

evaporation and of degelation, glaciers must necessarily be formed. Before the glacier is born, we have immense snow-fields or *nevés*. Through accumulation the snow becomes compressed, and this process continues until ice is formed. Ordinarily speaking, ice is a solid, but in reality it is not ; in fact, an absolute solid is unknown upon the earth. The behaviour of the ice is like that of a semi-plastic body. When by motion the limit of elasticity in ice is reached and fracture occurs, regelation in a great measure preserves the continuity of the mass. Under the action of gravity and lying on the mountain sides or in depressions, the ice mass flows, and in the same sense as water flows, only of course very much slower. In a river we find the greatest current near the middle, so it is with a glacier. As different rivers have different velocities, depending upon the degree of slope, similarly do we find the rate of flow in glaciers to differ widely, and for like reasons.

Of the living glaciers of south-eastern Alaska, the Muir is the largest and offers probably the best opportunity for measuring the rate of flow. This glacier has an ice front of nearly two miles discharging into the ocean. Its vertical ice-wall at the sea is over 200 feet in height, and its area, including the *névé* and its ramifications, is approximately one thousand square miles, or greater than the whole of the renowned Swiss glaciers combined.

By the pursuit of the study of astronomy one is led to contemplate the utter material insignificance of man and his terrestrial domicile in the grand macrocosm,—and when one stands on this vast glacier, hears its thundering echoes as it rends and breaks in its seaward journey, as it grinds and scrapes the underlying rocks, as it changes mountains into moraines, which in time become land,—then again is he impressed with the insignificance of man's powers when arrayed against the forces of nature ;—then is a new leaf of nature opened to his view, to read its significant characters.

Measurements have been made of the recession of the Muir glacier. From them it appears that within the last few years, its average rate of recession has been nearly a thousand feet per year. The flow or forward motion of the glacier is scarcely appreciable at the sides, but in the centre it is at the rate of about 2,500 feet per year. Prof. Wright