

## THE GLACIATION OF MOUNT ORFORD, P. Q.

By R. CHALMERS, LL.D.

In a paper recently published by Prof. C. H. Hitchcock of Dartmouth College, Hanover, N. H., on the *Glaciation of the Green Mountains*,\* he brings up anew the question of the glaciation of Mount Orford, and reiterates his former belief that it was overridden by ice from the Laurentides during the glacial period. As the writer ascended this mountain in 1896 and spent some time in an examination of its higher slopes and summit, the results of which led him to an entirely different conclusion, which is briefly stated in an official report issued in 1898,† a few remarks and explanations seem now to be required.

Mount Orford is one of the isolated summits of the Sutton range, or north-east extension of the Green Mountains into Canada, and is situated near the northern end of Lake Memphremagog. The altitude has been ascertained by the Geological Survey of Canada, (Ells, Giroux and the writer) to be 2,860 feet above sea level. On the summit there are patches of bare rock. From the highest of these there is a magnificent view of the lake and surrounding country on a clear day. A flag-staff has been erected here for the guidance of mountain climbers, and a foot-path leads up to it on the south-west slope.

In climbing this mountain I took a guide with me who was familiar with the trails, and instead of following the beaten path I went round to the north-west side mounting the slope along an untrodden route. My object in doing this was to observe the glaciation on the stoss, or struck side, and to ascertain how high the ice ascended it, and whether it really overrode the mountain top. Though we had a very difficult climb, through woods, and over ledges, boulders and fallen trees, the ascent was successfully accomplished. On the way up we noted striæ and grooves, boulder-clay, and crystalline boulders, till we reached an elevation of about 1,800 feet. At a point 2,080 feet high, however, I thought I detected grooves, but I see by my notes made on the spot, that they are marked *doubtful*. Above this no glacial marks.

\* Argos and Patriot Press, Montpelier, Vt. 1904.

† Annual Report, Geol. Survey of Canada, Vol. X, 1898, p. 30 j and p. 46 j.