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REPORT
ON THE
GEOLOGY

of
Newfoundland.

BY

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(Continued from our last.)

Having now given a slight sketch of the series of stratified rocks in the order in which they occur, so far as that order has as yet been ascertained, I have next to trace out the space of country occupied by each, to mark their minor varieties in different localities, and to notice their relations one with the other as well as with the igneous rocks that are associated with them. In order to keep my observations in a connected form, and to suit the manner in which I was obliged to collect them, I shall describe separately the following different Districts, numbered—

- 1st.—The Coast from Trepassey to Cape St. Francis.
- 2nd.—Conception Bay.
- 3rd.—Trinity Bay.
- 4th.—I shall put together a few scattered notices of St. Mary's and Placentia Bays, and the Coast from Cape Chapeau Rouge to St. Pierre and Miquelon.
- 5th.—The Coast from Cape la Hune to Cape Ray.
- 6th.—From Cape Ray to the Bay of Islands.

1.—In the country between Trepassey and Cape St. Francis the only formations are the St. John's slate and Signal Hill sandstone.—The St. John's slate rocks occupy by far the largest part of this district. No other rock is found between Cape Pine and Cape Race, nor for a considerable distance inland around those points. On the West side of Trepassey Harbor, the slate rocks are bent into regular curves, forming alternate saddles and troughs, or great ridges and furrows as it were, running parallel to each other in a North-east and South-west direction. The line which runs along the top of such a ridge is called an anticlinal line, or that which the rocks *decline from* on either hand; that, on the contrary, which runs along the bottom of a furrow, is called a synclinal line, or that which the rocks *decline towards* on either hand.—This undulation of the rocks does not necessarily produce an undulation in the surface of the country; the curved beds of rocks being all cut off, as it were, at a certain height, and the country more or less plane. (See section No. 10.) As we approach the East coast from Trepassey, these undulations become less frequent and from Cape Race to Ferryland the dip of the rocks is invariably E. S. E.; their line of strike (or the direction in which the beds run through the country) being parallel to that of the coast. From this easterly dip it follows that those headlands which run out furthest to the East contain the highest beds, the others having successively plunged beneath them; accordingly, in Ferryland head we get the highest basis of the St. John's slate formation; those, namely, which begin to alternate with the beds of the next superior mass of rocks.—The Signal Hill sandstone—and the rock lying just outside the headland, and called Ferryland Head's Ears, is composed entirely of the latter formation. On the South side of Torbay, a few miles north of St. John's, the junction of the two rocks may be in like manner observed; and a line drawn from Torbay to Ferryland head will nearly describe the boundary of the two formations;—the Signal Hill sandstones composing the country to the East,—the St. John's slate rocks that to the West of that line. In the immediate neighbourhood of this boundary line the rocks have always an easterly dip at a high angle, but at the distance of a mile or two from it, on either hand, they are frequently traversed by curves forming anticlinal and synclinal lines, similar to those described at Trepassey. Evidence of such change of dip may be observed on the Trepassey road a few miles from St. John's, and in the innermost cove of Torbay, a beautiful series of curves, like regular masonry, is exposed in the cliffs. The same thing takes place in the Signal Hill sandstones, but on a larger scale. Thus, in Freshwater Bay, the rocks forming the South Side Hill, after plunging from the summit of that ridge towards the sea, may be seen gradually to curve upwards again and rise into the cliffs of Cape Spear, and the same synclinal line may be observed passing through the headlands on each side of Petty Harbour. (See section No. 1.) So that if the land

were continued to the Eastward of those points, we should have the St. John's slate re-appearing from under the sandstones on that side.—From Torbay the rocks trend gradually round, striking eventually about N. W. so that the Signal Hill sandstone occurs at Flat Rock, and again, I believe, on the top of the Hill above Cape St. Francis. The rocks hereabouts, however, are so broken and confused as to be very difficult to make out.

