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# THE INSTRUCTOR,

FOR

NOVA SCOTIA, NEW BRUNSWICK  
AND PRINCE EDWARD ISLAND.

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EDITED BY ALEXANDER MUNRO.

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## Statistics of British North America.

CANADA.—This Province has an area of 350,000 square miles, and a population bordering on three millions souls. Her revenue in 1841 was only about one and a quarter millions; it is now (1861) nearly seven and a half millions of dollars. The principal part of her trade being of an inland nature, her tonnage does not exceed 100,000 tons. The imports of this Province increased from 1851 to 1858, from 21 to 29 millions of dollars, while her exports had more than doubled, being 23 millions. She has constructed 1,250 miles of railway, at an expense of eighty millions of dollars, twenty millions of which were advanced by the government in aid of sixty millions of private capital. The Victoria Bridge is the most magnificent structure of its kind in the world, having cost nearly ten millions of dollars. In 1858, fifty-two thousand dollars were expended in its geological survey. It has the best system of canals in the world; seven years ago a revenue of tolls was derived of nearly fifty-eight millions of dollars. Canada has one continuous line of railway stretching from the foot of lake Huron, down the St. Lawrence nearly one hundred miles below Quebec.—Her agricultural and mineral resources are vast; of the latter, especially in copper ore, this Province is rich. Every year adds new discoveries of mineral wealth to her already discovered stores. Canada owes \$54,142,044 and expended in 1860, \$11,008,360.

NOVA SCOTIA.—In 1784, when New Brunswick was separated from this Province, Nova Scotia had a population of but 13,000 souls;

now she has over three hundred thousand. Her imports rose from 1851 to 1858, from three to eight millions of dollars; the exports reaching in the latter year to six and a third millions of dollars. The mineral resources of this Province are unparalleled on this side the Atlantic. In 1859, there was exported from the Albion Mines, Pictou, over 260,000 tons of coal. In the same year, the iron mines of Londonderry yielded an export of sixty-five thousand dollars. The iron manufactured from this ore rivals the best Swedish iron. In 1858 she owned 2,107 vessels, measuring in the aggregate 185,000 tons.— This Province has constructed ninety-two miles of railway, at an expense of one million and fifty thousand pounds currency.

**NEW BRUNSWICK.**—This Province embraces twenty-seven thousand square miles of territory, being one-third larger than Nova Scotia; her imports in 1859 reached to over seven millions dollars, and exports to five and a third millions, exclusive of the value of ships built in that year. The population now about 225,000, doubled itself in every successive seventeen years, between the years 1792 and 1851. Her revenue in 1859 amounted to nearly three quarters of a million of dollars. The railways of this Province, one hundred and seventy miles in extent, have cost the Province about five millions of dollars, besides the amount from private sources expended on the St. Andrews line.— The mineral resources of this Province, as time rolls on, becomes more important. Her coal field, which is said to cover one-third of the area of the Province, is surpassing in value all former calculations; the proceeds from the Hillsboro' coal mines, in 1859, amounted to two hundred and twenty-five thousand dollars; affording the stockholders, who principally belong to the States, one hundred and ten per cent. profit, the principal part of which goes to enrich a foreign nation.— There are numerous and extensive deposits of copper and iron ores of great richness; besides upwards of twenty beds of coal of different qualities, some of great worth, scattered over the country. Indeed, every year adds some new discovery of mineral wealth to the present catalogue.

**PRINCE EDWARD ISLAND,**—during the last hundred years, had increased her population from one thousand souls, to about eighty thousand. She owns about 28,000 tons of shipping; her imports and exports have doubled during the last seven years, the former exceeding one million dollars. Nearly two millions bushels grain are now annually exported from this colony, the area of which is a little over two thousand square miles. The revenue of this small colony in 1858, was one hundred and seven thousand six hundred and forty dollars.— This valuable colony, rich in agricultural capabilities, and surrounded by an extensive fishing coast, is yet destined, though comparatively small in area, to fulfil its part in advancing the material interests of the Lower Provinces.

