

been poured out in a remarkably liquid condition have solidified in beds not more than 10 or 12 feet thick. On the other hand, more pasty lavas, and lavas which have flowed into narrow valleys, may be piled up in solid masses to a thickness of several hundred feet (pp. 378, 391).

**Structure of a lava-stream.**—Lava-streams are sometimes nearly homogeneous throughout. In general, however, they each show three component layers. At the bottom lies a rough, slaggy mass, produced by the rapid cooling of the lava, and the breaking up and continued onward motion of the scoriform layer. The central and main portion of the stream consists of solid lava, often, however, with a more or less carious and vesicular texture. The upper part, as we have seen, may be a mass of rough broken-up slabs, scorix, or clinkers. The proportions borne



Fig. 51.—Elongation of vesicles in direction of flow of lava.

by these respective layers to each other vary continually. Some of the more fluid ropy lavas of Vesuvius have an inconstant and thin slaggy crust; others may be said to consist of little else than scorix from top to bottom. Throughout the whole mass of a lava-current, but more especially along its upper surface, the absorbed or dissolved water-vapor expands with diminution of pressure, and pushing the molten rock aside, segregates into small bubbles or irregular cavities. Hence, when the lava solidifies, these steam-holes are seen to be sometimes so abundant that a detached portion of the rock containing them will float in water (pumice). They are often elongated in the direction of the motion of the lava-stream (Fig. 51). Some-