

landslip described by Dr. Chalmers was closely similar to that of the Maskinongé river described by Logan. It took place on the east bank of the Blanche, a tributary of the Ste. Anne de la Pérade at St. Thuribe, about 3 miles north of St. Casimir village. The chasm remaining from this landslip is also irregularly oblong in shape, like that of the Maskinongé valley with the narrowest end towards the Rivière Blanche. At this point the breaking down of the beds began and through this opening the whole of the material of the landslip was discharged. The length of the pit, east and west, is about 1,050 yards; extreme width 600 yards; maximum depth about 28 feet; total area 86 acres. The descent of the bottom throughout its whole length is approximately about 27 feet or about 10 inches to the hundred feet, and the gradient is comparatively uniform from the eastern end to the present bottom of the river. Indications of a movement of the clays was first seen on the evening of the 6th of May, 1898, in a small hollow in the bank, down which a trickling stream ran; but no attention was paid to it. About 5 o'clock on the morning of the 7th, the breaking away of the clay beds began where some slipping had been noticed on the previous evening. The softer material flowed out from beneath, while the upper and more coherent clay split off in vertical sheets and columns which were borne away in the sliding, surging mass. This continued for upwards of three hours, when the transporting power seemed to have spent itself, and the great masses of clay, which had become detached from the walls of the chasm, were stranded in its bottom and at the time of examination were seen standing in various positions, some of them resembling cones, pyramids, etc.†

The causes operating in the production of all these landslips may be summarized under two general headings:—

1. The presence of silty, sandy, or gravelly portions or layers in these stratified clays, renders these and some of the adjacent portions capable of absorbing and retaining a large amount of water. According to Mr. R. A. A. Johnston, of the Geological Survey, who made an analysis of the clays obtained from the

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†Ann. Rep. Geol. Surv. Can., Vol. XI., 1898. Part J, pp. 55-69.