NEWFOUNDLAND, situate within six days steaming of Europe, is the most renowned fishing station in the world. It is not destined to be an agricultural country, though some parts of it produces good crops. It is in its fisheries, and unrivalled lead, copper, and other ores, that its wealth lies. One hundred years ago, it contained but thirteen thousand inhabitants, only half of whom were constant residents. In 1857, when the last census was taken, the population numbered one hundred and twenty thousand. In 1858 her imports amounted to four and a half millions of dollars, being an increase of a million since 1851; in the same time her staple exports increased one and a half millions. The revenue in 1858 amounted to nearly half a million of dollars; and in the same year, eighty thousand tons of shipping were owned in the colony.

The aggregate tonnage of shipping owned by Nova Scotia, New Brunswick, Prince Edward Island, and Newfoundland, exceeds four hundred and thirty thousand tons, a commercial fleet of no mean capacity:

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### Trade of New Brunswick.

Tabular statement of Imports and Exports for the following years :

Year.	Imports.	Exports.
1829	£643,531	£457,855 sterling.
1850	818,531	658,018 "
1854	2,068,773	1,104,215 "
1856	1,521,178	1,073,351 "
1857	1,418,943	917,775 "
1858	1,170,000	816,780 "
1859	1,416,034	1,073,422 "

To the Exports, the value of ships built, and their freights, is not added.

The following table shows the number and tonnage of ships built in the years indicated thereby :

Year.	No.	Tons.	
1848	86	82,793	} Of the average value of £7 ster. per ton.
1851	87	84,350	
1853	122	71,428	
1854	135	99,426	
1857	148	71,983	
1858	76	26,263	
1859	93	38,330	

Table showing the number and tonnage of vessels arrived in, and departed from, New Brunswick, in the

Years :	Arrived.	Tons.	Departed.	Tons.
1824	914	219,567	898	227,720
1840	2,910	365,597	2,952	408,966
1856	3,222	645,756	3,375	704,149
1858	3,146	573,473	3,157	597,167
1859	3,455	734,155	3,362	748,773

Aggregate value of Agricultural produce imported  
in 1858,

Do do do do in 1859,

Agricultural produce exported in 1859

Balance against the Province

Value of lumber exported in 1858

Do do do 1859

Tonnage of ships employed in the conveyance of lumber from the Province :

Year.	Tons.	Year.	Tons.
1852	223,676	1858	195,528
1856	281,821	1859	275,012

Vessels owned by New Brunswick in the following

Years :	No. of Vessels.	Tons.
1840	763	113,825
1850	807	121,998
1855	506	110,451
1857	857	160,508
1858	812	139,095
1859	811	134,055

The ordinary Revenue of the Province, and number of Emigrants arrived :

Years.	Revenue.	No. of Emigrants.
1784	£742	
1789	962	
1803	3,731	
1814	25,878	
1824	44,620	
1834	96,375	
1840	110,047	
1845	126,656	
1847		14,879
1850	104,933	
1854	203,054	
1856	147,248	3,440

1857	167,063	
1858	126,357	
1859	193,381	2,301

Much of our present importations might be saved by a more economical expenditure on the part of the public, and by paying more attention to the manufacture of articles of necessity and convenience. Our imports far exceed our exports: in addition to £233,685 worth of flour imported in 1859, we pay £50,000 for articles of mere luxury, such as liquors, tobacco, silks, satins, &c.; £27,824 for various kinds of farm products, and £242,950 for clothing, haberdashery, sleighs, &c.

It is only necessary to examine the table under the head of "ordinary revenue," in order to point out the years of commercial prosperity and adversity, and the fluctuations of trade. The year 1854, when the revenue rose to £203,054, was a year of great prosperity, but it did not last long; for the following year the revenue fell one-fourth this amount. In that year, it will be seen that the number and tonnage of ships built, far exceeded that of any year before or since. The table of imports and exports, the former nearly doubling the latter, shew also to the same effect.

The great demand, in the British market, for ships, was one of the principal causes of this year of prosperity; nearly three hundred of the vessels owned by the Province were sold during that year, in the markets of the mother country. Besides, Merchants imported far beyond the requirements of the Province. The low price of ships in the British market at present, and for the last two years, is a great drawback to the interests of New Brunswick, which has such great facilities for shipbuilding, and depends so much upon this branch of industry, to keep the two sides of her balance sheet properly balanced.

These tables teach us the necessity of cultivating more land, and cultivating it better. To do this, we want a better system and more labour. £233,685 is a large sum for New Brunswick to pay in one year for flour alone. This large importation of flour does not, by any means, indicate a healthy state of agricultural operations. If properly farmed, this country ought to supply its own wants in this respect.