The external characters of the country thus described are not very varieties.—The Signal Hill sandstone formation is every where very barren. It generally forms bold hills characterised by flat tops and long ridges its bare rocks being but scantily clothed with dwarfish shrubs.—Its cliffs are wild and craggy, the massive beds forming a stout bulwark against the fury of Atlantic storms. The slate rocks compose a country of a more gentle character, better wooded and more fertile; and through many of the hills in the Northern part of the district are superior in height to those of the sandstone formation, (1) and some of them are sufficiently rocky and precipitous, there is far more undulation of surface, and a more picturesque variety, in the slate country, than in that composed of the Signal Hill sandstones and conglomerates. A chain of considerable hills runs in from Renews towards Conception Bay, occupying part of the slate country, but not, I expect, entirely composed of that rock—as when they come out on the Bay they contain porphyries and sienites. South of Renews, and thence round into St. Mary's Bay, the country is comparatively low and level, and near the sea coast almost entirely destitute of wood. The small valleys, however, are many of them pretty and fertile in appearance.

2.—The shores of Conception Bay are for the most part composed of the St. John's slate formation. From Cape St. Francis to Portugal Cove both the cliffs and the interior are very difficult of access; but from the shape of the hills I should judge them to be greatly composed of igneous rocks, and at the Cove these rocks show themselves in great abundance; dykes of greenstone cut through and disturb the slate rocks, large masses of hard grey quartz rocks, without the slightest appearance of bedding, and great veins of serpentine, come cut upon the coast without preserving any determinate direction.—From Portugal Cove to Holyrood a great bank of pebbles, and a low tract covered with sand and boulders obscures the coast section, and I have not yet examined the country by land.—The country from Holyrood to the West side of Collier's Bay, and a large tract inland round those places, is composed principally of igneous rocks. The principal mass of these rocks is a porphyry, having a dark green or purple base, with disseminated red or white crystals. On the East side of Holyrood is a yellow crystalline quartz rock, containing circular patches of a greyish rock of inferior durability to the quartz. The hollows formed by the decomposition of the rock occupying these circular patches, and which are sometimes 2 feet across and 5 or 6 inches deep, are very similar to those found in the granite rocks of Cornwall, and at one time attributed to the work of the Druids. (1). The Butter-pots Hill, on the East side of Holyrood, is composed, for about two-thirds of its height, of a red siltstone with large crystals of quartz and feldspar; but is capped by a flat tabular mass of fine grained grey amorphous basalt. A similar sienite to that of the Butter-pots is found between Cat's Cove and Salmon Cove. All the rest of this tract, except the extreme points of the headlands, is occupied by porphyry. This porphyry constitutes those remarkable and picturesque hills with three peaks, called the Cat's Cove Hills, which lie about 4 miles inland from that place, and have a height of about 900 feet above the level of the sea. From the West side of these hills the porphyry runs down to Turk's Head, on the West side of Collier's Bay, the St. John's slate again comes out on the coast, and continues thence down the W. side of Conception Bay to be the prevailing rock. Between Bull Cove and Brigus, however, a narrow band or irregular dyke of igneous rock runs through the headlands, and in two points clearly overlies and cements the slate rocks; making them much more siliceous and brittle, obscuring their stratification, and causing a multitude of white quartz veins to traverse them in all directions. (See diagram No. 3.) Along the West shores of Conception Bay, from Brigus to Flamorough Head, the prevailing dip of the slate rocks is nearly N. W. This N. W. dip is invariable at the head of all the Bays and in the interior as far as I have gone; but in

NOTE. (1).—Branscombe Hill attains a height of 900 feet above the level of the sea. The highest point of the South Side Hill is 750, that of Signal Hill 520, feet above the sea.

many of the rocks, however, for a space between Port George and Bay Roberts, on the N. side of St. John's Bay, and on the N. side of Harbour Grace, and in Carbonar Island, a S. E. dip, or undulations having an alternate N. W. and S. E. dip, are observable. From Carbonar to Flamorough Head only one line occurs along which such change of dip takes place; and this anticlinal line, nearly touching Salmon Cove Head, cuts through the headlands of Broad Cove, Western Bay, Island Cove and Flamorough Head—thus running parallel to the general line of the coast, or as nearly N. N. E. and S. S. W. as possible. In all these points the extreme Eastern beds dip to the E, while to the W. of the line the dip is invariably towards the W. In Bay Verde a sudden change takes place in the direction of the beds, and the Signal Hill sandstones and conglomerates come in and form all the peninsula between Bay Verde, Breakheart Point, and Old Perlican. The position of the beds is very various, the dip frequently changes both in angle and direction, and the country is thus broken and confused.

NOTE. (1).—See De la Beche's report on the Geology of the Counties of Devon and Cornwall, page 452.

(To be continued.)

