the teacher use tobacco in the school room?
3. Should the teacher always strive to present, in his own person and manners, a *model for his pupils*?
4. Do you attend the Institutes and Associations (if there be any,) of your County?
5. Do you read any works on the Science of Teaching?
6. Do you read any School or Educational Journals?

We suggest that the mere presentation of these and kindred questions, together with the accompanying remarks of the examiners, will do much toward the end proposed. If any examiner is at a loss as to the *how* of applying these questions, we would suggest the writing of them on the black board, then their reading by the examiner, then the vote by the teachers as a body, a visible vote, so that the teachers might learn the sentiments of their co-labourers.

We submit further, the propriety, yea the necessity, of examining the teacher, in some degree, in the Theory of Teaching. On the *how* to do this, we are not yet quite clear. We are however clear on the sequences; first of which would be the begetting of the conviction in the minds of teachers and patrons, that there is a *science* in teaching.

Secondly, It would lop, or tend to lop from the profession, the Stepping-Stone-Teachers, viz., those who make teaching a stepping-stone to the other professions. They in general have no *theory of teaching*, hence would not get through this department very safely. *This might sometimes cut off the worthy, for which we should be sorry, but usually, the unworthy, a result which both the profession and cause demand.*

Without elaborating this last point, we may say that we honestly believe that both the profession and the cause of education demand such examinations. Further, it is our firm belief, that only a few years will elapse until this department will form an essential element in every examination.

Examiners, I am aware there is a very slight difficulty with some of you in carrying out this plan, namely—you are not practical teachers yourselves, hence not very clear in the Science of Teaching. It strikes us, that this will be somewhat in the way, but of course you can put the blame on the County Commissioners who made the appointment. We know one county in which the teachers propose to examine the examiner, and the presumption is, that he will have to “stand from under.” It is a pity that County Commissioners will subject their friends to such trials.—H., in *Indiana S. Journal.*

3. DISCIPLINE OUT OF SCHOOL.

In the Vermont Supreme Court it was decided, that though a schoolmaster has in general no right to punish a pupil for misconduct committed after the dismissal of school for the day, and the return of the pupil to his home, yet he may, on the pupil's return to school, punish him for any misbehaviour, though committed out of school, which has a direct and immediate tendency to injure the school, and subvert the master's authority.

4. FOUR GOOD HABITS FOR TEACHERS.

There are four good habits—punctuality, accuracy, steadiness, and despatch. Without the first of these time is wasted; without the second, mistakes the most hurtful to our own credit and interest, and that of others may be committed; without the third nothing can be well done; and without the fourth, opportunities of great advantage are lost which it is impossible to recall.

5. APPRECIATION OF A SCHOOL LIBRARY IN MINTO.

A gentleman in Minto, in a recent letter to the Educational Department, writes as follows: “Annexed is a list of books which the School Trustees of School Section No. 8, Minto, will feel

obliged by your supplying for our School Section Library. We had the same amount a year ago, and they have been well circulated and used with care. The rate-payers at the annual meeting expressed great satisfaction with the Library and desired that it might be increased. I trust we may be able to devote a like sum each year for that purpose, which, with the 100 per cent. you add will soon give us a good library.

6. CAPE TOWN PUBLIC LIBRARY.

The London *Times* of the 22nd ult., states that Sir George Grey, the Governor, has presented his splendid collection of books and manuscripts, valued at \$100,000, to the public Library, at Capetown. In this *Journal* for June, 1861, we stated that this library was formerly inaugurated by Prince Alfred, while on a visit at the time to the Cape.

7. INTELLIGENCE OF COLORED CHILDREN.

The *N. Y. Independent's* correspondent who writes of Jamaica, informs us that in the mission-schools where the black children are taught, the teachers give uniform testimony that no scholars anywhere are more quick or apt to learn, or more fond of knowledge, or of more retentive memory. In Oberlin College, Ohio, in which black students are admitted and treated without distinction from whites, the class-rolls show that the scholarship of the one is of equal merit with the other. "The colored people," says one of their instructors, "are, as to mind and capacity to learn, just like white folks; when a black man has a certain opportunity, he will improve it as fast as his paler neighbour who has the same opportunity."

VI. Biographical Sketches.

No. 10.—NICHOLAS SPARKS, ESQ., OF OTTAWA.

The death of Nicholas Sparks, Esq., which took place at his late residence in this city, on the 27th ult. has removed from amongst us one of the few that remained of the first settlers of this part of Canada. Having emigrated to this place nearly half a century ago, he spent the greater part of his life here, and during that period was more or less known in the proceedings which have changed the then remote back settlement of the site and vicinity of a city, now the capital of Canada. For several years after his arrival here Mr. Sparks lived in Hull, and was in the employment of the Messrs. Wright. On the 25th of September, 1821, Mr. Sparks purchased Lot C. in concession C, Rideau front in Nepean, 200 acres for £96, from John B. Honey, who had drawn the land as an emigrant settler, and then had been in possession for four years. Mr. Honey's improvements amounted to very little. Mr. Sparks bought it with a view to make a farm, and had it never been converted into any other purpose, there can be no doubt that he would have succeeded in making a good farm of it. Upon that land a very large portion of the city of Ottawa is now built, and the property which Mr. Sparks left to his heir is immensely valuable.

It has been said time and again that Mr. Sparks had been obliged to take the lot against his will in payment of wages due him; but that is utterly wrong. With a view to make a home for himself he purchased the lot and paid for it in gold. The construction of the Rideau Canal and the settlement of the country, caused the property to become the site of a city; and Mr. Sparks, as he grew in years, saw it increase in value. His own shrewdness and good sense enabled him to make a prudent use of the means which he held in his hands, and the advantages which events afforded.

Mr. Sparks was aged 68 years, very nearly the time allotted to human life; but, until a few years back, his strong frame and robust appearance gave promise of his attaining a greater age. After he began to show symptoms of illness, he rapidly declined; and though his demise had been expected, it seemed sudden at last, as each one felt that an old familiar face had departed forever. He was a warm and firm friend, and his word was as good as his bond. He loved honesty, and highly valued those in whom he found it.—*Ottawa Citizen*.

No. 11.—MR. JOHN SCOTT.