Notwithstanding the numerous emigration schemes, and the large expenditures in behalf of emigration, made by the Province, during the last ten or fifteen years, and the inducements offered through the means of our Railway operations, still, emigration to the Province of New Brunswick is on the decline; and many of those who do arrive in the Province, only remain a short time, when they leave for Canada or the States. One of the prominent reasons, we believe is, that our emigration schemes are based upon selfish principles; the emigrant finds too much machinery to pass through before he can procure a title to a lot of land; and what is worse still, the price is too high. Ten pounds sterling is far too high a price for wilderness land.

## Prize Essays on New Brunswick.

The Essays, five in number, originated with the Mechanics' Institute, St. John; and are principally a compilation, from the works of Gesner, Professor Johnston, Perley, and Munro. Although written independently of each other, it is remarkable how near the statements in each coincide; especially the Essays by Messrs. Ellis, Edger, and Burtis. These three Essays advocate on all material points, nearly the same views. Even the one by our friend, the late William Till, follows the track of the three above named, but does not treat so extensively on each topic; while the Essay by the Hon. James Brown, consists principally of a recital of the writer's own experience, and other practical facts, well worth a careful perusal. Indeed, the whole five Essays should be placed in the hands of every one, desirous of exchanging their father-land for a colonial home. And their perusal even by the inhabitants of New Brunswick, might do much to allay that restless spirit that prevades the minds of a portion of the inhabitants of this Province. They are written in a familiar and pleasant style. That by Mr. Ellis, for which the first prize was awarded, is more lengthy than the others, and is written in a lofty style, and may be said to embody the principal part of the statistical and other useful matter contained in the other four. The picture may, in some instances be somewhat overdrawn. The statistics, in the whole of these Essays, have been prepared with great care, and may, in a general way, be relied on.

The most glaring error we have met with, is on page 13. of Mr. Ellis's Essay, where he refers to the quantity of marine alluvium, near the Boundary between Nova Scotia and New Brunswick, at the head waters of the Bay of Fundy, where he says:—"One of the 'dyked marshes,' divided between Nova Scotia and New Brunswick, contains over 250,000 acres," while there is not more than one quarter of this quantity in the district referred to; near the half of which is unproductive bog.

The next point for consideration is, what is to be done with these Essays? A large Edition has been struck off, at a great expense to the Province; and are they to be allowed to lie on the shelves of the Emigration Office at St. John, the public offices at Fredericton, and other offices, for years to spoil, as other works of a similar nature have been allowed to do, or are they to be distributed for perusal? If sent to Great Britain, for which we anticipate they are principally intended, are they there to be allowed to lie on the shelves of offices, unknown and unadvertized? If so the labour and means employed in their preparation will be in vain.

Conversing, not long ago, with an intelligent gentleman, who before sailing for London, went through the principal offices, and book stores; in search of some work or works treating especially on the Province of New Brunswick; after a long search, he found a case of Professor

Johnston's Report, which had lain in the office for years unopened, he purchased a copy for which he paid five shillings sterling.

This is not the way to make our country known. Copies of these Essays and other works, which are now stored in the Emigration and other offices, should be distributed free of charge, in the rural districts of the Mother Country, where the best class of people for emigration are to be found. As these Essays say, we want a sober, industrious, and persevering class of men and women, who are not afraid nor ashamed to labour, when they arrive in the country.

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### Brazil.

Soon after the discovery of the American Continent, the nations of Europe began to portion it off among them; in the division, Spain became possessed of a large portion of South America, including Brazil, which remained a colony of this empire until 1711, when it became a colony of Portugal. Want of space will not permit our entering in detail into the various historical features connected with the early settlement and struggles encountered by the inhabitants of this invaluable section of the American continent. Suffice it to say that the great amount of natural wealth contained in Brazil, made it an object of attraction to many of the nations of Europe. Spain and Portugal, each in turn, drew millions of pounds annually to their national coffers, from this trans-atlantic colony. During the European wars, France and Holland made efforts to subjugate Brazil, and constitute it a colony, but failed.

