



AND

Conception Bay Journal.

VOL. IV.

WEDNESDAY, JUNE 19, 1839.

No. 259.

HARBOUR GRACE, Conception Bay, Newfoundland:—Printed and Published by JOHN THOMAS BURTON, at his Office, opposite Mr. W. Dixon's.

HOUSE OF ASSEMBLY.

MONDAY, June 3.

Mr. Secretary CROWDY brought down to the House the following document:

FIRST REPORT

ON THE Geological Structure

OF NEWFOUNDLAND.

BY

J. B. JUKES, Esq.

The Country in the neighbourhood of St. John's is composed principally of two masses or groups of rock. The first or uppermost of these is a dull red quartzose gritstone, shivering under the blow of the hammer. Some of the beds frequently contain a number of pebbles, from the size of a man's fist downwards, compacted together and forming what is called a puddingstone or conglomerate. The strata or beds of this rock are usually of considerable thickness, sometimes as much as six or eight feet—none of the beds I have yet met with seem capable of being cut or dressed easily so as to make good building stone—though many of them are well adapted for the construction of walls or other rough work. The thickness of this rock has not yet been ascertained, but it certainly is upwards of five or six hundred feet, and may be much more.

Beneath this formation lies a mass of schistose or slaty rocks which for the most part may be described as clay slate—they frequently however are very silicious, and like all rocks of their class present numerous minor varieties in their texture and character. The beds vary in thickness from two or three feet to as many inches. These rocks have commonly a cleavage or tendency to split in a certain direction, which in beds that have a fine grain and compact texture, and are not cut up by other division lines, forms them into the slate of Commerce, used for roofing and other purposes. It is to be hoped and expected that beds of this character may shortly be discovered in the neighbourhood of this place. The total thickness of the slaty rocks has probably not yet been seen—but 1000 feet of them at least are exposed in the Coast between Torbay and Cape St. Francis.

Somewhere near the base of the red grit, or a little above its junction with the slate, masses of a grey, finely crystalline stone may be observed. It is very hard and breaks under the hammer into sharp splinters. It has no appearance of bedding or stratification, and belongs to the Basaltic or trap rocks of geologists. These lie over or among the regularly stratified rocks in rude masses, or cut through them like great veins. It becomes light coloured externally by long exposure to the atmosphere as may be seen in those parts of it which appear at the surface. It is not capable of being easily dressed, but were ready cut into convenient blocks by the hand of nature (which is sometimes the case) it would be likely to form a very durable building stone. It appears to have been used largely in the construction of the New Barracks on Signal Hill and some other buildings in the Neighbourhood. It would also form an excellent material for the making of Roads where there was sufficient traffic to grind it down.

The red grit and slate rocks appear to be conformable to each other, that is to say, the transition from one to the other is easy and gradual, the beds of the two alternating with each other and having the same dip or inclination from the plane of the horizon. This dip or inclination along the East Coast, is almost invariably towards the East, while the STRIKE (or direction of the run of the