Died at Coteau Landing, at the residence of his son-in-law, Mr. Charles C. McFalls, on the 24th December, Sergeant John Scott, late of Her Majesty's 49th Regiment, aged 82 years. He entered the service in 1796, and was discharged at the reduction of the regiment in 1815; was appointed issuer to the Barrack Department and Fort Sergeant at Coteau du Lac, which post he filled until the breaking up of the military establishment in Canada in 1854, after a period of 58 years service. He was in action at Olmsted under

General Sir E. Coote Helder, under General Sir Ralph Abercrombie; at Egmont up Lee under His Royal Highness the late Duke of York; at Copenhagen on board the *Ganges*, 74, under Admiral Nelson; and in North America, where he was actively employed with the regiment in every skirmish and engagement during the war of 1812-14. He was wounded at Queenston Heights, and at Niagara also; was one of the party who carried the gallant Brock to the grave; and formed one of the escort of Lieut. (now) General Winfield Scott, U.S.A., while a prisoner in Canada. He leaves a large family to honor his memory, and who are willing to emulate his deeds in the cause of their Queen and country.—*Brockville Recorder*.

No. 12.—ABSALOM SHADE, ESQ.

The town of Galt has just lost an old and prominent resident. In our last number we mentioned the serious illness of Mr. Shade, from congestion of the lungs. Since then, that gentleman has died, he having expired on Saturday morning. Mr. Shade was upwards of seventy years of age, more than fifty of which he had spent in the County of Waterloo, doing much to assist the progress of Galt, and likewise accumulating a fortune for himself, which, latterly, retired from business, he was enjoying. Mr. Shade was well known throughout the Province as a man of much labor and enterprise, as also, at one time considerably associated with public affairs. He came to Canada, from Pennsylvania, at an early age, and settled in Galt about the year 1816. By trade a mill-wright, he was at once employed by Mr. Dickson, for whom he erected the first mill built in Waterloo. Soon after, he obtained the contract from the Canada Company, of constructing a road from Galt to Guelph. This highway was one of the first accomplished for opening up that portion of the country. Successful in this enterprise, Mr. Shade continued prosperous, got into extensive business for himself, and afterward became the purchaser of a large portion of land, known as the Dickson property, adjoining Galt, which gradually rose in value. In 1836, when Parliamentary constituencies enjoyed a wider range than they do now, Mr. Shade was the successful high Tory candidate for what was then known as West Halton. He was, therefore, member of the celebrated saddle-bags Parliament, but remained a short time only in that sphere of public life. In later times he represented Galt in the old District Council, which sat in Hamilton. In that capacity, Mr. Shade was active and useful. Leaving the Council, he has since that period lived comparatively private. Especially in Galt, and throughout the County of Waterloo, Mr. Shade was highly respected. His loss will be deeply felt in that neighbourhood, where he has always been looked up to as ever willing to participate in anything tending to further the prosperity of the locality to which he was so largely indebted for his success in life.—*Leader*.

No. 13.—REV. WILLIAM MACAULAY HERCHMER, M. A.

We learn that the death of Mr. Herchmer took place at Rockhurst, near Kingston, on Saturday, the 11th January. Mr. Herchmer was the third son of the late Lawrence Herchmer, Esq., a U. E. loyalist, and for many years one of the leading merchants of Kingston. He was born in that town on the 11th June, 1811, and received the elements of a sound classical education at the Royal Grammar School, under the care of the Rev. George Wilson, M. A., whose labors in the cause of education and of the church are still gratefully remembered in Canada; and latterly, under that of Mr. Baxter, his successor. On leaving school, in the year 1829, being intended for the church, he went to the theological seminary of the Rev. Mr. Brathwaite, at Chambly, Canada East, where he remained about three years. He thence proceeded to England, and entered Queen's College, Oxford, where he renewed his connexion with his friend and former master, who, on his return from Canada, had been preferred to a distinguished post in that seat of learning. In 1835, he took his degree of B. A., and having been admitted to Holy Orders, was appointed to the curacy of Shipton, on the Cherwell, in the Diocese of Oxford. On the recommendation of his friend and fellow-townsmen, the Reverend Robert Cartwright, M. A., he returned to his native town, about the year 1837, and took charge of the Grammar School, in connexion with the chaplaincy of the Provincial Penitentiary, and for several years discharged the duties of those responsible offices in a most satisfactory manner. In 1843, he acceded to the unanimous wish of the congregation of St. George's Church, Kingston, to undertake the assistant ministry of that important parish, vacant by the death of the late excellent Mr. Cartwright. The duties of this parish were extremely arduous, for at that period there was but one church in the town; and in addition to the recent removal of the seat of government to Kingston, the tide of emigration which flowed through it during his incumbency materially increased his labors. The earnest manner in which he devoted himself to his duties, particularly during those fearful

visitations of the emigrant fever, gained for him the admiration of the entire community. Placed in the midst of a wide sphere of usefulness, he did not confine his exertions to the town alone, but zealously improved every opportunity of extending the ministrations of the church to the surrounding townships. His vigorous constitution and active habits enabled him to accomplish much himself, and by pressing into the work those of his brethren who were not fully occupied, he kept up a supply of services at several stations around Kingston, where churches have been subsequently built, and missionaries stationed. His exertions in this respect were the more commendable, inasmuch as he was actuated by a disinterested zeal for his master's cause, for shortly after his return to Canada, the advantageous sale of a portion of his paternal estate placed him in independent circumstances. This good fortune seemed to add vigor to his exertions, and to increase his liberality. Among his benefactions we may mention the donation of £1,000 towards the completion of St. George's Church; a large contribution (said to be between three and four hundred pounds) towards providing a parochial school-house in a neglected district in the town of Kingston, £250 to Trinity College, besides liberal subscriptions to the Church and other Societies; indeed he set an excellent example in this respect to those who like himself have been favored with a liberal share of this world's goods.

Of his kindness of heart and right feeling, the following incident speaks for itself. An uncle of his, engaged in the Indian trade, like many others similarly circumstanced, married a native woman. This gentleman was unfortunately lost on Lake Ontario several years before our late lamented friend was born, leaving a family of several children to be brought up by his widow—which of course was after the Indian custom. The youngest son, a promising young man, became a convert to Methodism, and subsequently a preacher in that Society. On visiting Kingston in that capacity, Mr. Herchmer readily claimed him as his kinsman, received him into his family, and subsequently showed him every attention.

The leading features in Mr. Herchmer's character were, earnestness of purpose, and an unostentatious activity in the performance of his duties; his ministrations were highly acceptable to his hearers, while his kindness of heart rendered him popular among all classes, and among his brethren of the clergy he was held in highest esteem.

No. 14.—JOHN BOSTON, ESQ.

Died, on the 7th ult., at Montreal, John Boston, Esq., for many years Sheriff of Montreal. For many years a lawyer in this city, he was appointed Sheriff of the very extensive district of Montreal, about the time of our civil troubles, and has filled that responsible office with ability, integrity and credit for nearly a quarter of a century. On many occasions Sheriff Boston has shewn himself a public-spirited citizen, and his vigor of body and mind lasted for the three-score and ten years allotted to man.