The principal part of America, both North and South, became dissatisfied with the manner in which their Royal masters treated them, and shook off their allegiance, and became divided and sub-divided into a number of Republics. During the time that South America was subject to Spain and other foreign nations, its wealth was monopolized by its foreign rulers, and the inhabitants were treated more like slaves than that of a free people; besides, the wealth of their country was drained out to enrich foreign nations, and support an army of official servants, sent to rule the colonies, who did so with a rod of iron. If crime and debauchery were common in Spain and Portugal, it became doubly so in the South American colonies. The democratic element, ignorant, brutal, and selfish, formed into bandits, each headed by leaders, who looked forward to be heads of republics. While this state of things continued, the sword being the arbiter, their allegiance to foreign powers was soon cast off, and the country formed into a number of republics. Then commenced a succession of civil and foreign wars, and incessant political convulsions and financial troubles. After being free from foreign trammels, these little Republics, Brazil excepted, made war upon each other, which they still continue to do, until th

have rendered this fair portion of God's creation, an unsafe abode for moral and intelligent man.

During the possession of Brazil by Portugal, the latter contemplated removing its crown head to its trans-atlantic Brazilian possessions, which was not done; but Don Pedro, a branch of the royal family of Portugal, was sent out as Regent. This act of Portugal and the tyranny exercised over the natives and settlers generally, produced disaffection among the mass of the people, who began to estimate their importance.

Consequently in 1821 the Brazilians revolted against Portugal, passed through the political furnace, and in 1822 became a limited hereditary and constitutional monarchy; a most remarkable event, and it must be acknowledged, happy result. Thus, was the first and only monarchy on the American Continent established.

The Emperor, Don Pedro I. was placed on the throne, who did not give the full amount of satisfaction demanded by the new formed nation; abdicated the throne in favour of his son, Don Pedro II who took up his residence at Rio de Janeiro, the Capital of the Brazilian Empire. The present monarch, Don Pedro II. is an enlightened statesman; he has performed wonders, in forming his government, and moulding the institutions of the country, and directing the mind of the nation.

Brazil has an elective Legislative Assembly, similar to the House of Commons in England; and a chamber of deputies, which forms its House of Lords. Every male of the age of twenty one years, possessed of an income of about ten pounds sterling is entitled to vote. Trial by Jury is also established.

The laws of Brazil, in some respects, are in advance of those of more enlightened nations, for example;—here are *Courts of Conciliation*, the duty of which is, to settle all disputes arising among the people if possible, and when all means fail to procure a settlement the proper officer gives a certificate to this effect. No cause can be brought into the ordinary courts of law without such certificate from the proper officer is produced. We commend this law to the consideration of the respective Legislatures of these Provinces; its adoption would no doubt be the means of saving much misspent time, money, and words. But it is no use to think of such a law in these enlightened times, when we have an army of four hundred Lawyers scattered over the face of the lower Provinces, living out of the hard earnings of the people.

However, it is only by an array of figures that we can begin to estimate the extent and value of the Brazilian Empire.

This country contains an area of 3,000,500 square miles. It is located nearly in the form of a triangle, with two of its sides fronting on the Atlantic; one side stretches from Cape Horn to Cape St. Roque

—3,500 miles; the other, facing the north east, has a length of 2,500 miles. This colossal empire is nearly as large as all British North America; and larger than the whole United States, and second only in extent to China and Russia. It extends from Lat. 4 deg. N. to Lat. 33 deg. 3 min. S. It has an average elevation above the sea of 700 feet; still, it is not mountaneous, nor effected by earthquakes, like many other parts of South America. The mean temperature of the year is 73 deg. In consequence of its extensive seaboard and internal waters, the summer heat is not oppressive. The river Amazon is 4000 miles in length, for three thousand of which it is navigable, and its tributaries for one thousand miles more. The La Plata is 2,400 miles in extent. These two rivers, with their affluents, drain upwards of four million square miles of the richest agricultural country of the world.

The products of Brazil are, gold, silver, diamonds, rock salt, sugar, tea, molasses, cotton, tobacco, rice, hides, india-rubber, coffee, nuts of various kinds, fruits, dye woods, with a host of other products, valuable in commerce. In 1856, it contained 7,678,000 souls, the majority of whom are Roman Catholics. The principal settlements are confined to a narrow belt of land fronting its extensive seaboard; the settlements are not continuous. This country has all the elements of national wealth within its borders; and in place of sustaining less than eight millions it may before the close of the present century number a population of thirty millions of human beings.

