

## GEOLOGY.

Geology.

A finely granular buff-colored dolomite occurs in the rapids at the mouth of the river. No rock *in situ* was observed from this point for twenty-nine miles, at which distance a brownish-black carbonaceous shale is met with in the west bank. It has a low specific gravity, splits with a conchoidal fracture, is easily cut with a knife, yielding a brown powder, and is capable of a high polish. On being sufficiently heated it burns for a short time, and emits a sulphurous odour. This carbonaceous shale appears to be associated with the Devonian limestones, which crop out about a mile further up, and are seen here and there at the water's edge, under banks of boulder-clay fifty feet high, all the way to the Sextant Rapids, a distance of about nine miles. The limestones, which occur in almost horizontal beds, consist of almost pure carbonate of lime. They are characterized by a prevailing yellowish colour, which, however, is modified with various shades of light grey, buff and pink or red. They are all very soft, have an open or porous texture and low specific gravity and contain the remains of corals. They are more or less bituminous and one of the specimens collected holds a little free petroleum. At the foot of the Sextant Rapids a very light reddish-grey, soft, porous limestone is underlaid by about twenty feet of a reddish-brown or dark chocolate-coloured calcareo-arenaceous marl with irregular green spots.

Black shale.

Devonian limestones.

Reddish-brown marl.

The southern boundary of the Devonian basin crosses the Abittibi River in a north-easterly direction at the Sextant Rapids, which are at the end of the first stretch of the river. Beyond this point, Laurentian and other crystalline rocks are found all the way to Abittibi Lake. From the commencement of the second to the end of the fourth stretch, the general course of the river may correspond nearly with that of the dividing line between the Laurentian series to the west and the Huronian to the east. Most of the rocks observed along the second stretch consist of different varieties of gneiss, which need not be here described in detail, but at the Long Portage and the Oil-can Portage, which is the next above it, the rocks are dark-grey (more or less crystalline) felsites; while between Lop-stick Portage and the Three Carrying-places Portage they consist of greenish-grey felspar and mica schists, having calcareous slicken-sided surfaces, and olive-green calcareous quartziferous hornblende schists. A soft blackish semi-crystalline diorite occurs at the head of the Sextant Rapids, but whether in beds or as a dyke was not ascertained. The felsites of the Oil-can Portage are cut by dykes of dark compact diorite. Towards the upper extremity of the second stretch, Mr. Cochrane met with rocks which appear to be light-red and light-grey varieties of granite

Laurentian and Huronian.

Granite.