No. 15.—MR. JOHN W. AUDUBON.

The last of the sons of the celebrated naturalist, Audubon, died at Audubon Park, Washington Heights, near the city of New York, a few days ago. The widow of the elder Audubon survives at the age of 87 years, and still resides on the spot, surrounded by the city, which was a wilderness when she and her husband settled there only as far back as 1833. This last son inherited much of the taste and talent of his father, and was engaged in bringing out a new edition of the Birds of America when arrested by the hand of death.

No. 16.—EX-PRESIDENT JOHN TYLER.

The Hon. John Tyler, whose death is announced, was born in Virginia, in 1790. At the age of twenty-one, he was elected to the Legislature of that State. In 1836, he was chosen Governor: in 1846, he was elected Vice-President as the nominee of the Whig party, and the death of the President, Gen. Harrison, soon after, made him executive head of the nation for the remainder of the term. He has lately lived on his plantation in privacy. He came out of his retirement at the commencement of the present contest, and strove to compromise the disputes but failing, he gave his sympathy and support to the Southerners.

MORTALITY FROM ILL VENTILATION OF SCHOOLS.

In consequence of the ill construction and bad ventilation of the school-houses in and about the city of London, England, seven thousand children, between the ages of five and fifteen years, annually lose their lives.

VII. Miscellaneous.

1. A BOAT SONG FOR THE NAVAL RESERVE.

Lift her along—
Stout hearts and strong!
Let our hearts fall in time
To the rhyme
Of our song.

Old England's mighty seamen,
The masters of the deep,
Have left to us—their sons, my lads—
Their ancient sway to keep;
To make our bright flag honoured
Alike by friend and foe,
As far as Ocean's waters roll—
As far as breezes blow!

Then three cheers for our Queen:
And three cheers for our land:
And three cheers for the hearts that love us—
And three times three
For the British flag,
That floats in the breeze above us!

Give her good way—
Light hearts and gay!
And our oars in their beat
Shall repeat
The old lay!

Old England's mighty vessels
But wait the voice of war,
To spread their grand wings on the gale,
And wake their thunder's roar;
And England's foes again should find,
Amd the battle's smoke,
The same staunch English wooden walls—
The same stout hearts of oak.

Then three cheers for our Queen:
And three cheers for our Land:
And three cheers for the hearts that love us!
And three times three
For the British flag,
That floats in the breeze above us!

Old England's mighty Charter,
It still remains the same:
Oppression still her standard hates—
Still Freedom loves her name!
And calmly still her people
In God repose their trust,
Nor change the Peace they love for War,
Save when that War is just!

Then three cheers for our Queen:
And three cheers for our land:
And three cheers for the hearts that love us!
And three times three
For the British flag,
That floats in the breeze above us!

Lift her along—
Stout hearts and strong!
While our oars in their beat
Still repeat
The old song!

Three cheers for our Queen:
Three cheers for our Land:
Three cheers for the hearts that love us!
And three times three
For the dear old flag,
That floats in the breeze above us!

2. THE QUEEN AS A SCRIPTURE READER AT OSBORNE.

At a recent meeting at Cambridge, on behalf of the Army Scripture Readers and Soldiers' Friend Society, the Rev. H. Huleatt, chaplain of the forces at Aldershot, narrated the following anecdote, which he had received, he said, from one of the actors in the scene: "The incumbent of Osborne had occasion to visit an aged parishioner. Upon his arrival at the house, as he entered the door where the invalid was, he found sitting by the bedside a lady in deep mourning reading the word of God. He was about to retire, when the lady remarked, "Pray remain. I should not wish the invalid to lose the comfort which a clergyman might afford." The lady retired, and the clergyman found lying on the bed a book with texts of Scripture adapted to the sick; and he found that out of that book portions of Scripture had been read by the lady in black. That lady was the Queen of England!"

3. PRINCE ALBERT'S LAST GIFT TO THE QUEEN.

The last gift of Prince Albert to Queen Victoria was "Lesbia," a picture painted by the artist Bouvier, who wished it to be exhibited at the International Exhibition. But the Queen in view of the circumstances of the presentation, cannot part with it even for a short time.

4. ALBERT MEMORIAL FUND.

The total amount of subscriptions to the "Albert Memorial Fund," received at the Mansion-House, London, up to the close of the last mail, was £44,750. The Queen's Committee had held a meeting on the eve of the last mail leaving England. The committee were still in favour of the block of granite in Mull. It has been now cleared to the length of 115 feet, which is eight or ten feet longer than was supposed. A rough specimen has been received in London, and is about to be polished. A polished specimen from Balmoral has been received, but the colour is not so pleasing.

5. THE POET LAUREATE AND THE PRINCE CONSORT.

It is understood that Mr. Alfred Tennyson has received from the Princess Alice a beautiful and touching autograph letter, written by command of her Majesty, expressive of the intense pleasure and consolation which the Queen has derived from the verses prefixed to the new edition of the poet laureate's "Idylls of the King."

6. A BEAUTIFUL CUSTOM.

In a recent visit to the home of the aged parents of a family now widely scattered, I fell in with a letter sent by a son to his mother on his birth-day. It has been the custom of that son, for many years, to send such a letter to the venerated parent on the return of his natal day; and it occurred to me that it was a beautiful custom. There is nothing particularly remarkable in this letter, but in the hope of leading some of your readers to adopt the custom, I transcribe it.—H. C. F., in *The British Mothers' Journal*.

"MY DEAR MOTHER,—I know that you will be looking out for a letter from me about this time and I am not going to disappoint you. Some people scarcely ever observe the return of their birth-day, but let it pass unnoticed and forgotten, like any other day. I confess I can never do this.

"The day usually comes to me like a remembrance of the past. The goodness of the Lord in giving me life and being; in preserving me in my tender infancy and boyhood, and all along up to manhood, I can never, on such a day, fail to call to mind. Then, also, my obligations to my kind parents, especially my mother, who brought me into being, and not without much suffering and anxious concern; these I cannot, I would not forget.

"All this, and much more, passed through my mind this morning and last evening. It may be a pleasure to you to know it. Of course it is out of my power to make suitable returns for this self-sacrifice on your part; but I have often thought that the greatest reward which a parent could ask of a child is a grateful remembrance, and a life of honor, virtue, and usefulness.

"I hope you are not wholly denied this in the case of your children; and especially do I hope that I may so live as to cause you to thank God upon every remembrance of me.

"A child ought to seek the ways of wisdom and well-doing, if from no other motive but to render happy his parents.

