

period ; one of the definite acquisitions made by that great science, and one which every day tends to occupy in it a more important place.

After this rapid historical sketch of the scientific labours originated by the glaciers, we proceed to the analytical study of their phenomena : considering—

- 1st, The Mode in which they are formed ;
- 2nd, Their Downward March ; and
- 3rd, Their partial Liquefaction.

THE MODE OF FORMATION OF GLACIERS.

A glacier is, in fact, a *frozen river*, whose consistency is greatest at its point of termination. It begins in snow ; it ends in ice, which is distinguished by the purity of its colour and the minuteness of its crystallization.

As we have already stated, the snow which falls on the mountains above the limit of perpetual congelation, never melts ; it accumulates in every hollow, every depression of the soil. The water produced by its superficial fusion during the warm days of summer filtering slowly into the inner mass, and then congealing anew during the night, the snow passes into a condition known as the *névé* ; a kind of intermediate substance between snow and ice, a granular mass composed of rounded and agglutinated crystals, closely compacted by the pressure of the superincumbent layers.

The density of the *névé* holds a medium between that of snow and that of ice ; while a cubic yard* of snow weighs about 285 lbs., a cubic yard of compact ice weighs 1960 lbs., and a cubic yard of the *névé* varies between 660 and 1300 lbs. Thus :—

Water, cubic yard of, weighs	2,400 lbs.
Ice,	"	"	...	1,960 "
Snow,	"	"	...	285 "
Névé,	"	"	...	980 " (mean weight).

The line of demarcation between ice and the *névé* is not very well defined. According to the degree of pressure it undergoes, it passes

* More correctly, a *mètre*, which is equal to 39.37879 English inches.