Although the social, moral, and intellectual status of the country is far below that of the enlightened portions of Europe and North America, still it is on the ascendancy. At the time it obtained its independence, slavery and the importation of Africans was common; since that time foreign importations of slaves ceased; and steps have been taken to liberate the slaves that are in the country; steps have also been taken to elevate the condition of the Negro race, which form a considerable portion of the population of Brazil. There is not an office under the Emperor to which a free negro may not aspire. The Emperor is the temporal head of the Catholic Church. All denominations of Christians are protected by law, and allowed to worship as they please. The Press is as free as it is in England. Education is making some progress. One of the Presidents of the Provinces in his message to the Legislature on this subject, says.—

“Primary education is more than a mere right of the child, a duty discharged towards him; it is a rigorous obligation. It is, so to speak, a moral vaccine, which preserves the people from the worst of pestilences—ignorance; from those thoughts which bring a man to the level of the brute, and make him a fit and facile instrument for crime and revolution. Primary education is more, it is a kind of baptism by which man is regenerated from the dark ignorance in which he was born, and alone fit him for an entrance into civil society and for the enjoyment of these rights which are his heritage.”

These sentiments are pregnant with deep meaning, and shew the tendency of Brazillian statesmen towards the elevation of the social, moral, and intellectual condition of the country.

Among the more prominent productions of Brazil, the growth of cotton, coffee, and tobacco, may be named. In the article of coffee alone, this country supplies more than one-half of all that is produced in the world; the sale of this article in 1859 realized the sterling value of £5,638,528. In the growth of tea, Brazil is making rapid advances, and may shortly supply us with a cheaper article, as the distance is much shorter than that to other tea-growing countries. There are numerous auriferous deposits in the country; the principal one of which is worked by an English company, who, during the last thirty years, produced gold to the value of £2,012,840 sterling, which, after paying all costs, left a profit of £466,874. Other mines have also produced large amounts of gold. It is said that £50,000 per annum is realized annually from diamonds, among which are found topaz, ruby, sapphire and opal. The salt deposit, on the upper Amazon, is the most remarkable one in the world; it is three miles in length, and of great width as thickness, and is sufficient to supply the American continent for a century to come. The salt is as clear and hard as ice. There is a large extent of country stored with coal of good quality.— So that in all the leading articles of commerce Brazil is richly supplied.

	1853.	1859.	
Exports,	£3,540,494	£12,012,999	} Sterling.
Imports,	3,825,000	14,317,671	
Revenue,		5,598,579	
Expenditure,		6,163,893	

In 1853, the navy consisted of forty-two ships, carrying a total of 301 guns. Her army numbered 22,540 regular soldiers; and her national debt, in the same year, amounted to £12,392,000. In 1859, her navy numbered fifty-four ships, thirty-two of which were steamers; the whole carried 326 guns.

Her foreign trade, especially with Great Britain, is on the increase; and her credit is good.

Agriculture is making rapid progress; large quantities of land are being laid off for actual settlement, and roads are being extended in all directions; even railroads have been constructed.

The language of Brazil, is Spanish, Portugese, Dutch and English. The coins are similar to those of Portugal, consisting of reis, gold and silver pieces; 200 reis being equal to eight pence sterling.

Here, then, is an Empire with a constitutional sovereign, and an enlightened cabinet, pushing forward in the scale of nations; and free from the destroying and blighting evils that characterize the nations of which it was a colony, or even the Republics of North and South America.

The little Republics of South America have no stability; they keep up a succession of wars with each other, as well as civil commotions. And it would have been well for the great Republic—the United States—had it organized a limited monarchy. The world is not elevated sufficiently high in the scale of moral greatness, to permit the mass—the democratic element—to rule; this fact our neighbors of the Union have now discovered to their sorrow. In Brazil, the power is in the monarch; in the Union and other American Republics, the power is vested in the democracy, which is capable of being purchased, and used for the worst of purposes. It is only the prevalence of education that has kept this great and most enlightened Republic from civil war, long ago.

Not so, however, with the Brazilian monarchy, it is stable; and while it has all the benefits of representative government strongly marked, and affords the necessary facilities for the development of the revenues of the nation, and moving on towards a more exalted standard of national greatness,—it is able and ready to suppress disorders at home, and support a character abroad.

