

The object of a preliminary survey, such as the present one, not requiring a detailed report, I have refrained from making it such in most cases, believing that it would only be increased to an unnecessary length without deriving any additional advantage by it; I allude here to an omission generally of specific descriptions of the various rapids, &c., but the formation of these will perhaps be sufficiently understood from the following brief outline of the geology of the country explored by me.

Commencing at Lake Huron and ascending the Maganatawang River, thence crossing the height of land and following the course of the Pittoiwaiss; the rock of this extensive tract of country is exclusively of granite order, but so irregularly are the minerals common to it distributed as regards their relative quantities and situation that it becomes difficult to pronounce with any degree of certainty to which class they belong, if there be any constant attribute of this rock (but I believe there is not) it is the uniformity in size of its parts, these are generally small. From Lake Huron to within fifty miles of the Ottawa, quartz and felspar predominate, and are always more fully developed than the mica or third constituent of granite; this last substance is often mixed with hornblend; its stratified appearance in some localities may justify its being classed as Gneiss; and from which it passes frequently into sienite and mica-slate; to each of these formations there are exceptions; those noticed by me I shall describe.

About 36 miles from Lake Huron, *vide* Plan No. 1, and Lake A., there is a precipitous range of rock fronting the west; this rock is friable and reduces by the slightest pressure to particles of felspar and mica; when viewed before it becomes pulverised it is like old or decayed brick, of a dull reddish colour; its height is about 70 feet, projecting considerably over its base, and its appearance is such that the slightest shock would seem to bring it down; a number of large masses are now prostrate at its base, and in this manner I should suppose it has fallen for ages. In a small river which empties itself into this lake there are two falls, one of which is 36 feet in height; the rock at these falls is composed of quartz and mica, the latter substance in large lamina. At these falls there are several large boulders, which are composed of felspar, without, as far as I could discern, mixing with any other mineral; twenty miles east of the dividing ridge there is a very visible change in the constituents of the rocks; felspar becoming the prevailing substance, and small portions of quartz and mica. This rock in some localities is coarse grained, whilst in others it has the same compact structure as secondary limestone, and has always a slaty surface. The fragments of this rock form deep deposits in many parts of the Pittoiwaiss River, and when taken from its

bed has a dark purple tinge, but when broken it has a reddish colour.

There are four things strikingly peculiar to this section of the country, its timber is *red*, (red pine,) its soil is *red*, (red sand, and sometimes red clay,) on the banks of lakes and rivers its rock is *red*, and its waters are also *red*, deriving their colour from the soils and rocks over which they pass. Many portions of the banks of the Pittoiwaiss have mural faced fronts, and are composed of this compact rock, and which generally have a singular stratification; a part is horizontal from which it radiates (though not in straight lines) until it becomes vertical; in other places it forms arcs of concentric circles; these appearances are often visible in a space of 50 or 100 feet. Miles from the Ottawa on the banks of the Pittoiwaiss, there is a fine range of this rock, it extends about 260 yards, and is 150 feet high; on many of these cliffs figures of various animals and other devices are skilfully engraven by the Indians. This rock extends nearly to the Ottawa, and there becomes more crystalline; it is very general on the south bank of the Deep River, from which I am inclined to believe it recedes southerly, and afterwards returns, as it is seen through the greater part of the channel of the Little River; on the north side of the Deep River the rock is similar to that on the Maganatawang.

The rock between the Deep River and Maganatawang is generally sienite or gneiss, on the easterly shore of Lake Nipissing felspar prevails, and mixes with mica and quartz; towards its westerly end hornblend prevails, giving the rock a dark colour; on the French River the rock is more crystalline than any previously described; this appearance is ascribable to the prevalence of rock crystal or quartz.

The coast of Lake Huron is not free from changes in its geological structure; at the outlets of the French River the Rock is graphic, and is composed principally of quartz, mixing with small portions of mica and felspar; this Rock is remarkable for its regularity of surface, whether tabular or rounded, both of which shapes it generally takes; this formation extends about 30 miles south of the French River, and then passes into a partially stratified rock, and mica in minute parts becomes the prevailing mineral; the rapid decomposition of this substance often gives the rock a very uneven surface; it is very generally traversed by veins of quartz, varying in thickness from a tenth of an inch to two inches, and these veins are often intersected by others. The coast between Shawenagua, Trading-post and Penetanguishine, exhibits many proofs of this sort of rock.

At Bytown the rock is a secondary limestone, of a light blue colour; the same formation may be traced nearly to the Chats Rapids, where it