

margins of the ice-field. The northern limit was chained by eternal frost to its rocky bed. The southern only was free to move, and the whole expansion would be developed along the southern border. The sliding movement of incalculable tons of ice would plow the soil beneath. Rock-fragments, pebbles, and gravel, frozen in the under surface, were carried forward by the moving mass, while the underlying rocky surfaces were ground away, or polished, or scored in parallel furrows by the irresistible agency of the glacier (Fig. 80). These phenomena are noticeable all over the Northern States wherever the "bed rock" is exposed to view. The bold shore of the north side of Lake Superior has been extensively carved and modified by this resistless action. At Marquette, upon the south shore, are some striking and instructive illustrations. A low dome of metamorphic talcoze schist rises a few feet above the surface of the water at the shore, nearly in front of the Jackson house, which bears the imperishable tracery of its conflict with the continental glacier. The whole surface is smoothed as with a carpenter's plane and sand-paper. The undulations in the surface are scoured as neatly as the level and more prominent portions. Rising from beneath the water on the northern side can be seen numerous grooves and scratches, which glide up the smoothed northern slope, and extend continuously across the summit to the southern side. There are two principal sets of these striæ. One of them extends nearly north and south, the other northeast and southwest. Near this place, and close by the main street as it passes out of town, is an isolated outlying mass of the same kind of rock, which has been left standing out boldly after the destructive agencies that have passed over the surface had plowed away all the surrounding portions of the formation. This stubborn mass stands like a sullen bulwark, defying the most desperate attacks of ice, or