CANADA.

As a sample of the measures adopted, and to be adopted, for "MAINTAINING" the connection between these Colonies and the Mother Country, as promised by Governor Thomson, we solicit attention to the following notices of an order just issued in Lower Canada, for the re-embodiment of the Militia of that Province, which provides for the retention therein of divers rebel officers over the heads of loyal volunteers of equal or superior rank. Thus a Capt. or Major of volunteers, who has perhaps shed his blood in defending the institutions of his country against rebellion, is rewarded with an Ensigny or Lieutenantcy, under command, in many instances, of the known promoters of that rebellion. Our contemporary of the Courier may well style the present government of England a funny one:

"The Government is busy organizing the Militia! 'Tis a funny Government, that, we are honored with? About 18 months ago, the Government employed the Volunteer force, in disarming the French Canadians, not merely in this city, but throughout the District. We all remember seeing the domiciliary visiting, at the time; a demand was then made, generally, for the arms in the possession of this portion of Her Majesty's faithful subjects. Now, the Volunteer officers are deprived of the rank they then obtained, and are honored in such a fashion as this, 'Major', Loyal Volunteers Battalion, to be Captain in Battalion of Militia, or, Captain, Loyal Volunteers, to be Ensign, Battalion Militia.' That's the way our Government manages matters! but the richness of the joke consists in this; the Loyal Volunteers are made to serve, honor, and obey, as the phrase runs, the very persons they disarmed, to prevent these very persons butchering them a la facon WEIR, CHARTRAND, and WALKER. Our friend of the Herald makes the following observations on this subject:

"When the colonial administration stood aghast, while the knife of the assassin is at his throat, and the torch of rebellion flaming in its face, the French Canadians, who had been fostered into consequence, and foistered into undeserved but responsible, situations,

deserted their posts, or retained them only as the means of best aiding their rebel friends and compatriots to sever the connection between the Colony and the Mother Country, at the expense of the blood and treasure of the loyalists. Then, ay, then, it was deemed expedient, as a last resource, for the preservation of the Colony, to call on the British and Irish population to rally round the Government, and enroll themselves as Loyal Volunteers, the Governor General not daring to trust the Militia.

"Has not our friend heard of the last Imperial postum?"

"IMPARTIALITY!"

"Really, we have a Government, that is funny, exceedingly. We use the word funny, although a word most in vogue among children, because it conveys our meaning, and expresses our feelings, most clearly. As to the rank in the Volunteers, or the Militia, we do not suppose any man of sense values it; but, it is so novel a proceeding to promote officers downwards, that we must be excused for laughing a little at it. We shall get over this, by and by, for what one gets accustomed to, ceases to amuse. But, en attendant, we can't help smiling, and, were it not vulgar, would give expression to our merriment, in a horse-laugh, thus: Ha, ha, ha!—Hah, hah, hah, ha, bourra!"

In the Court of Queen's Bench, on Monday, Justice Littledale refused a rule to show cause why the execution of a writ of inquiry before the Sheriff of Middlesex, in the case of Stockdale vs. Hansard, should not be stayed. Stockdale had brought a fresh action against Hansard for the old libel contained in the Report of the House of Commons on Prisons. The defendant having allowed judgment to go by default, the next step was to assess the amount of damages in the Sheriff's Court the damages being laid at £50,000. The defendant's solicitors served the Sheriff, Under-Sheriff, the defendant, and his attorney, with notices of the resolutions passed in the House of Commons declaring it a high breach of privilege in any way to interfere with the printer, acting by order of the House. It was on the strength of these resolutions that the Sheriff grounded the application for delay, which Justice Littledale refused to grant.

In the Sheriff's Court yesterday, Stockdale, who pleaded his own cause, obtained a verdict with Six Hundred Pounds Damages against Mess. Hansard.

Save the unhappy disturbances in Monmouthshire, the commencement and suppression of which was recorded last week, we know of no domestic occurrence requiring particular notice. The insurgent spirit may not have been quelled; but it has not burst forth since the fire of the soldiers, from the tavern in Newport, told with such deadly effect upon the mob of rioters. Many prisoners have been taken, and among them the ostensible leaders of the misled workmen. We presume that too many of these fanatics, whose ignorance of the extent of the opposing forces was only paralleled by inflated exaggeration of their own means, will pay the penalty of their folly upon the scaffold.