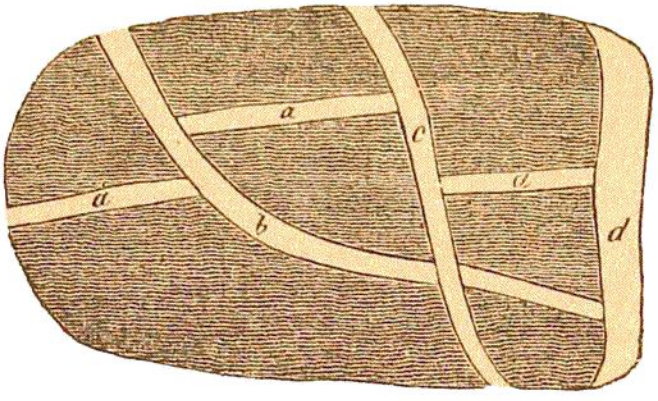
The large veins that are filled with trap rock or recent lava are usually called *dykes*. These differ from true veins, also, by rarely sending off branches. Dykes of trap are sometimes several yards wide, and nearly a hundred miles long; as in England and Ireland.

Dykes and veins frequently cross one another; and in such a case the one that is cut off is regarded as the oldest. By this rule it may be shown that granite has been injected at no less than four different epochs.

Fig. 30 represents a bowlder of granite in Westhampton, Massachusetts, whose base was the product of the earliest epoch of eruption. This is traversed by the granite vein, *a*, *a*, *a*, which was injected at a second epoch; *b*, is a granite vein cutting *a*, and was therefore produced at a third epoch; while *b*, as well as *a*, are cut off by the granite veins *c*, and *d*, of a fourth epoch.

Fig. 30.



Granite Veins in Granite, Westhampton.

By the same rule can be proved successive eruptions of the trap rocks, as well as other igneous veins. In one remarkable example of veins of different kinds, *eleven epochs* of the injection of unstratified rocks can be traced. This case is in the city of Salem, Massachusetts, near the entrance of the bridge leading to Beverly, on the west side. It is shown upon Fig. 31. The age of the veins is indicated by the figures (1, 2, 3, etc.) attached. No. 1, the basis rock, is syenitic greenstone. The others are mostly granite and greenstone.

Veins and dykes usually cross the strata at various angles. But not unfrequently for a part of their course they have been