"But I will not begin to moralize. I only took up my pen to assure you that you are not forgotten.

"I'm living far from thee, mother,
Far from my happy home;
I've left the land that gave me birth,
In other lands to roam;

And time, since then, has rolled its years,
And marked them on my brow:
Yet I have often thought of THEE—
I'm thinking of thee now.'

"Yes! and I shall not cease to do this as long as I think of anything. Surely that is a hard and corrupt heart which wears not fresh upon it the image of her who has been the means of introducing him into the world.

"Clara and the sweet babes would join in kind regards for the 'Old Folks at Home,' and the entire circle of loved ones there.

"May your declining years be peaceful, and your final resting-place the bosom of God.

"As ever,

"YOUR AFFECTIONATE SON."

7. INFLUENCE OF ENGAGING MANNERS.

There are a thousand pretty, engaging little ways, which every person may put on without running the risk of being deemed either affected or foppish. The sweet smile, the quiet, cordial bow, the earnest movement in addressing a friend, or, more especially, a stranger whom one may recommend to our good regards, the enquiring glance, the graceful attention which is so captivating when united with self-possession—these will ensure us the good regards of even a churl. Above all there is a certain softness of manner which should be cultivated, and which, in either man or woman, adds a charm that always entirely compensates for lack of beauty. Politeness is the religion of the heart, as piety is that of the soul. It is good nature in action. It renders whoever may be its object contented and happy under its softening influence. It consists in acts which show their source—the heart.

8. QUALIFICATIONS OF A GOOD EDITOR.

A good editor is, like a general or poet, born, not made. Exercise and experience give facility; but the qualification is innate, or it is never manifested. On the London daily papers, all the great historians, novelists, poets, essayists and writers have been tried, and nearly all have failed. We might say all; for after a display of brilliancy, brief and grand, they died out literally. Their resources were exhausted. "I can," said the late editor of the *Times* to Moore, "find any number of men of genius to write for me, but very seldom one man of common sense. Nearly all successful editors have been men of this description. Campbell, Carlyle, Bulwer, and D'Israeli failed; Barnes, Sterling, Phillips, succeeded; and Delane and Low succeeded. *A good editor seldom writes for his paper; he reads, judges, selects, dictates, directs, alters, and combines; and to do this well, he has but little time for composition. To write for a paper is one thing—to edit a paper, another.*

9. THE GUARDSMAN'S DEATH.

["Shortly after the *Australasian* left Halifax, one of the Guards died; and on the following morning his remains were carried ashore and interred with the usual solemn and impressive ceremonies."—*Morning Paper*.]

Within the troop-ship's narrow bed,
The noble Guardsman lay,
The hand of death pressed on his head,
To steal his soul away.
And with a mourning, heavy heart,
And tear-bemoistened eye,
His fellow-soldiers stood apart
To see their comrade die.

That Guard had often faced the foe
In warfare's carnage wild,
And on fierce Russia's plains of snow,
At death he'd calmly smiled.
Yet now he bowed his manly head,
And after all he'd past,
Within the troop-ship's narrow bed
The Guardsman breathed his last.

They bore him to the snow-clad shore,
And made him there a tomb,
Near where the ocean's breakers roar,
Where all around is gloom.

They fired a volley o'er his head,
And covered up his breast,
Then left the Guardsman still and dead.
Wrapt in his long, last sleep.

No tomb-stone marks his final home,
No tears are o'er him shed,
No friends shall ever thither roam,
To sorrow o'er his head.
But there, where breakers dash around,
Where fierce the wild winds moan,
Beneath the snow-bemantled ground,
The Guardsman sleeps alone.

HAMILTON, Jan. 18, 1862.

G. R. K.—*Hamilton Spectator*.

VIII. Short Critical Notices of Books.

— **BEAUTIES OF DE QUINCEY.**—Boston: Ticknor & Fields. Toronto: Rollo & Adam.—To the firm of Ticknor & Fields, of Boston, is due the credit of collecting for publication the whole of De Quincey's Works, (which are now being re-printed in England.) Having completed the task, they now supplement it by publishing this handsome volume of his "Beauties." The selections from De Quincey's various works, furnish striking examples of the pathetic and the humorous, the quaint and the ludicrous, the serious and the sublime. De Quincey has long been regarded as one of the masters of the English language; and on the publication of his famous "Confessions of an English Opium Eater," he rose rapidly to that high literary eminence which, by common consent, his writings now occupy. This volume is a welcome addition to our other literary *chefs d'œuvre* of eminent authors.

— **YOUTH ON THE HORSE;** Philadelphia: J. B. Lippincott & Co.—This is a standard book on horses, both in England and in America. The present edition is an 8vo. reprint of the English book, and is well illustrated with engravings. The treatise on *draught*, at the end of the book, is a valuable addition to it.

— **A PASTOR'S SKETCHES;** London: Thomas Nelson & Sons.—This book is a valuable contribution to the religious literature of the day. It embraces a variety of "conversations with anxious inquirers respecting the way of salvation," and is by the Rev. I. S. Spencer, D.D., of New York. The conversations partakes largely of the anecdote form, which adds greatly to the interest and popularity of the work.

— **THE FIVE SENSES;** Philadelphia: Lindsay and Blakiston.—This little book by the late Professor Dr. George Wilson, of Edinburgh, was originally published in England under the title of "The Five Gateways to Knowledge," and obtained very great popularity there. It is a most successful attempt to popularise a trite, though otherwise unattractive subject. The treatment although philosophical, is divested of all technicalities, and the book is written with Dr. Wilson's usual freedom of style, clearness and attractiveness.

— **THE KING'S HIGHWAY.** Edinburgh and London: T. Nelson and Sons.—This is one of those handsome juvenile books issued from the prolific press of the Messrs. Nelson and Sons. It is written by the Rev. Richard Newton, D.D., and is designed to illustrate the teachings of the Ten Commandments. The incidents which are interwoven with the illustration of each Commandment, are admirably designed to fix the attention of the young reader on the lesson of the Commandment itself. There are several good engravings in the book.

— **YOUNG FARMER'S MANUAL.** New York: C. W. Saxton & Co.—This is a comprehensive and valuable manual. It details the manipulations of the farm in a plain and intelligible manner, and contains practical directions for laying out a farm, erecting buildings, fences and farm gates; embracing also directions in regard to a farmer's work shop, &c. The author is S. E. Todd, who is himself a practical farmer and apparently well qualified to give the advice he offers. The book contains numerous illustrations.

