

thickly set striae and the discrete evidently later glaciation is so great that it hardly appears probable that the two sets pertain to the movements of the same glacier even when account is taken of divergent flowage in a retreating ice lobe. In the case of the abnormal striation in the northeastern corner of the Mooers quadrangle, it is conceivable that the ice when it had become so thin as to be diverted by the Covey hill ridge, on the east of this elevated district turned more sharply than before into the Champlain valley; but the striae north of Ellenburg depot can not be so explained. The cases above cited recall the later separate striae described by Chalmers as occurring south of the St Lawrence near the international boundary opposite Vermont and New Hampshire and which have been interpreted by him as produced by local glaciers descending the mountains along the frontier of New England into Quebec. As yet no evidence of associated frontal moraines nor the northward transportation of erratics which would corroborate this view has been detected along the northern border of New York. Much further work in this region will be required to demonstrate the precise nature of these anomalous striae.

*Southern slope of Rand hill and Dannemora mountain.* A relatively late stage of frontal deposits is well developed along the southern slope of Rand hill and Dannemora mountain where the drift is very thick particularly opposite the notches opening northward through the mountain. The ice pressing against the northern side of these elevations appears to have pressed through the valleys and built up a shelving terrace of interstratified till and washed gravels on which the tongues of the glacier at times rested. From the evidence of heavy deltas between Dannemora and Lake Champlain there appears to have been standing water in this embayment at levels above that of the main body of water which later lay in front of the ice over the Champlain valley proper. Such is the delta at Cadyville on the Saranac.

*Moraines north, east and west of Rand hill.* Rand hill as shown in the report on the Mooers area [N. Y. State Mus. Bul. 83] is encircled with lines of retreatal moraine on the east, north and west [see pl. 17]. These moraines with the exception of a lower group to be more particularly mentioned show no signs of wave action or of attendant outwash plains constructed in