

SECOND REPORT  
ON THE  
GEOLOGICAL SURVEY  
OF THE PROVINCE OF NEW BRUNSWICK.  
By Abraham Geaner, Provincial Geologist, &c.

To His Excellency Sir JOHN HARVEY, K. C. B. & K. C. H. Lieutenant Governor and Commander in Chief of the Province of New Brunswick, &c. &c. &c.

MAY IT PLEASE YOUR EXCELLENCY,

A Geological Survey may be considered to have a threefold object. The first of these embraces the discovery of rocks as they are placed in the order of superposition, the causes by which such rocks are formed, and others similar in their nature are now accumulating, and the uses to which their materials may be applied, either in their arts, architecture or agriculture. It also views all the physical operations going forward upon the surface of the country submitted to examination, the relations they bear to the former history of the earth, and the effects they continue to produce upon the occupations and prosperity of its inhabitants.

The second relates to the discovery, examination, and application of all the mineral substances contained in the earth, whether they are ores yielding metals, the bituminous and carbonaceous compounds affording fuel, the chemical substances employed in the different arts and manufactures, or those peculiar kinds of matter that promote the growth of plants, and are therefore of inestimable value to agriculture.

Thirdly it comprises the analysis of the different soils, and by comparing the less productive kinds with those of known fertility, the elements necessary for their productiveness are discovered, and the sources whence they can be supplied are made known.

On the European continent, mining has long enjoyed the fostering care of different Governments, Colleges have been founded and cherished, for the sole purpose of qualifying the geologist, mineralogist and miner for their important duties. Libraries and museums have been collected, laws have been made to protect and encourage mining, and the ablest men have been employed in those departments of science which were found to be intimately connected with national safety and prosperity.

Great Britain, with her vast mineral wealth, had observed the advantages gained by neighbouring countries from their attention to natural resources, and viewed with jealousy the importation of iron from Sweden and Germany; but individual enterprise was left unaided, and her miners were for a long period left to grope their way in darkness, without the light of science to guide them in their uncertain path. But no sooner was the attention of the British Government directed to this subject, and its inadequate support to the most enduring branch of natural industry rendered obvious, than public surveys were ordered, the studies of geology and mineralogy were immediately introduced into English and Scotch colleges, and an impetus was given to these enquiries which has been unparalleled in its beneficial results.

The mineral wealth of Great Britain remained for a long period unnoticed and disregarded, and many individuals were ruined by speculations which have since proved extremely profitable, and of great national importance. Numerous are the instances where vast sums of money had been unsuccessfully expended, in enterprises which since the diffusion of knowledge adapted to them, and the encouragement offered by legislative acts, have been resumed, and rendered the sources of public and private wealth.

It is to her great mineral deposits Great Britain chiefly owes her elevated character. They have imparted an extraordinary impulse to mechanical genius—have aroused her inhabitants to most unceasing exertion, and have produced those extraordinary revolutions in agriculture, manufacture and navigation, which render her an object of admiration to all the world. These improvements have not arisen altogether from any peculiar advantages enjoyed by the Mother Country, or the unaided capabilities of her people. They are the results of legislation by comprehensive minds, and the dissemination of sound principles of science, which have been directed to the public mind and to the legitimate objects of labor. And thus the gradual advancement and application of the arts to the most useful and desirable objects, have closely followed the adoption of measures by the Government for carrying into effect a more perfect development of those materials, upon which the industry of the people yields the greatest amount of profit.

The annual amount of the raw mineral produce of Great Britain is no less than twenty millions sterling. When the increase of this by the multifarious operations of manufacture, and the charges of shipping for transportation of vast supplies of wrought material abroad, are computed, the aggregate is almost incalculable.

More than forty years ago, the Ordnance Geological Survey of England was commenced, by Mr. De La Beche, whose labours proved of the greatest utility to the mining and agricultural interests of the country. Both before, and since the above period, large sums had been expended from private funds in order to make new discoveries, and a number of persons from the love of science, were actively engaged, and whose labors have opened a new era in the history of the prosperity of the kingdom.

The Ordnance Geological Survey, is now advancing, and the reports of the Geology of Cornwall and Devon, by Mr. H. T. De La Beche are of great interest and importance.