— **THE UP-RISING OF A GREAT PEOPLE. LIFE OF GEN. SCOTT.** New York: C. Scribner.—These two volumes refer to a connexion which occupies the attention of the nation at present. The "Uprising" is a translation of a French work by Count A. de Gasparin, who from a distance evidently views the great struggle through northern spectacles and in a

couleur de rose light. The book is interesting only as it reflects the views and opinions of many in Europe which are as heartily echoed in most of the Northern States. The *Life of Scott* is by the Rev. J. T. Headley, and is written in his usual semi-heroic style. In his zeal to make a Napoleon of his hero (p. 172) he does great injustice to the Canadian people engaged in the struggle of 1812 against American ambition and invasion.

IX. Educational Intelligence.

CANADA.

— **LONDON CENTRAL SCHOOL.**—A handsome present of books has been given to the Principal of the Common Schools, J. B. Boyle, Esq., by the senior female division of the Central School. The present was accompanied with an address, to which Mr. Boyle returned an appropriate reply.

— **PORT HOPE UNION SCHOOL.**—At the close of a successful "Exhibition" by the pupils of this school, on the 15th inst., they presented to the Head Master, with a suitable address, an elegant silver ink-stand and cake basket. The following inscription was engraved on the articles: "Presented to John Gordon, Esq., Principal of the Port Hope Grammar and Common School. April, 1862." Mr. Gordon made a very appropriate reply, from which we take the following extract:

"It has been my aim ever since I came amongst you, six years ago, to establish a school here which would afford an education equal to all the necessities of the town; and if I have partially succeeded, even in spite of obstacles, much of that success is to be attributed to the reflex influence of your own minds yet, free from the cares, the distractions, and the selfishness of an unsympathizing world,—minds thirsting for knowledge for its own sake, and not for the instrumental use to which it may be applied in securing for you physical comforts, and worldly position. This estimate of education has ever been the aim of my labors and teachings among you; and no material pledge, no testimonial which you could offer me—no matter how costly in itself, or how beautiful—could be so flattering to my pride as the assurance, coming from yourselves, that I have implanted in your hearts a love for knowledge, and have nursed there a desire to attain it. Cherish and foster that love as your dearest earthly possession, for it is the only earthly love which is without alloy. Through all the vicissitudes of life, it will afford you the means of an enjoyment pure and lasting. Next to religion, it is the best teacher of morality, for, by enthroning intellectual enjoyments, it deprives the grosser pleasures of their charm and their sting. It is, in short, the Heaven-appointed means by which we are enabled to rise above and despise the jealousy, the envy, and the heartlessness of the mere wordling, and to approach somewhat, even here on earth, to that higher and purer state in which we shall hope to be filled with 'all the treasures of wisdom and knowledge,' and where 'we shall know even as we are known.'"

— **KINGSTON COMMON SCHOOLS.**—On Monday last a very interesting incident was witnessed in the Johnson street school in this city. Mr. Thos. Gordon having resigned the charge of that establishment (he having received the appointment of Mathematical Master in the County Grammar School), the pupils whose interests he had in charge, and whom he had so faithfully watched over during the last three years, expressed their attachment, and the parents, through the children, their appreciation of his services, by presenting him with a very handsome tea and coffee silver service, manufactured by Mr. George Spangenberg of this city. About ten A.M., a deputation of the senior pupils, male and female, presented themselves in front of Mr. Gordon; and while the girls bore the presentation service in their hands on a large salver, Master Charles McIntyre read a highly complimentary address. Mr. Gordon then received the present from the hands of the girls, and, though evidently overpowered by his feelings, made an appropriate reply. The Rev. Professor Weir then addressed the children and highly eulogised the school, stating it as his opinion that the pupils in that establishment could, in respect of attainments, compare favourably with any school of a similar character, not only in the Province, but in the Mother Country. The Chairman of the Board of Trustees (Mr. Ford) next addressed the meeting, and, after alluding to the incident which had taken place, said: It affords me much pleasure to witness the regret which you manifest on Mr. Gordon's departure from the school. It is an evidence to me and the other trustees that the best understanding must have existed between you in your relations as pupils and teacher, and which also is evi-

dent from the fact, that while in this condition the strictest order and discipline were maintained, that yet, as far as I am aware, they were maintained without the aid of physical chastisement. No doubt, in the management of a school where 500 pupils were on the roll, and over 400 in daily attendance, there was much that exercised the patience and temper of the teacher; and notwithstanding this heavy responsibility, the progress you have made, and your present attainments, assure us that in the discharge of Mr. Gordon's duties the utmost order, regularity and industry must have prevailed. The Rev. Professor Weir alluded to the trouble of the trustees. In the discharge of our duties as such, the inconvenience and loss of time are the least we have to contend with. We have also to meet the grumbling of those who feel dissatisfied at the expense which we incur while endeavouring to promote your interests; but the prosperity of the schools, the progress of the pupils, the efficiency of the teachers, and the consciousness of our endeavors faithfully to discharge the duties, as well as the hearty approval of all who are capable of judging in these matters—these are all to us a sufficient recompense for our loss of time and inconvenience. Any one who would enter our schools in this city at the present time, and remember what they were six or seven years ago, must be struck at the improvements in our whole economy. Instead of hovels which would disgrace any civilized community, we are yearly attaining to the possession of first-class buildings, and those furnished liberally with the necessary apparatus, while at the same time a due regard is observed for the moneys of the poor tax-payers, from whose hard earnings all these provisions are made. And now allow me, said he, to congratulate you on your great advantages. In all probability some of those who now hear me will be the successful competitors for the ten scholarships given by the University at the Grammar School. To those of you who may not succeed, let the success of the others act as an incentive to further diligence, and remember that such is the happy arrangement existing in educational matters in this country, that the poor man's son's opportunity for a first-class education is as good as that possessed by the rich—talent being the only condition required. Your success in the Common School will ensure your admission to the Grammar School. Your success in the Grammar School will introduce you to the Queen's College University; and thus from those who now hear me Canada will at some future day receive a fair proportion of those who are to represent her in the Pulpit, in the Senate, and at the Bar. Show that you appreciate your advantages by the attention you pay to your studies, and I feel satisfied that Kingston will at no distant day occupy the proudest position in educational matters of any city in the Province.—The chairman then introduced Mr. McKee, the new Principal, promoted from the Wellington street department. Doctor Lavell made some very happy remarks, and the proceedings were closed by the Rev. Professor Weir with the benediction.—*Kingston Daily News.*

—**KINGSTON GRAMMAR SCHOOL.**—A new scholarship from the City Common Schools to the Grammar School has just been founded through the joint liberality of the respective heads of these educational departments, Thomas Kirkpatrick, Esq., and Wm. Ford, Esq. The scholarship is tenable for two years, and the value to the successful competitor is \$60. The system thus inaugurated should afford a great stimulus to the youth in our Common Schools.