beds across the Country) is nearly North and South. Thus the Red Grit which forms the Coast from Shoal Bay on the South to Torbay on the North, without any interruption of continuity has its beds for the most part in a highly inclined position dipping or sloping to the East—so that the beds, which form the summit of the South-Side Hill for instance, while they run nearly North and South along the top of the ridge, incline downwards along their Eastward extension till they plunge beneath the sea. That this is the true position of the beds may be seen by looking at the face of the hills on each side the Narrows. The red grit which is broken through at Torbay comes in again at the North point of that Bay and forms the Coast as far North as Red Head between Flat Rock and Pouche Cove. If now we return to the South Side of Torbay we find the slate rock rising to the West from underneath the lower beds of the red grit, both preserving the same angle of dip and the same strike across the Country. Accordingly if we travel from Torbay to St. John's, and continue thence some miles to the south at least we find the country everywhere composed of slate rock to the west of the grit stone ridge. Or going to the North we see the slate passing across the bay, and where the red grit ends, the slate comes out upon the Coast and continues thence the whole distance to Cape St. Francis. So far the construction of the Country is very simple and obvious at first sight, but afterwards it becomes more complex, and from the natural features of the Country being so greatly marked by wood, moss, and bog, it would probably be difficult to make out were it not for the Coast sections. This will be seen by inspecting the Section of Torbay (transmitted herewith) where the Slate Rocks may be observed towards the West, to be bent and contorted into a number of five curves and arches, by which the same beds are made successively to rise towards the surface, and sink again without any indication of such occurrence being visible on the surface of the Country. This position of the beds though not of very frequent occurrence is one that never can be assumed without direct evidence of its existence, and it probably leads to great error in tracing the run of certain rocks across the country, or estimating their thickness—two elements of the greatest consequence in geological or mining calculations, were we not put upon our guard by the exposure of so clear a section as that of the cliffs at Torbay.—In all these rocks I have not been able to discover the least trace or appearance of Coal—and though it is necessary to be very cautious in bringing European analogies to bear on American Geology, I should be inclined to be of opinion that it must be in a very different class of rocks that the search for coal could be prosecuted with any hope of success.

Several Chalybeate Springs exist in the neighbourhood—two more especially worthy of notice, one in Logie Bay issuing from the red grit—another in Pouche Cove from a part of the Slate rocks.—These certainly indicate the presence of Iron, but not that it exists in sufficient quantities or in such a state as to render its extraction from the rock a matter of ease or profit. It may, however, as opportunity offers, be worth while to examine the neighbourhood of such spots in more detail than can yet be afforded them. The only other minerals whose existence there is reason to suspect in this neighbourhood, are Copper and Lead. Judging from the only experience I have had, namely, that gained in England, but which, as I have before said, is not to be implicitly relied on when applied to distant countries, these are the minerals most likely to be obtained from the rocks in this neighbourhood. Their existence at one place, namely in Shoal Bay, is certain. A figure or vein about two yards wide there, cuts perpendicular-

ly through the beds of red grit and runs in a true East and West course for at least 60 or 100 yards into the woods.—Where it comes out on the cliff it is full of stones and rubbish and pieces of white quartz, many of which are stained or coated with green carbonate of Copper, and contain small grains or strings of a metal which is either sulphuret of lead or sulphuret of copper. On the receipt from England of my Mineralogical apparatus, I shall be in a better condition for testing minerals than I am at present. This vein was worked in the latter part of the last century, and an old man at Petty Harbour informed me that he had frequently descended the shaft, and that after going down three shot ladders, a gallery had been drawn some distance inland. The shaft is now covered with stones and rubbish, of which it is probably full, but the gallery, when once reached, will be likely to be passable, and it may probably be thought worth while to go to the expense of clearing the shaft and exploring the old workings, from which alone it can be judged, whether any profitable result would be arrived at in future.

A few beds at the head of Middle Cove (Torbay) are capable of being split into good roofing slate, and it is probably that further research will disclose others, either in accessible parts of the coast or by following the bearing of these in the direction of St. John's.

At Flat Rock the red grit stone slopes with an easy inclination into the sea; the upper surface of one bed forming on the S. W. side of the harbour, a perfect inclined plane from the houses to the water's edge. At the head of the harbor this bed is seen to be covered with a foot or two of reddish friable marl or shale, easily removed with a pick axe, and on this shale rests a bed of very fine hard conglomerate, six feet thick, equal to granite for durability. This bed is divided by natural joints into great blocks of from half a ton to two or three tons each; the whole mass standing ready for exportation as it were, with little necessary beyond the trouble of removing it, and admirable adapted for the construction of breakwaters or similar works.

These are the chief points of interest which I have, as yet, been able to observe, and I shall not have thought them worthy forming into a separate report, were it not, that I believe I am now able to annex to them a plan for the more effectual carrying out of the Survey.