The United States with great alacrity and enterprise have completed geological explorations of many extensive districts; others are in progress, and the time is rapidly advancing, when each section of their territory will have been submitted to careful examination. Nor have the advantages derived from those enquiries in America been less successful than those of Europe, for both agricultural and mining industry have become far more extended and successful than they were prior to the commencement of these enquiries.

Of the British North American Colonies,

New Brunswick is one of the first to undertake an exploration of her mineral wealth, and a gradual interest in the great natural resources of the country is increasing daily, under Your Excellency's paternal care. Since the commencement of the geological survey of New Brunswick, a similar one has been instituted in Newfoundland, and the work is now advancing. Nova Scotia would have been upon the list long ago, had not her mines and minerals been so disposed of that her inhabitants can scarcely participate in the benefits that would arise from having them generally worked.

The navigation of the Atlantic by steam, and the increased demand for iron and coal from this circumstance, and the extension of rail roads, render New Brunswick a most important colony. For as this Province, as well as Nova Scotia, contains an abundance of those most necessary minerals, the advantage of possessing sufficient supplies on both sides of the ocean that separates this country from Great Britain are inestimable, and render New Brunswick one of the most valuable appendages of the British Empire, independent of her fertile soil and vast supplies of timber. Her importance is also obvious, without any reference to those facts from her proximity to the United States, where bituminous coal evidently does not exist in sufficient quantities and in such situations as render it useful along the Northern Atlantic coast.

The progress of mining in new countries is always slow, a circumstance arising from the lack of capital, which is always employed upon objects of trade procured with the least expense, and afford the most readily a return for their value. But by opening the channels of enterprise to other resources more permanently valuable, encouragement is offered for the introduction of foreign capital, and the prosperity of the country will become equal in some degree to its natural advantages.

AGRICULTURE.

Soils are most frequently composed of the following earths, mixed in different proportions—silica, (flint,) alumina, (clay,) lime, magnesia, and the oxides and salts derived from the decomposition of metallic and other mineral matter. To these are added the different parts of vegetables in their several stages of decay. The presence of some of these substances is absolutely necessary to vegetation, others exert an influence hostile to the growth of plants, when they exist in any considerable quantity, and the predominance of either of the earths withholds from vegetables that kind of nourishment they require for their perfect growth. It has been ascertained that the most productive soil in all countries, and under the different climates, is one composed of different proportions of siliceous (flinty,) calcareous (marly,) aluminous (clayey,) earth in a finely divided state, and containing a greater or less quantity of vegetable and animal matter returning to a mineral condition. It would be impossible to point out the exact proportions of these substances which should be present, under all circumstances, for general productiveness. These proportions must be regulated by climate, temperature, and more especially by the peculiar nature of the plant it is called upon to nourish. But this general fact is so far applicable every where, that when the soil is found to be composed almost altogether of one or two of those earths, to the exclusion of almost every other kind of matter, it may, from a knowledge of the circumstances, be greatly improved and its fertility increased four-fold.

By pursuing this enquiry into its minutest ramifications, the quantity of each earth may be so adjusted to all the conditions of climate, situation, and the laws affecting the distribution of plants, that the greatest possible harvest may be reaped from lands which in their natural and depraved condition were barren and unfruitful. This constitutes the science of Agriculture, that ennobling branch of industry which nature never fails to reward when her bounties are sought with care, skill, and diligence.

The power of some earths to absorb and retain moisture is much greater than others, and as water performs an important office in vegetation, those soils which are placed upon declivities, and are therefore quickly drained, require a larger quantity of retentive clay than such as are placed in lower situations—where, perhaps, the open sand allows the accumulated rain to escape with greater facility, both by evaporation and absorption. The composition of the subsoil must also be considered. Should it be impervious clay, the water cannot descend even through a thin stratum. Again, if it repose upon beds of sand, it escapes by infiltration with great facility.

Almost all the upland soils have been derived from the disintegration of the rocks beneath, and frequently at no great distance from them. Even the alluviums can be traced to their birth places, whence they have been driven by currents still active in their transportation. The greater fertility of these alluviums had resulted from the continued action of the causes to which they owe their origin. Those mighty operations that spread a covering over the rocks, whereby the earth was rendered a fit abode for man and his associate animals, are now almost inactive on a large portion of the globe. They have not, however, altogether discontinued their useful labour, nor ceased to clothe the lower grounds with an annual deposit, of finely divided matter, and thus to increase the food of plants for the growing population of each continent and island, according to the demands they make upon the vegetable kingdom for food. Geology, therefore, by following causes to their effects, and by watching over the constant changes of matter, both in regard to chemical and mechanical operations, supplies the history of mineral under whatever circumstances they appear on the bosom of the earth.