—**UNIVERSITY OF QUEEN'S COLLEGE—MEDICAL FACULTY.**—This afternoon, shortly after two o'clock, the Medical Faculty of Queen's College, and many of the other professors, met in the Convocation Hall, there to grant degrees to such students as merited them, and to report the names of those who had passed their primary examination. After prayer had been offered up by Dr. Leitch, the conferring of the degrees took place. The names of the successful Doctors of Medicine were pronounced singly by Professor Lawson, while Dr. Leitch placed the cap upon their heads. Their names are:—John D. Kellock, with honors; William Black, P. K. Brannigan, T. F. Chamberlain, B. W. Day, David Hamilton, A. H. Johnston, A. McPherson, H. Skinner, H. Spencer, W. J. Switzer, Robt. Thibodo, Robt. Tracy, A. McKenzie, D. Young, and R. W. Meadows. The names of those who have passed the necessary examination for degrees, but could not hold them by reason of their being under 21 years of age, are:—A. Moore, J. Nichol, and J. A. McDonell. The following gentlemen passed their primary examination:—A. K. Aylsworth, James Beckett, J. Bigham, Wm. Black, A. T. C. Comer, T. M. Fenwick, R. B. Ferguson, E. G. Ferguson, R. B. Ingersoll, J. F. Irwin, C. A. R. Kincaid, J. McCammon, T. F. McLean, J. B. Rutlan, T. Sullivan, and H. P. Yeomans. After the ceremony had taken place, the chairman read an excellent address to the students, pointing out what their duties were, and what stand he expected

them to take in their profession. The students who had gained degrees then, at the request of the chairman, ascended the platform amid much applause and received the congratulations of the different professors and physicians. A hymn was then sung, Dr. Leitch again offered up a prayer, and the Convocation broke up.—*Kingston Whig, March 26.*

—**A GYMNASIUM.**—The Governors of McGill College have taken the preliminary steps, in conjunction with the Montreal Gymnastic Club, towards erecting an excellent Gymnasium, fitted up with all the usual appliances for strengthening the human frame. The students and the High School boys are to enjoy its advantages at nominal fee, while the members of the Gymnasium will do so at a rate far below what is usual in parts of this continent. These results have been gained by the liberality of the Governors of the College, in furnishing the site in the High-School play-ground; and in advancing the funds for the building, while the Club engages to pay eight per cent. on the building-cost, or £80 a-year for five years. The benefit which this building must be to the people of Montreal, present and future, cannot be measured in money, as a single glance at the lively scene presented there every evening will testify. Its situation is central and far from the proximity of temptations which might environ almost any other, whilst warmth within the building and other comforts are, we believe, attended to.

GREAT BRITAIN.

—**CHANCELLOR OF CAMBRIDGE UNIVERSITY.**—The Duke of Devonshire who has succeeded the late lamented Prince Consort as Chancellor of Cambridge University, was educated at Trinity College there, and was second wrangler in 1829.

—**ETON COLLEGE.**—New school-rooms, costing £10,000, are to be erected by private subscription in Eton College. The Queen has given £100, and Prince Albert gave £50 to the fund.

—**CAMBRIDGE PRIZE POEM.**—The death of the Prince Consort is to be the subject of a prize poem, for which the new Chancellor of the University of Cambridge offers a gold medal.

—**ORONHYATEKHA,** a Mohawk Indian, 21 years of age, sailed recently for Liverpool, on his way to Oxford, England, to finish his education. Oronhyatekha is from the Reservation of the Six Nations near Brantford, upon the Grand River, Canada West. For two years past he has been a member of Kenyon College, Ohio, and upon the late visit of the Prince of Wales, the royal party became much interested in him. He has now gone out under the auspices of Henry L. Ackland, M. D., F. R. S., late physician to the royal party, and then and now Regius Professor of Medicine in Oxford University. On his arrival at Oxford he will enter immediately upon his studies.

—**GLASGOW UNIVERSITY.**—Alexander Smith, author of "Edwin of Deira," &c., is a candidate for the new chair of English Literature in the University of Glasgow.

—**QUEEN'S COLLEGES, IRELAND.**—Sir Robert Peel, the newly elected Chief Secretary for Ireland, has most liberally promised to endow a scholarship at each of the three Colleges of the Queen's University, Ireland, for five years. An influential deputation has also waited upon Sir Robert, to ask his aid in establishing a fourth Queen's College at Dublin. Of this proposition it is rumoured that Trinity College, Dublin, has shown some jealousy. *A propos* of this the Irish correspondent of the *Times* writes:—Assuredly, Trinity College has no reason to be jealous of the Queen's University, either on the ground of success or revenue. The *Morning News* gives the Roman Catholic view of the Dublin University, stating that 12 of the States of Europe have smaller territory than the corporation of Trinity College; that her estates extend through 17 counties in four provinces, and contain 199,578 statute acres—1 per cent. of the whole surface of Ireland—which, if enclosed with a ring fence, would form a circle of more than 200 miles in circumference; that a Royal Commission returns the poor-law valuation of these vast estates at £92,360 a year, and the average annual amount of fines alone for the renewal of short leases sometimes reaches £9,000—a sum in excess of the endowment of several distinguished Universities in Europe; that some of her senior Fellows enjoy incomes higher than Cabinet ministers, and many of her tutors have revenues above those of Cardinals, while junior fellows of a few years' standing frequently decline some of her 31 church livings, with incomes that would shame the poverty of scores of Roman Catholic Archbishops; and that some of her chairs are vacated only for

the Episcopal Bench. She has 70 foundation, and 16 non-foundation scholarships, 30 sizarships, 14 studentships, and 117 permanent exhibitions, amounting to £2,000 per annum, of which only studentships, sizarships, and non-foundationships are available for Roman Catholics, Presbyterians, and other Dissenters. Yet only 16 students out of 4,000,000 Roman Catholics, and only 12 out of half a million of Presbyterians, are found among her *alumni*. A corporation so circumstanced should be slow to encourage an agitation against the Government because its extension of academic education to the mass of the middle classes, including the members of the Established Church itself, who form one third of the students of the Queen's University."—We believe we are right in saying, that the revenues of Trinity and St. John's alone at Cambridge, amount to very nearly as much as the income of the Irish University.—*Educational Times*.

