

than anything else I saw in the Alps, with the exception of some recent avalanches, I jotted down what appeared to me to be the most important points of difference. They stand thus :—

1. Glaciers heap up their *débris* in abrupt ridges. Floating ice sometimes does this, but more usually spreads its load in a more or less uniform sheet.¹

2. The material of moraines is all local. Floating ice carries its deposits often to great distances from their sources.

3. The stones carried by glaciers are mostly angular, except where they have been acted on by torrents. Those moved by floating ice are more often rounded, being acted on by the waves and by the abrading action of sand drifted by currents.

4. In the marine glacial deposits mud is mixed with stones and boulders. In the case of land glaciers, most of this mud is carried off by streams and deposited elsewhere.

5. The deposits from floating ice may contain marine shells. Those of glaciers cannot, except where, as in Greenland and Spitzbergen, glaciers push their moraines out into the sea.

6. It is of the nature of glaciers to flow in the deepest ravines they can find, and such ravines drain the ice of extensive areas of mountain land. Floating ice, on the contrary, acts with greatest ease on flat surfaces or slight elevations in the sea bottom.

7. Glaciers must descend slopes and must be backed by large supplies of perennial snow. Floating ice acts independently, and being water-borne may work up slopes and on level surfaces.

8. Glaciers striate the sides and bottoms of their ravines very unequally, acting with great force and effect only on those places where their weight impinges most heavily. Float-

¹ Under floating ice I include floe, pack, and bordage ice as well as bergs.