The above brief epitome of the state of Brazil, we have compiled from various reliable sources; it may lead the mind of our youthful readers to think about a country, of which we know but comparatively little. The descriptions given of this country, by our school geographies, are very meagre, and do little more than teach our pupils that such a country exists in South America.

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### The Preservation and Application of Manure.

Some one has said, that “A farmer’s gold and silver is deposited, in its unrefined state, in his manure heaps.” In new countries, where the virgin soil is very productive, this adage is not so fully applicable as it is to long settled districts, where continual cropping has deprived the soil of its fertilizing properties, and rendered artificial appliances necessary. It is a settled principle among chemists, that if we continue to extract from the soil, those properties necessary to sustain vegetation in a healthy state, we must restore them in some way, or else the soil will refuse to yield to our wants. To manage this matter right, requires both skill and attention on the part of farmers. Soil and climate have to be taken into account.

We believe that many of the common practices of the country are at variance, in this matter, with its best interests. Some leave their manure heaps exposed for nearly a year to the climatic elements, without being covered, when a large portion of its fertilizing properties are absorbed by the atmosphere or the surrounding lands, or escapes, during every storm, in a liquid state. Some draw their manures out in the Spring, others leave it in the barn-yards, exposed to the storms

of Spring, the scorching suns of summer, and fall storms, when it is drawn upon the lands, and either ploughed down, or left in heaps, or scattered over the surface, until the following spring. Some bury the manure from four to six inches deep in the soil. Some top-dress their grass land in the fall, others in the spring. Some top-dress wheat and barley lands before sowing, others after, while others think it best to bury the manure with the plough.

Now, which of all these practices is right, or are they all right, under certain circumstances? is the question for solution.

We believe, first, that all manures should be housed, and the liquid manure saved, and grass and grain land sprinkled with it in the spring.

In the second place, as to fall and surface manuring, much depends upon the situation and character of the soils. To surface manure the sides of hills, in the autumn, especially if the soil is formed of clay, would be little better than casting the manure into the sea, except that it might settle into the valleys and enrich alluvial grounds that do not require it. Manure placed on soils so constituted and situated, should be ploughed down, in order to retain its influence on the crops. To spread, or even bury, manure upon dry, porous soils, in the autumn, results in loss; except the upper soil is thin, and resting on a clayey soil. Every rain storm that falls on porous soils, while unfrozen, causes a waste of manure. The manure being lighter than the soil, descends too deep to be of much benefit to vegetation; without, as some think, the virtue of the manure will ascend to feed the plants.

Heavy, glutenous soils, may be manured in the autumn without much loss of manure, if ploughed in; while light, porous soils should be manured in the spring, in order to preserve the benefits of the manure to the crop. Clayey soils retain both manure and water, while porous soils permits both to escape suddenly; consequently these two classes of soils require different treatment. Some of our clayey lands form the best agricultural districts of the country when properly drained and pulverised; such soils require time and sand to make them profitable; while the light soils on the other hand, require to be mixed with the heavy soils in order to retain manure and productiveness.

The following remarks by the *Albany Cultivator*, touching this matter are to the point:—

For a long time there has been a difference of opinion in regard to the manner in which manures should be applied to the soil. We refer more particularly to the application of manures to what are called tillage crops—it being generally conceded that grass-land may in some cases be advantageously manured on the surface. But in any given case, and for almost any crop except grass, there will scarcely be an agreement of opinion as to whether ordinary stable or barn-yard manure should be buried eight inches, four inches, or simply mixed slightly with the soil by the harrow. It may be said that the character of the soil, the kind of crop, and the condition of the manure should govern the mode

of application. Undoubtedly it should, to a great degree; but the object is to settle a special case, in the first place, and then dispose of others by a similar test.

Of late, the idea that manure should be left entirely on the surface of the ground, has been a prominent topic in agricultural journals. It appears in striking contrast to the deep-burial notion, which has been urged under the plea that the virtue of manure was sure to rise, whatever the depth of earth which covered it. There is a point of much consequence in connection with surface manuring for cultivated crops, although it is not involved in the question as to what mode of application confers the greatest fertility. It is this: manure left on the surface, unless thoroughly decomposed and made fine, is an obstruction to cultivation by clogging the implements used for that purpose. If the manure is coarse and strawy, it constitutes no trifling obstacle with crops for which the harrow, horse-hoe or cultivator is used. It would therefore be desirable, in making an experiment to test the advantage of the different modes of applying manure, that it should be so fine that what is left on the surface will not occasion the difficulty alluded to.