Agriculture, to be attended with success, must be conducted upon scientific principles. Some knowledge of the plants belonging to the climate and exotics, and the soil capable of producing them most abundantly, must be obtained before the husbandman can receive an adequate reward for his pain or rejoice over the fruits of his labour. It is here also geology lends its aid, and by a careful analysis of the soils, a basis is laid upon which the farmer can

by his own experience create a system admitting of more certain success.

In all the different arts a knowledge of the materials operated upon is considered indispensably necessary for those whose employment is in them, and it is surprising that the agriculturist, who requires more of this kind of knowledge than the common artisan, should have been so much neglected and left to discover, by the experience of a whole life, what he might have known from a single lesson. Innumerable are the instances where the seed has been scattered in the sand and in the clay, and because no crop followed, both were condemned as being barren and worthless; but had those two different substances been mixed in proper proportions, a plentiful harvest would have followed, and the disappointed tiller of the ground would have smiled over the bounties received from Nature's condescension.

Manures are of three kinds, namely—animal, vegetable, and mineral. It would seem that the Chinese had arrived at a more perfect knowledge of these substances in the support of vegetation than any other people. So essential do they consider manure to be to the production of crops, that night-soil mixed with fat marl and firmed into cakes, is an article of commerce throughout the Empire. Geology, as applied to agriculture, takes cognizance of the different conditions of mineral matters adapted to the nourishment of plants, the composition of soils, whether in a natural or artificial state, and the means capable of rendering them fertile. Soil may be unproductive from the absence of certain mineral or vegetable ingredients, or from the presence of some noxious principle. These conditions can be overcome by the addition of the matter required in the first case, and by producing such a chemical decomposition in the latter, as shall render the poisonous matter inert. These are objects to be gained only by the sciences of geology and mineralogy.

The soil of New Brunswick is extremely variable in its composition, having been produced by a variety of causes, and from many different kinds of rocks; therefore it is more necessary that it should be cultivated with an extensive view of all the facts connected with its former and present conditions. To this inductive knowledge experiments should be added to afford those practical illustrations which unite in the mind philosophical reasoning with absolute demonstration.

Peat is abundant in this Province, and most of its varieties will afford manure; but it sometimes happens that the low situations where it is accumulated have been exposed to the earth containing much iron, and where the salts of that metal render it unfit for that purpose. Such peat may be known by its ochrey appearance, and the presence of "bog" and "shot" ore.

Sir Humphrey Davy seems to have been the first who endeavoured to discover, by the aid of chemistry the manner in which manures act upon the soil, and the influence they hold over its productions; and although his labours have rendered an important advantage to agriculture, there is a wide field unexplored in the department of physical science. Oxygen, hydrogen and carbon are the principal simple elements entering into the composition of vegetables. Nitrogen, potash, lime, sulphur, and magnesia are sometimes procured from the sap and solid parts of plants. The peculiar process by which these kinds of matter are drawn from the earth seems to be placed beyond the reach of human observation. There are, however, some reasons for believing that heat, light, and electricity are the principal but silent agents by which the earth produces both the lofty oak and the blushing rose, and is covered with a green mantle, affording life and nourishment to innumerable creatures upon its surface. All the elements of vegetables have been found in the soil beneath them. It is by adding manure that a more abundant supply of those elements is afforded, and consequently a more luxuriant growth is the result of their application.

The different kinds of manure, many of which are abundant in the Province, might be applied with the greatest possible advantage to the soils of every country; but of all these the excrementitious matter of stables forms almost the one kind used in the country.

Some of the foregoing substances will be noticed in this Report, but as it cannot embrace a particular description of the varieties, application, and uses of manures in general, it is intended to give such an account adapted to the Province as early as possible, and one that shall be founded on a course of analytical and experimental examinations.

The subject of agriculture has already engaged the attention of Your Excellency, and the different branches of the Legislature; and the counties of Northumberland and Charlotte, by their Agricultural Societies, have sustained under circumstances of discouragement those enlightened views, which, by being more extended, will prove of vast advantage to the rural industry of the Province.