From all the accounts of the interior, and from what may be seen in the neighbourhood of St. John's, it is evident that the country is so covered with woods and morasses, as both greatly to impede the progress of the Explorer and almost wholly conceal from his sight its Geological structure. Large tracts, at all events, must be passed over, without procuring any evidence of what lies beneath the surface. Few navigable rivers exist to give assistance by an examination of their banks. Artificial sections, such as in a cultivated country are afforded by the cutting of roads or canals, the digging of wells, &c. are of course not to be obtained. Deprived of all these aids in the interior we are then driven to the coast, and here the natural advantages of the country are very great, since it appears that there are few parts where there are not fine bold cliffs in which every bed may be successively examined, while the deep bays will afford opportunities for studying the great outlines of the physical structure of the country in almost every point of view. In an island of the shape and size of Newfoundland, it is extremely improbable that there should exist any important group of rocks which do not show themselves on some part or other of the Coast. A Coast Survey will therefore put the observer in possession of the knowledge of all the different kinds of rocks and important mineral masses that exist in the Country, while by

marking down on a good Chart the place where each group of rocks strikes the Coast on either hand, and by following them occasionally short distances inland, the bearing (or strike as it is termed) of the different formations, by which is meant, the direction of their course across the country, will be approximately ascertained, and thus the foundation laid for a Geological Map of the Island.

Furnished with such previous information, the Explorer will then be enabled to choose his points for entering the interior of the country and arrange his route, so as to pass across the most interesting and instructive parts. To these considerations it may be added, that in the absence of roads into the interior, the utility of good beds of stone, coal, slate, or minerals would be greatly enhanced by their being found upon the coast.

The plan, then, which I should beg respectfully to suggest is, that a small Coasting Vessel carrying about four hands, and capable of taking a good stout boat, should be provided, to be managed by a person well acquainted with the navigation of the Coast, and placed at my disposal during the summer months. With these means at my command I should, I believe, be able to carry out the Survey in a much more speedy, effectual, and eventually a more economical way than by blindly entering the interior, ignorant of what might be expected to fall in my way, and consequently incapable of choosing one route rather than another.

If I may be allowed to look so far forward, I should say that this summer and the next would probably suffice, with favourable weather, for an outline Survey of the Coast, and in the event of its being desirable to carry it into greater detail, or explore the interior, I should then be prepared to set out with good hope of arriving at some useful and practical results.

Respectfully submitted by
JOSEPH BEETE JUKES.
May 27, 1839.

HIGHLAND CLANS.—The following is an alphabetical list of all the known clans of Scotland, with a description of the particular badges of distinction, worn by each clan—and which served as the distinguishing mark of their Chiefs. In addition to the distinguishing badge of his clan, a Highland Chief also wore two eagle's feathers in his bonnet:

Names	Badges.
Buchanan	Birch
Cameron	Oak
Campbell	Myrtle
Chisholm	Alder
Colquhoun	Hazle
Cumming	Common Sallow
Drummond	Holly
Farquharson	Purple Foxglove
Ferguson	Poplar
Forbes	Broom
Frazer	Yer
Gordon	Ivy
Graham	Laurel
Grant	Cranberry Heath
Gunn	Rosewort
Lamont	Cra's Apple Tree
M'Allister	Five Leaved Heath
M'Donald	Bell Heath
M'Donnell	Mountain Heath
M'Dougall	Cypress
M'Farlane	Cloud Berry Bush
M'Gregor	Pine
M'Intosh	Boxwood
M'Kay	Bull Rush
M'Kenzie	Deer Grass
M'Kinnon	St. John's Wort
M'Lachlan	Mountain Ash
M'Lean	Blackberry Heath
M'Leod	Red Whortle Berries
M'Nab	Rose Buck Berries
M'Noil	Sea Ware
M'Pherson	Variegated Boxwood
M'Quarrie	Black Thorn
M'Rae	Fir Club Moss
Munro	Eagle's Feathers
Menzie	Ash