

of granite and other massive rocks, as well as of gneiss and mica-schist; also in feldspars, topaz, beryl, augite, nepheline, olivine, leucite and other minerals.

*γ*. Inclusions of glass or of some lithoid substance.—In many rocks which have consolidated from fusion, the component crystals contain globules or irregularly shaped inclosures of a vitreous nature (Fig. 11, Column B). These inclosures are analogous to the fluid-inclusions just described. They are portions of the original glassy magma out of which the minerals of the rock crystallized, as portions of the mother-liquor are inclosed in artificially formed crystals of common salt. That magma is in reality a liquid at high temperatures, though at ordinary temperatures it becomes a solid. At first, these glass-vesicles may be confounded with the true liquid-cavities, which in some respects they closely resemble. But they may be distinguished by the immobility of their bubbles, of which several are sometimes present in the same cavity; by the absence of any diminution of the bubbles when heat is applied; by the elongated shape of many of the bubbles; by the occasional extrusion of a bubble almost beyond the walls of the vesicle; by the usual pale greenish or brownish tint of the substance filling the vesicle, and its identity with that forming the surrounding base or ground-mass in which the crystals are imbedded; and by the complete passivity of the substance in polarized light (see p. 169).

Glass inclusions occur abundantly in some minerals, aggregated in the centre of a crystal or ranged along its zones of growth with singular regularity. They appear in feldspars, quartz, leucite, and other crystalline ingredients of volcanic rocks, and of course prove that in such posi-