An enquiry will naturally arise, what advantages have already accrued from the geological exploration of New Brunswick? In this early period of the survey it will not be expected that every useful discovery, or the confidence of the public in the success of mining should be such as to have any great influence over the resources of the country. The recent difficulties in monetary affairs in the United States and the British Provinces, have retarded the progress of successful enterprise, and English capitalists hesitate to apply their funds for any object in New Brunswick, until the disputed line between this Province and the

\*The different kinds of manure may be classed as follows:—

- MINERAL—
  - Limestone,
  - Marl,
  - Marly clay,
  - Alluvium of the sea, (marsh mud,)
  - Alluvium of rivers, (mould.)
- VEGETABLE—
  - Sea-weeds,
  - Peat,
  - Ashes,
  - Soot,
- ANIMAL—
  - Excrementitious matter,
  - Fish
  - Shells,
  - Bones.

United States shall be adjusted, for it is evident that the Colony would suffer a great loss were the Americans allowed to extend their eastern boundary upon her soil. But, notwithstanding these obstacles to the immediate extension of foreign and domestic capital, the beneficial results of the labour of a single season, are such as indicate a certainty of the final utility of the enterprise. The application of marl and lime to the soil has already commenced. The excellent quarries of granite on the Saint John have been opened by Messrs. WETMORE; and from the cheapness, superior quality, and beauty of the rock, it will evidently be extensively used. Hitherto the granite employed in the Province has been imported from Nova Scotia and the United States at a great expense.\*

\*Since the above was in the press we have been informed that two gentlemen from the United States have leased these quarries to obtain materials to rebuild the wharves and buildings consumed in the late conflagration at Saint John.

(To be continued.)

FREDERICTON  
Steam Boat Company Stock  
FOR SALE.

NOTICE is hereby given, That the under-mentioned Shares in the Fredericton Steam Boat Company being forfeited, agreeably to the deed of settlement for non-payment of assessment, will be sold at Public Auction to the highest bidder at the Market House in Fredericton, on Wednesday, 26th day of February instant, at 1 o'clock, p. m. The purchaser to pay all arrears.

George Hart, 25 shares of £10 each, due on the whole £136 10s.

WM. M'BEATH,  
Treasurer & Secretary.  
Fredericton, 4th February, 1840.

JACKSON'S HOTEL,  
Fredericton, New Brunswick.

THE Subscriber respectfully informs his Friends and Patrons of Fredericton and its Vicinity, as well as the Inhabitants of the Province generally, that he has greatly enlarged his former Establishment by additional Buildings, has built a large and handsome Dining room, capable of accommodating any parties at public festivals, &c., with additional anti-rooms, bed rooms, &c. &c. He has always on hand a good supply of the choicest Wines and Liquors imported into the Province, a constant supply of good ice throughout the summer season, and can give good accommodation to any families wishing to visit Fredericton for the space of a few weeks or otherwise. To travellers from Nova Scotia or the United States, the Subscriber would feign recommend his Establishment to their particular notice as being inferior to none in the Province of New Brunswick. Horses, Carriages and other vehicles are furnished from the Hotel.

August 31. H. JACKSON.

NOTICE.

ALL persons who have any demands against the estate of the late FREDERICK PHILLIPS, of Ruslagoonis in the County of Sunbury, deceased, will render their accounts within six months from the date hereof, and those who are indebted to said Estate will make immediate payment to

THOMAS O. MILES, } Executors.  
THOMAS PHILLIPS, }  
Dated at Mauderville, 2d October, 1839.

FOR SALE.

SEVERAL lots of LAND advantageously situated at the Restook Falls and adjoining the Disputed Territory.

Also, a valuable and extensive Mill Seat at the same place. For particulars enquire of R. EGGAR, Fredericton.

N. B. Abundance of Limestone may be found at these Falls. Any person desirous of establishing Lime Kilns on any part of the above pieces, will be charged only a nominal rent for the first five years, with other privileges.

FOR SALE.

THAT part of the Subscriber's Farm adjoining the property of the Honble. THOMAS BATTLE, and situate between the former Post Road and the Hanwell Road, consisting of between 40 and 50 acres. If not disposed of at private sale, the said property will be sold by Public Auction in five or ten acre Lots to suit purchasers.

J. F. W. WINSLOW.  
Woodstock, 4th Jan. 1840.

CONSIGNMENT.

