Among the trap-ridges of the Connecticut Valley, East Rock (page 298) is of laccolithic origin. The supply-fissure for East Rock dips eastward at about 45°. The liquid rock on passing up the fissure between the sandstone walls, whose beds also dip eastward, but at an angle of 20° to 25°, forced a passage westward between the beds of the sandstone, and made a mass of trap 200 to 250 feet or more in thickness, and about 300 yards in breadth. It is known to be laccolithic by the fact that the sheet of trap keeps its thickness quite to its extreme western limit, instead of thinning by gravity, like a surficial flow, and that it has also a rising slope throughout. The section, Fig. 274, represents the intrusion of trap, from an oblique fissure, between layers of sandstone, in laccolithic style; and the removal of the overlying sandstone would give it a general resemblance to a section of East Rock. But in East Rock, and also in West Rock, of the same region (see map, page 299), the trap of the outflow rests on the edge of *upturned* layers of sandstone, and it has less dip than the sandstone. The condition in East Rock is shown in Fig. 275, and that in a second summit of the East Rock Ridge, in Fig. 276. Fig. 277 represents part of a long exposure of the upturned sandstone in the south front of West Rock — a transverse or east-and-west section of the Rock. Above the sandstone, only the basal portion of the columnar trap is shown in the figure, and below it, a talus of fallen stones and earth. The forced laccolithic flow of the liquid rock under its heavy cover of sandstone must have caused the abrasion of the fragile underlying beds.

In some cases in the Connecticut Valley, portions of the sandstone and trap, at the contact, occur rolled into rounded forms, and make part of an intervening layer between the trap and sandstone. The resistance produced by the weight of sandstone above frequently caused the opening of parallel fissures, for the escape of the lavas; and the rock of these outflows is often amygdaloidal, when the rest is not, owing to the accumulation of subterranean waters produced in consequence of the damming by the descending dike.

Unsolved Questions about Igneous Phenomena.

1. *Origin of the ascensive force.* — The ascensive force in the volcano has been attributed to (1) the expansive action of moisture from the deep-seated source of the lavas; and (2) the gravitational pressure of the contracting crust of the globe, forcing up the lavas; and some of the very deep depressions in the ocean's bottom near volcanic islands are thought to favor the latter theory. In view of the fact that the central part of a lava column should be the hotter, it is queried whether there is not, owing to the ascending vapors, a more rapid rising along the center, and a consequent descending along the sides of the conduit.

The facts afforded by Kilauea indicate that the upward movement in a lava column, as a consequence of the ascensive force, is very slow — 360 feet in 6 years being the maximum observed (page 280). It appears also to follow from the facts, as stated on page 276, that the force in the conduit varies with the amount of moisture received from descending subterranean waters. Daubrée, whose experiments on the perforating power