

vertical. It is covered with the wreck and ruins of its former surface; and, finally, its ancient fires, although sometimes for a while dormant, have never been wholly extinguished, but still find an exit through volcanic mouths. When we reflect upon these phenomena, we cannot hesitate to infer that the present crust of the earth is the result of the conflicting energies of physical forces, governed by fixed laws; that its changes began from the dawn of creation, and that they will not cease till its materials and its physical laws are annihilated."*

26. BASALT, OR TRAP.—I return from this digression to the consideration of *whin, trap, basalt, or clinkstone*; terms which designate different varieties of an ancient volcanic rock, the nature of which I have already explained. Basalt occurs in veins or dikes, which traverse rocks of all ages, filling up fissures or crevices; and in layers spread over the surface of the strata, or interposed between them. In the diagram (Plate 7, 15), a trap-dike is represented traversing the secondary formations, and underlying the tertiary (see Plate 8, figs. vi. vii.) Many modern lavas differ so little from basalt, that it is unnecessary to adduce proof of the volcanic nature of this rock. Dr. MacCulloch observes that from lava to trap or basalt, and from thence to sienite and porphyry to granite, there is an unin-

* Introduction to the third American edition of Baskwell's Geology, edited by Benjamin Silliman, LL.D., &c. 1 vol. 8vo.