the edge, the glass and the microlites have alike disappeared, and the rock is merely a crystalline diabase, though finer in grain than in the central portions of the bed. Numerous steam- or gas-vesicles occur in the vitreous part, some of them empty, but mostly filled with calcite or a brown ferruginous earth. There can be little doubt that the vitreous structure of this marginal film was originally that of the whole rock. The thinness of the glassy crust is in harmony with all that is known as to the feeble thermal conductivity

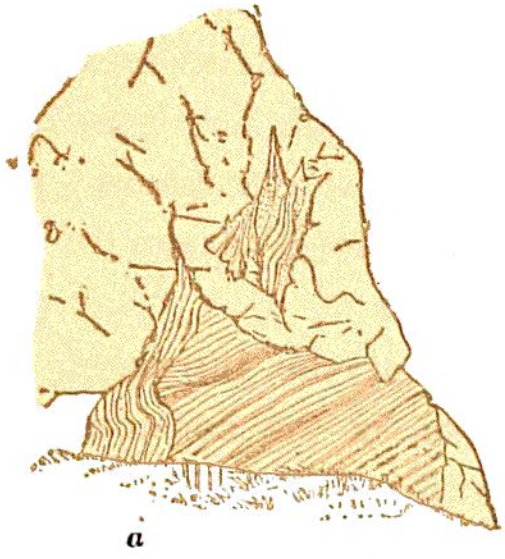

Fig. 286.

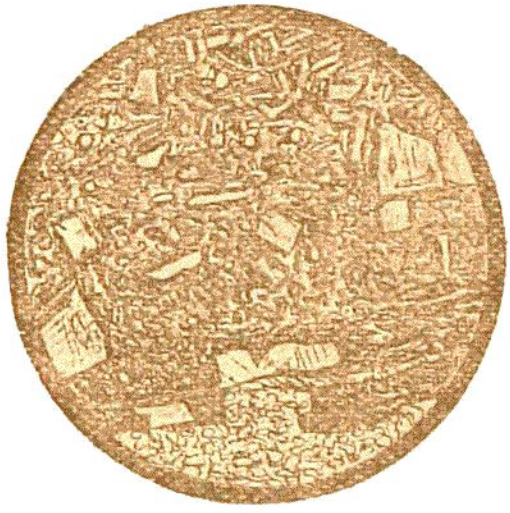

Fig. 287.

Fig. 286.—Mass of sandstone and shale (*a*) imbedded in the diabase (*b*) of Salisbury Crags, and injected with veins and threads of it.

Fig. 287.—Junction of intrusive Diabase with Sandstone, Salisbury Crags, Edinburgh. Magnified 20 Diameters.—The granular portion at the bottom of the drawing is sandstone, a part of which is involved in the diabase that occupies the rest of the slide. The darker portion next the sandstone is a vitreous substance which has been serpentinized. It contains crystals of plagioclase and vapor vesicles drawn out in the direction of flow. Above the darker part the glassy condition rapidly passes into ordinary but minutely crystalline diabase. The rock has been considerably altered, calcite occupying many of the vesicles and fissures.

of lava. When the rock was intruded, it was no doubt a molten glass containing much absorbed vapor, the escape of which at its high temperature was probably the main agent in indurating the adjacent strata. In a number of slices cut from different parts of the central portion of the diabase, I have failed to detect any of the steam-holes so marked in the outer vitreous edge.[19]

[19] One of the most remarkable examples of an intrusive sheet is the Whin Sill of Northumberland, of which an account by Messrs. Topley and Lebour will be found in Q. J. Geol. Soc. xxxiii. 1877, p. 406. See also J. J. H. Teall, op. cit. 1884.