— ROMAN CATHOLIC UNIVERSITY, DUBLIN.—The liberal aid offered to the Queen's Colleges by Sir Robert Peel has stimulated the zeal of a Roman Catholic gentleman in Dublin, who has given £100 a year for the next ten years for five scholarships in the Catholic University. Dr. Woodlock, the rector, in acknowledging the gift, expresses a hope that others will follow the example thus set.

COLONIAL.

— THE UNIVERSITY OF NEW BRUNSWICK, established under an Act which received Her Majesty's assent in January, 1860, is now in successful operation. The University is under the Government of a Senate, appointed by the Governor in Council, and comprises what was formerly known as King's College, but now absorbed into the New University. The *Endæmia*, or festival in honour of the founders and benefactors of the University, was celebrated in June last, in presence of the Governor and the various Colonial authorities.

IX Literary and Scientific Intelligence.

— THE ERUPTION OF VESUVIUS.—The correspondent of the *Times*, writing from Naples on December 24, says:—"Since Sunday morning Vesuvius has been in a state of more violent eruption than ever. It was about noon, or a short time before, that we saw the cloud of smoke and ashes rise higher and higher; and though at Naples we perceived no other indication of its increased activity, at Torre de li'Annunziata there was a violent shock of earthquake, which spread consternation among the people. Those who were in church rushed out, many losing their prayer-books, and one lady, as I am informed, being crushed to death. Towards evening the eruption had attained gigantic proportions, and yesterday morning when we rose, the mountain, sky and bay were completely enveloped in a cloud of smoke. A north-east wind, accompanied with a slight drizzle at intervals, brought over the city a shower of sand, which splashed against our windows and covered our streets; and, when the drizzle had ceased, the ashes fell, on our coats, and penetrated into our houses, sensibly affecting the eyes. You may judge of the quantity of ashes that were thrown out when I tell you that the Exmouth, which lies about a quarter of a mile out, was covered with a coat of wet ashes and that the officer on guard during the night was compelled to take shelter under the poop. It was my intention to go over to Torre yesterday evening, but I do so before I despatch my letter, and if so, I will send you fresh details. At this distance everything is wrapped in a cloud of mystery, but it is pretty evident that another large crater has been formed at the foot of the old crater, and to the right of the Hermitage. The necessities of the people are very great, but funds are coming in, and the authorities are indefatigable in relieving suffering and in providing work for the thousands who are thrown out of employment. I cannot but contrast the honest administration of the supplies on this occasion with the peculation which was practiced on the occasion of the great earthquake in Potenza. Nearly a million of ducats were collected at that time, of which a third was devoted to the restoration of the churches, a third was given to the religious houses, and that the other third was swallowed up by God knows whom—certainly the sufferers did not get it.

— PRINCE NAPOLEON'S LIBRARY DONATIONS.—A late number of the Quebec *Canadien*, states, on the authority of a Paris letter, that Prince Napoleon has selected a number of very rare and interesting works, in all

some thirty-four volumes, intended as a donation to the Parliamentary Library of Canada, and to be forwarded shortly. The collection is said to include a copy of the "Correspondence of Napoleon the First," published by order of the Emperor. The President of the Canadian Institute of Montreal, has also received, through the medium of Baron Gau'dle-Boilleau, French Consul at this port, a case containing one hundred and fifty-six volumes of rare and interesting works, being a present from His Imperial Highness, Prince Napoleon, to the Institute.

— THE PRINCE IMPERIAL OF FRANCE, though only five years and a half old, already speaks three foreign languages—English, German, and Italian. M. Thiers has been spoken of as one of the future schoolmasters of the Prince.

— FRENCH COMMERCIAL DICTIONARY.—A valuable work has been brought to a conclusion in Paris. It is entitled "A Universal Dictionary of Commerce and Navigation."

— A STATUE OF ESCULAPIUS has been unearthed near Tivoli. It is said to be a master piece of sculpture, and when discovered, only an arm was wanting, and this limb was subsequently found.

LONDON PNEUMATIC DESPATCH COMPANY.—Some experiments on a rather large scale have been made on the right bank of the Thames and immediately below the railway-bridge, Battersea, with a view to testing the efficiency of the novel mode of transmitting goods and parcels proposed by the Pneumatic Despatch Company. The mechanical arrangements in connection with the experimental line of cast-iron tubing—which, like a huge black snake, stretches for more than a quarter of a mile along the river side—are few and simple.

— ELECTRIC CABLE BETWEEN AFRICA AND EUROPE.—The submersion of the cable between Africa and France has solved the question as to the great obstacle to be met in this kind of enterprise, and has set the scientific world at work in the research of means to overcome it. This obstacle resides in the weight of the cable, and its want of elasticity. It has been ascertained that at the depth of between two and three thousand yards the wires would break by their own weight. If to this we add the tossing and pulling produced by the motion of the ship on the sea, we must come to the conclusion that a far lesser depth can cause the rupture of the cable, and defeat in a second the whole operations. The French have been obliged to struggle at their own expense against these obstacles, and it is but by dint of repeated attempts that they have succeeded. Three expeditions were sent, one after the other; the first two were unsuccessful, and lost two cables. The third succeeded; but only by giving up the original line and by making an angle westward, in the direction of Spain, so as to avoid too great depths. Formerly, the line was direct from Toulon to Algiers—about six hundred miles—through the Balearic Islands; now, the cable runs from Toulon to Port Vendres, in the Pyrennees, thence to Mahon, and from Mahon to Algiers. The English and French *savans* are busy in finding a kind of cable uniting lightness to flexibility. Mr. Bovett, a Captain of the English navy, has imagined a very light cable, covered with hemp, and Dr. Evans, a well known American, residing in France, has added to it so many improvements that they may, in themselves, be looked upon as inventions. These labors having been accomplished since the laying of the cable between Africa and Europe by the French, it is hoped that future undertakings of the kind will not have to pass through the same experiments and trials.—*New York Times*.

— THE ELECTRIC LIGHT.—The experiments with the electric light which have now been made for a long time past at the Palais Royal, Paris are still continued every evening with increasing success. Lately, instead of two burners fed by divided currents from the magneto-electric machine, one burner, fed by a single current, has been used. It is raised sixteen metres, and illuminates, as with the light of the full moon, the whole square in front of the Palais Royal and the two Rue St. Honoré. Two Hyperbolic reflectors—one above the light, the other below—increase and diffuse the light. By certain improvements in the prisms or cylinders, of artificial carbon, which are used in the production of light, U. Curmer is now able to make electric lamps which will burn five or six hours without requiring any attention. The lamp of M. Serrin, placed before the house of Prince Eugène, also burns brilliantly. M. Serrin has succeeded lately in causing his lamp to burn under water almost as well as in the atmosphere. Thus we may now light the bottoms of rivers, or of the sea, or the bottom of floating vessels, sunken wrecks, the foundations of piers and other submarine structures. It is expected that we shall soon be able to apply this method of illumination in our lighthouses, ships, and generally

on land in our cities and houses. At the Invalides lately, in the presence of Despretz, Babinet, Fousault, and others, a magneto electric machine was worked by one of Lenoir's lately invented gas engines of 8-horse power. By this means a strong electric current was generated, and M. Serrin's lamp gave a very brilliant light, equal to two hundred Carcel burners.—*Mechanics' Magazine.*

XVI. Departmental Notices.

SCHOOL REGISTERS SUPPLIED THROUGH LOCAL SUPERINTENDENTS.

