

the north-east of it, is an unbroken sheet of Drift, with the usual aspect of Till, with loose boulders, striæ on exposed outcrops, drift dams, buried valleys, reversed drainage, and innumerable drift inclosed ponds and lakes, the elevations of which above tide are given by Mr. White in his report; the lower ones like Nichecrouk and Silver Lakes, 1150' and 1250'; the higher ones like Lakes Belle and Ernest 1750', Lake Laura 1800', Elich's Pond 1754'.

In Mr. White's Report, G 5 (1881) on Wayne and Susquehanna counties, lying next the New York State line, similar descriptions and tables of elevations of striæ, drift ponds, etc., are given; and the exact uppermost limit of ice action is there to be seen, on the sides of isolated peaks. The highest striæ on Mount Ararat being 2200' above tide. The elevation of the whole region may be gathered from the fact that the lowest summit that the Jefferson Branch Railway could find for its grade is 2023' A.T. Hundreds of morainic ponds and lakes dot the whole map.

I hope to put to press shortly the special report of Prof. H. C. Lewis, whom I directed to trace and study the terminal moraine throughout its whole line, a distance of about 450 miles, *i.e.* from where it crosses the Delaware and enters our State from New Jersey, near the Water Gap, to where it leaves the State to enter Ohio west of Pittsburgh. In this report Mr. Lewis maps the moraine as ascending and descending our mountain sides, crossing narrow and wide valleys, ascending the Alleghany mountain plateau and traversing the highest lands in Northern Pennsylvania.

The report of Mr. Ashburner on McKean county, and that of Mr. Carll on the Oil Regions, treat largely of our high-level drift and the astonishing changes it has effected in our topography. There is, therefore, no lack of data for Mr. Mackintosh to use; data, be it said moreover, of the most precise and complete kind.

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#### THE SO-CALLED HYPERSTHENITE OF CARROCK FELL.

SIR,—I can fully confirm Dr. Trechmann's statement as to the absence of hypersthene from the Carrock Fell rock. Some few years since, feeling suspicious, I had a slide cut from one of two or three specimens in my collection, and saw at once that the mineral was only a form of pyroxene. The hornblende, I conjecture, is of secondary formation, *i.e.* more or less uralite—a change especially frequent in gabbros. As regards the late Mr. Clifton Ward's identification, I have always suspected that he had identified the Carrock Fell mineral with hypersthene by its general appearance (which however is not very characteristic), and not by optical tests. His analysis, with its small quantity of magnesia, shows the improbability of the mineral being hypersthene. Indeed, I doubt whether the mineral has yet been really identified in Britain. Certainly, as Zirkel has shown, and as Prof. W. H. Miller informed me more than ten years since, the ordinary mineral in the Skye hypersthene is pyroxene. One or two instances have been quoted from Wales, but I do not credit them.

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