THE Subscriber has received by the last Steamers and has on hand a variety of articles consisting of Gunpowder, Souchong Congo, and Bohea TEAS; an excellent assortment for family use or Retailers.

Also, Very superior WINES, Bottled in Cases, Golden Sherry, best L. P. Madeira, old Claret, old Port, Lisbon, and Sicily WINES, fine flavored high proof Jamaica SPIRITS, BRANDY, WHISKEY, Double Brown STOUT and PORTER, Best London Sperm Candles, No. 1 Gibbed HERRINGS, Rose Blankets, Kegs Fig Tobacco, with a great variety of other articles.

MARK NEEDHAM.  
Fredericton, 2d Dec., 1839.

REVISED EDITION

OF THE

PROVINCE LAWS.

THE Subscriber having been induced by numerous applications from different sections of the Province, to publish an additional supply of the above valuable work, for the use of those not entitled to copies from Government, such persons as may be desirous of procuring them will have the goodness to leave their names and places of residence, at an early period, at the Royal Gazette Office, or with either of the undermentioned Gentlemen, where Copies of the work may be seen:—

- HON. E. B. CHANDLER, ...Dorchester.
  - THOMAS WYER, Esquire, ...St. Andrews.
  - J. W. WELDON, Esquire, ...Richibucto.
  - GEORGE KERR, Esquire, ...Chatham.
  - W. H. BALDWIN, Esquire, ...Bathurst.
  - J. M. CONNELL, Esquire, ...Woodstock.
  - MR. DAVID M'ILLAN, ...St. John.
- J. SIMPSON, QUEEN'S PRINTER.

POST OFFICE.  
Fredericton, Dec. 5, 1839.

List of Letters remaining in Office at this date

A  
Jacob Allen, James Adams, Arch. Anderson, John Alean, William Allan.

B  
William Beyeton, Samuel Brown, Thom Blair, Margt. Burke, Isaac Bliether, Mrs. as Block, Thomas Briggs, William Brown, G. J. Barnes, William Braithwaite, James B., John Barter, Dr. Bridges, Mrs. L. Breen, Amos Barker, John Bell, Agnes Boyd, John Burnett.

C  
D. C. Consins, Mrs. Carson, Capt. Clarke, Wm. Carrick, Mrs. M. Cook, Pat. Cassidy James Cannon, J. S. Cousins, James R. Curry, (2), E. Cresby, Ben. Close, G. Carone, Mary Camber, John Carter, James Craigs, John C. Ollett, John Crawford, Frances Campbell, Charles Colepher, Francis Cluff.

D  
Barney Drew, M. Doran, Ann Dillion, Justis Dunham, (2), Oliver Dow, Robert Davis, George Davidson, J. W. Dow, Thos. Doyle, H. Dougherty, Walter Dixon.

E  
Wm. Estey, Wm. Erswell, Saml. Estey, Hugh Irvine, Jr. Mrs. Earls.

F  
L. A. Farlan, Margt. Fletcher, Margaret Fitzgerald, William Finnl.

G  
D. Godfrey, Thos. Grady, James Groves, John Pardon, Ichabod Grant, Marg. Gallagher, William Goodwin, George Gibbs.

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Andrew Hammond, M. Halland, Alex. Hay, A. Hartt, William Hornet, C. Howley, J. S. Hill, A. Hooper, Wm. Harper, James Harper, John Hurley, A. V. Hammond, James Hay, Jane Henderson.

I & J  
Xenophon Jonett, John C. Ingraham, John Joyce, Mary Ann Jones.

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M. Kilbourn, S. Kidder, Anne Kelly, Thos. Kelly.

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Mr. Lewis, James Largey, M. Lonegan, Jane Loughley, Capt. G. Long.

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Mr. Nixon, E. S. Nutten, Geo. Nevers, S. Nevers, A. C. Nelson.

P  
Margt. Orr, Henry Ochterley.

R  
R. Porter, George Price.

S  
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John Town, (2), James Telford, James Taylor, M. Thompson, Jacob Thompson.

V  
Mary Vohn.

W  
John White, W. P. White, B. Wheeler David White, E. J. Watson, T. Whitehead, George Walker, Miss L. A. West, (2), Thos. White, N. Wheeler.

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W. B. PHAIR, Post Master.

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