School Registers are supplied gratuitously, from the Department, to Common and Separate School Trustees in Cities, Towns, Villages and Townships by the County Clerk—through the local Superintendents. Application should therefore be made direct to the local Superintendents for them, and not to the Department. Those for Grammar Schools will be sent direct to the head Masters, upon application to the Department.

PUBLIC LIBRARY BOOKS, SCHOOL MAPS, APPARATUS, AND PRIZE BOOKS.

The Chief Superintendent will add *one hundred per cent.* to any sum or sums, *not less than five dollars*, transmitted to the Department by Municipal and School Corporations, on behalf of Grammar and Common Schools; and forward Public Library Books, Prize Books, Maps, Apparatus, Charts, and Diagrams, to the value of the amount thus augmented, upon receiving a list of the articles required. In all cases it will be necessary for any person acting on behalf of the Municipal or Trustee Corporation, to enclose or present a written authority to do so, verified by the corporate seal of the Corporation. A selection of Maps, Apparatus, Library and Prize Books, &c., to be sent, can always be made by the Department, when so desired.

FORM OF APPLICATION FOR PUBLIC LIBRARY BOOKS, MAPS, APPARATUS, SCHOOL PRIZE BOOKS, ETC.

[Insert Post Office address here.]

SIR,—The [Trustees, or Board of Trustees, if in Towns, &c.] of the School being anxious to provide [Maps, Library Books, or Prize Books, &c.] for the Public Schools in the [Section, Town, or Village, &c.] hereby make application for the, &c., enumerated in the accompanying list, in terms of the Departmental Notice relating to for Public Schools. The selected are *bona fide* for the; and the CORPORATION HEREBY PLEDGES ITSELF not to give or dispose of them, nor permit them to be given or disposed of, to the teacher or to any private party, OR FOR ANY PRIVATE PURPOSE WHATSOEVER, but to apply them solely to the purposes above specified in the Schools of the, in terms of the Departmental Regulations granting one hundred per cent. on the present remittance. The parcel is to be sent to the Station of the Railway, addressed to

IN TESTIMONY WHEREOF, the Corporation above-named, hereto affixes its corporate seal to this application, by the hand of*, this day of, 186-.

Amount remitted, \$.....

Trustees must sign their own names. } } Corporate seal to be placed here.

To the Chief Superintendent of Education, Toronto.

NOTE.—Before the trustees can be supplied, it will be necessary for them to have filled up, signed and sealed WITH A PROPER CORPORATE SEAL, as directed, a copy of the foregoing FORM of Application. On its receipt at the Education Office, the *one hundred per cent.* will be added to the remittance, and the order, so far as the stock in the Depository will permit made up and despatched. Should the Trustees have no proper

* The Trustees of the Section; Chairman and Secretary of the Board of City Town, or Village Trustees; Warden, Mayor, or Reeve.

corporate seal, the Department will, on the receipt of *two dollars* additional, have one engraved and sent with the articles ordered.

* * If Library and Prize Books be ordered, in addition to Maps and Apparatus, it will be NECESSARY TO SEND NOT LESS THAN *five dollars* additional for each class of books, &c., with the proper forms of application for each class.

↳ The *one hundred per cent.* will not be allowed on any sum less than *five dollars.* Text books cannot be furnished on the terms mentioned above: they must be paid for in all, at the net catalogue prices.

POSTAGE REGULATION IN REGARD TO GRAMMAR AND COMMON SCHOOL RETURNS.

All official returns which are required by law to be forwarded to the Chief Superintendent, or a Local Superintendent, and which are made upon the printed blank forms furnished by the Educational Department, *must be pre-paid*, at the rate of one cent, *and be open to inspection*, so as to entitle them to pass through the post as printed papers. No letters should be enclosed with such returns. A neglect to observe this regulation has repeatedly subjected this Department to an unnecessary charge of 14 cts. and 21 cts. on each package, including the Post-office fine of nearly *fifty per cent.* for non-payment.

PRE-PAYMENT OF POSTAGE ON BOOKS.

According to the new Postage Law, the postage on all books, printed circulars, &c., sent through the post, *must be pre-paid by the sender*, at the rate of one cent per ounce. Local Superintendents and teachers ordering books from the Educational Depository, will therefore please send such an additional sum for the payment of this postage, at the rate specified, and the Customs duty on copyright books, as may be necessary.

INDISTINCT POST MARKS.

We receive, in the course of the year, a number of letters on which the post marks are very indistinct, or altogether omitted. These marks are often so important, that Postmasters would do well to see that the requirements of the Post-office Department, in relation to stamping the post-mark on letters is carefully attended to.

NO PENSIONS TO COMMON SCHOOL TEACHERS UNLESS THEY SUBSCRIBE TO THE FUND.

Public notice is hereby given to all Teachers of Common Schools, or Teachers of the English branches in Grammar Schools, who are legally qualified Common School Teachers in Upper Canada, who may wish to avail themselves at any future time of the advantages of the Superannuated Common School Teachers' Fund, that it will be necessary for them to transmit to the Chief Superintendent, if they have not already done so, their subscriptions, at the rate of \$5 per annum for each preceding year, commencing with 1854, and at the rate of \$4 per annum for the current year's subscription. The law authorizing the establishment of this fund provides, "*That no teacher shall be entitled to share in the said fund who shall not contribute to such fund at least at the rate of one pound per annum.*" No pension will be granted to any teacher who has not subscribed to the fund, in accordance with the preceding regulations of the Council of Public Instruction.

TERMS: For a single copy of the *Journal of Education*, \$1 per annum; back vols., neatly stitched, supplied on the same terms. All subscriptions to commence with the January Number, and payment in advance must in all cases accompany the order. Single numbers, 12½ cents each.

ADVERTISEMENTS inserted in the *Journal of Education* for 25 cents per line, which may be remitted in postage stamps, or otherwise.

All communications to be addressed to J. GEORGE HODGINS, LL.B., Education Office, Toronto.