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### How Animals and Vegetables Live.

In the grand laboratory of nature, each opposing phenomena counterbalance the other; what is *poison* to the animal is *nutriment* to the vegetable. The atmosphere is composed of two distinct gases, called oxygen and nitrogen gas; they stand in the ratio of twenty-one parts of the former, to seventy-nine of the latter. Both these gases are deleterious of themselves. An atmosphere composed of such proportions of these gases, is well adapted to the lungs of man. No man could live in an atmosphere composed of oxygen alone; and no man could breathe nitrogen without being poisoned. There are numerous disturbing forces at work in the world, leading to a disorganization of these well balanced principles, displayed on the surface of our planet, by a wise Creator, that would lead the mind, at first thought, to suppose that the atmosphere will soon become unfit for man to respire.— We know that every creature that breathes, absorbs the oxygen, and throws out at every respiration nitrogen and carbonic acid gas; every one of the millions of fires that burn, and every one of the millions of living creatures that breathe, consumes the oxygen and pours into the air carbonic acid gas. Still the air is equally pure, as if no such operation had gone on. Why, because, whilst animals absorb oxygen and give out carbonic acid gas, all vegetable substances absorb carbonic acid gas, and throw out oxygen. And thus the vegetable world, and animal world, counterbalance each other's effect upon these two great departments of nature.

How little do we think that these phenomena are continually at work

in the kingdom of nature. And that it is through their combined effects, that we live and breathe. What wisdom is here displayed by our Creator, for our well-being. A few parts more of the one of these elements, and less of the other, would cause disease throughout the world, and the absence of any one of these properties, would cause sudden death to all living creatures. How important then, it is to have these two elements of animal and vegetable life in proper proportions: the ventilation of our dwellings, so as to allow these gases to pass freely around us. Those persons who were cast into the Black Hole at Calcutta, many years ago, died at once for the want of oxygen gas; they inhaled and re-inhaled the little oxygen present, until the air of the apartment became nitrogen—poison. And so it is in all cases where such a disproportion of these necessary gases exist:—death is the inevitable result.

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### Emigration to the Lower Provinces.

#### No. 2.

In my previous No. 1 gave you a brief account of the extent and capabilities of the Lower Provinces of British North America. I propose now, to extend those remarks, in order to show more fully the importance of this section of America to Great Britain; not only as affording space for the settlement of a portion of her surplus population, but that also in a strategical point of view, they are no less important. In this respect they may be said to be the key to Canada and the territories lying beyond.

The following observations, extracted from a speech recently delivered in the House of Lords by the Earl of Derby, show the view taken of their worth by that eminent statesman. His lordship says:

“The Lower Provinces of Nova Scotia and New Brunswick, from the geographical position, and naval and military capacities, from the resources they afford in time of war, and the advantages they are able to offer in time of peace—he was not sure if he would not say these provinces, infinitely less extensive as they were, were not of much greater importance to Great Britain than all her Canadian and other North American dependencies.”

As points of defence against a foreign foe, it is true they are important, but more especially “the advantages they are able to offer in time of peace”—the vast extent of rich land—the thousands of farms, of a hundred acres each, they offer at a nominal price to the starving thousands of the mother country. It is in this respect that their great worth more particularly lies. They contain all the natural elements of a nation’s wealth, and all that is wanted to raise them to the dignity of a nation, without assuming the title, is the expenditure of labour and capital.

