

wave-like flexures, above alluded to, are explained by supposing the strata, when in a plastic state, to have rested on a widely-extended surface of fluid lava, and elastic vapours and gases. The billowy movement of this subterranean sea of melted matter imparted its undulations to the elastic overlying crust, which was enabled to retain the new shapes thus given to it by the consolidation of the liquid matter injected into fissures.*

For my own part, I cannot imagine any real connection between the great parallel undulations of the rocks and the real waves of a subjacent ocean of liquid matter, on which the bent and broken crust may once have rested. That there were great lakes, or seas of lava, retained by volcanic heat for ages, in a liquid state beneath the Alleghanies, is highly probable, for the simultaneous eruptions of distant vents in the Andes leave no doubt of the wide subterranean areas permanently occupied by sheets of fluid lava in our own times. It is also consistent with what we know of the laws governing volcanic action to assume that the force operated in a linear direction, for we see trains of volcanic vents breaking out for hundreds of miles along a straight line, and we behold long parallel fissures, often filled with trap or consolidated lava, holding a straight course for great distances through rocks of all ages. The causes of this peculiar mode of development are as yet obscure and unexplained; but the existence of long narrow ranges of mountains, and of great faults and vertical shifts in the strata prolonged for great distances in certain directions, may all be results of the same kind of action. It also accords well

* Trans. of Ass. of Amer. Geol., 1840—2, p. 515.