of blue ice parallel to the course of the glacier, alternating with bands of white ice, from $\frac{1}{4}\frac{1}{8}$ of an inch to several inches wide.

The névé has a concave even surface, but the glacier proper is convex, and is generally riddled by fissures or crevasses, often hundreds of yards long, and hundreds of feet deep, crossing in every direction. These are produced by the unequal temperature of the mass. The glacier is cut up by the fissures into masses of various shapes. Sometimes the masses are square or trapezoidal; or constitute needle shaped pyramids, called *Aiguilles*. Where the fissures are wanting, numerous little streamlets flow over the surface in small channels. These may terminate in circular or elliptical holes, called *puits*, often of great depth. Sometimes the puits are only a few feet deep, and are filled with water—like pot-holes near waterfalls. When the water freezes in them, the ice is formed in beautiful concentric layers, which are called *glacier stars*. The *meridian holes* are semi-circular hollows, invariably having the arc turned to the north, and the chord to the south; thus serving as compasses and sundials to travelers. They are produced by the heat of the sun's rays upon small accumulations of gravel. The pebbles absorb more heat than the ice, and hence sink into the ice where the sun's rays act the longest, and with the greatest intensity.

Glaciers are of two kinds. The first class lie in valleys of greater or less depth, and have a declivity or slope from 3° to 10°. The second class are generally small, resting upon the declivities of mountains, with a slope varying from 15° to 50° and upwards.

Of the first class there are three varieties: the *canal shaped*, of uniform width with scarcely any branches; the *oval shaped*, and the *basin shaped*, both of which are contained in deep valleys among mountains, so that the width of the outlet is a fraction of the diameter of the glacier itself. They may be compared with expansions of rivers into lakes.

Fig. 74 is a view of a canal shaped glacier in its upper part, as it procedes from the distant *mer de glace*, and winds through the long valley. It is one of the Alpine glaciers.

The greater part of the Alpine glaciers are from 18 to 21 miles long, between a mile-and-a-half and three miles wide, and from 100 to 600 feet thick. The thickness of the upper is always greater than that of the lower end. Glaciers have been described among the Himalayahs several thousand feet in thickness. The great Humboldt glacier, in Greenland, is 300 feet thick, 45 miles wide, as it flows into Peabody Bay, and 1200 miles long; the largest glacier by far yet described. (See Frontispiece.*)

In warm seasons the lower ends of glaciers are gradually melting, and inequalities are being produced over their surfaces. This superficial waste is called *ablation*. When large flat blocks of stone lie upon the ice, by ablation the phenomenon of *glacier tables* is produced. The rock protects the ice beneath itself from melting, but the ice of the glacier around it gradually disappears, until the block is poised upon a single pedestal, like a table. Prof. Forbes describes one of these tables in the Alps, 23 feet by 17, and $3\frac{1}{2}$ feet thick. Other objects of interest are the *gravel cones*. These are cones of ice, usually about a foot in height, covered with gravel. They are formed by ablation. Like the tables of stone, a mass of gravel is elevated upon a pedestal, and the gradual waste of the ice beneath allows the outside

* We are indebted to the liberality of Childs & Peterson for permission to copy this drawing from their splendid work, *Arctic Explorations*, by Dr. Kane, Philadelphia. 1856.