But it is only in resources, and not in population, that they can afford to support the mother country either in peace or war. How could so few people, scattered over so vast an extent of country, afford much aid? If all their inhabitants were placed on P. E. I, which is not a tenth in size that of N. S., or a thirteenth that of N. B., it would not be half populated; such are "the advantages they are able to offer." 20,000,000 acres of ungranted land, which may be purchased at the nominal price of ten pounds sterling per hundred acres. And in New Brunswick, where the largest extent of ungranted land lies, payments for land may be made in labour on the roads adjacent to the lands; thus enabling a man to become the owner of one hundred acres, enough for a farm, without paying one shilling in money. The approaches to these provinces by shipping, at all seasons of the year, are highly advantageous. They have, in the aggregate, a coast line of 1,600 miles, which is indented by numerous harbours, where ships of the largest class can enter; indeed, it is difficult to find twenty miles of this extensive frontier without a ship harbour. In addition, navigable rivers penetrate all sections of these provinces. Add to these a net-work of roads, with bridges spanning the rivers; along these roads thriving settlements are formed—in short, the whole frontier may be said to be one continuous settlement. Roads are extended into the wilderness in all directions, and across the country so as to bind one settlement to another. On many of these roads there are but few settlers, so that the way is prepared for many additional settlers. The principal part of the roads of these provinces is superior to those of many of the long inhabited countries of Europe.

Nearly every settlement has its weekly mail passing through it, leaving the news of the day in its centre. On some roads, mails pass twice, on some thrice, and on the great leading road between Halifax and Canada, six times a week: almost all the towns and villages are connected by telegraph lines; and the whole to the other principal places on the American Continent. An aggregate of 240 miles of railway is in operation.

No one, in order to find good land, need go far into the wilderness beyond the sound of his neighbour's axe. The educational institutions of these provinces are far in advance of many of the States of Europe; besides institutions of a higher order, 2,500 schools dot the face of the country; indeed wherever half a dozen families are gathered together, there a school may be seen, deriving the principal part of its endowment from provincial funds. Mills for the manufacture of flour and lumber, carding machines, and other manufactories may be counted by thousands.

These, with hundreds of other advantages which the first settlers in these provinces, and for eighty years after, never dreamed of, place future emigrants in highly advantageous circumstances compared to those who have preceded them.

A. M.

**THE COLONIAL EMPIRE**, is the title of a new Paper published by Mr. Thomas McHenry, St. John, N. B. It is devoted to Politics, Literature, and general News; its motto is, "onward and upward." It is neatly printed and ably edited, and its pages are well filled with instructive matter. We hail this paper, in the Colonial field, as an important auxiliary. It is published at the low price of \$1½ per annum.

**THE CHRISTIAN VISITOR**, comes in a new dress, and much improved in size, matter, and appearance. It is now entitled the *New Brunswick Baptist and Christian Visitor*.

**THE TEMPERANCE TELEGRAPH**, has also undergone change, both in appearance and name; it is now called the *Temperance Reformer and Telegraph*.

These papers are all the property of Mr. McHenry.

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**MESARS. EDITORS:**—I wish to call the attention of your numerous readers, especially inventors, their agents or attorney's and writers generally, to the fact that a distinction between the script letters, I and J, is as essentially necessary as the distinction between 6 and 9. It is a mark of great carelessness or slovenliness in writing, to substitute, from mere caprice or habit, the one for the other, rising, as it invariably does, suspicion as to the culture or scholarship of such writer. This lazy substitution of letters often leads to misunderstandings and delays in specifications, deeds, wills, and other papers in script, as it often does not correspond with the more carefully printed letters in the drawings. It often causes delay, and sometimes bitter disputes, when, in the address to individuals, I is made to stand for Isaac, and also for James, Ira or John. Writing Ian for January, Iune for June, Ino. for John, &c., is not often misapprehended; but sometimes, when the context is obscure, the proper writing of this letter would determine the sense, and not leave us to speculate whether I stands for June, Judge, John, Isaac, Indigo or Iron.

Where initials are used for abbreviation, writers have no right to sacrifice the correct execution of a letter to the whim of what is vulgarly deemed taste or flourish, by not allowing the letter J to drop properly below the line of writing, its distinguishing feature, and which is the unalterable form in standard script letter,

The fault here cited, has in part, obtained from the old but false and whimsical mode practiced by not the best publishers and printers, of omitting, in our spelling books, the letter I or J, thereby leading children to think that the two letters are synonymous, than which a more un scholarly superstition never haunted the English alphabet.

It is a principle in abbreviations that the mode adopted be in all cases unmistakable; but when it happens, as it frequently does, that ignorance tramples upon this principle, and slipshod caprice adds to this abbreviation a leading letter that is undeniably wrong, the communication of ideas is utterly impossible.