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(From the Report of Alex. Murray, Esq. Assistant Provincial Geologist, dated Montreal, January, 1852.)

WESTERN AND HURON DISTRICTS.

Gypsiferous Limestone and Shale, and Conglomerous Limestone.

There are no hard rock exposures of any kind on the coast south from the Rivière au Sable (north) for upwards of seventeen miles, or on the Sauguine River so far as we ascended it. The first discovery of such strata *in situ*, on our route in that direction, was at a point about seven miles nearly S. W. from the mouth of the latter stream, where an outcrop occurs displaying buff-coloured limestone, holding numerous organic remains, of which the forms were frequently replaced by hornstone. The beds were in no case at this place exposed above two feet over the level of the lake, and their approach to horizontality was so near that the eye could scarcely detect a slope. They came out at intervals along the shore, the surface of one bed being sometimes exposed for a considerable distance, and occupied altogether a space of four or five miles, beyond which another concealment occurs, continuing to within three miles of Point Douglas, where yellowish coloured calcareous sandstone skirts the coast line. Proceeding along the beach towards Point Douglas, we found this sandstone associated with calcareous beds holding a large amount of hornstone, with black bituminous shales and blue and drab-coloured limestones, one bed among which appeared to be hydraulic. The whole of these strata were devoid of fossils, but imperfect crystals of celestine or sulphate of strontian occurred, with quartz and calc-spar, lining dusky cavities or cracks in the rock, and numerous imbedded balls of hornstone were met with. A black band overlies the sandstone, and is of a coarse granular texture, appearing to be composed principally of an aggregation of imperfect crystals of calc-spar, while the black color results from the presence of bituminous matter, which exists in greater or less proportion in all the beds. Ascending in the section, which at Point Douglas displays a thickness of twelve feet, thin calcareous beds of a dark brown colour occur, separated by very thin layers of black bituminous shale; and over them the upper part of the cliff is occupied by thin bands of blue limestone and pale yellowish calcareous beds, sometimes over a foot in thickness, much marked by small brownish lenticular crystals of calc-spar. Between two of the beds there is a suture-like division; the two beds when separated present surfaces covered with inter-fitting tooth-like projections, the

sides of which often display a fasciculated columnar structure, and a film of bituminous matter lies between the surfaces, and invests all the projections. One part or another of the non-fossiliferous section thus exposed at Point Douglas continues to occupy the coast to the southward, exhibiting gentle undulations, to a spot about half a mile beyond the Little Pine Brook, where fossiliferous beds, holding much hornstone, are seen overlying the highest of the strata already mentioned, in detached isolated patches, for upwards of a mile, beyond which no ledge is exposed for upwards of twenty-five miles.

Where the line between the Townships of Ashfield and Colborne meets the lake, a little south of Maitland River, ledges come from beneath the high clay cliffs which face the water, and these ledges are seen at intervals along the shore for about a mile. The greatest section exposed does not afford a vertical thickness of more than six feet; the rocks resemble a part of those of Point Douglas; they are destitute of fossils, and consist, in ascending order, of gray calcareous and bituminous sandstones, cherty limestones, brown calcareous beds striped with thin bituminous shales, and pale yellow calcareous layers, sometime three feet thick, with lenticular crystals of calc-spar, or cavities from which such have disappeared. Probably in the same relation to these rocks as the fossiliferous to the unfossiliferous of the vicinity of Point Douglas, there occur at the falls on the Ashfield River, about a quarter of a mile above the village, a set of thick-bedded dark gray calcareous sandstones and buff-coloured silicious limestones, both holding organic remains, which are more numerous in the latter. Beds similar to those on the Ashfield coast and river, probably a continuation of the same, were observed for the last time in a cliff on the Maitland River near Goderich. The following is a section of them in descending order:—

	ft. in.
1. Thin-bedded dark gray bituminous limestone holding organic remains, a suture-like bituminous division with tooth-like and occasionally columnar-sided projections, separate two of the beds	21 0
2. Measures concealed by clay and debris	12 0
3. Pale gray or drab-coloured fine grained sandstone, with ferruginous spots and stripes and mottled with blue and yellow; no fossils	2 0
4. An irregular bed composed of an aggregation of imperfect crystals of calc-spar	0 1
5. Dark brown fine-grained sandstone striped with bituminous layers, very soft and easily disintegrated until after exposure to the air, when it becomes hard	2 6

At the bridge across the Maitland River, about half a mile from the village of Goderich, and at a short distance below the place where the above section was measured, the following unfossiliferous rocks were found exposed in a continuation of the cliff:—

	ft. in.
2. Dark gray bituminous and silicious limestone	4 0
Brecciated, cherty and bituminous limestone	2 0
3. Pale yellowish calcareo-arenaceous bed, with ferruginous stripes and spots	1 10
4. Bed composed of an aggregation of imperfect crystals of calc-spar	0 6
5. Soft yellowish coloured sandstone with bituminous and ferruginous spots	3 0
6. Dark gray or brownish coloured bituminous limestone containing small lenticular crystals of calc-spar or cavities of the same form, some beds showing a large quantity of hornstone and thin partings of black bituminous shale	4 0

The lower and non-fossiliferous portion of the rocks thus described bears a strong resemblance in their mineral character

* In the August number of this Journal we published a Geological Map of a considerable portion of Western Canada, by W. E. Logan, Esq., F.R.S. & G.S., Provincial Geologist. We now propose to furnish monthly abstracts of those portions of the Geological Reports which describe the physical structure of the country comprehended within the limits of the Map. We are induced to adopt this method of disseminating information respecting the Geology of Canada, not only on account of its intrinsic value, but also because it is a matter of extreme difficulty to meet with copies of the earlier Reports, in consequence of the destruction of the reserve during those disastrous conflagrations which destroyed the Parliament Buildings at Montreal and Quebec.