

of the earth. In a modern volcano lava ascends the central funnel, and issuing from the lip of the crater or from lateral fissures pours down the slopes of the cone in sheets of melted rock. The upper surface of the lava column within the volcano is kept in constant ebullition by the rise of steam through its mass. Every now and then a vast body of steam rushes out with a terrific explosion, scattering the melted lava into impalpable dust, and filling the air with ashes and stones, which descend in showers upon the surrounding country. At the surface, therefore, igneous rocks appear, partly as masses of congealed lava, and partly as more or less consolidated sheets of dust and stones. But beneath the surface there must be a downward prolongation of the lava column, which no doubt sends out veins into rents of the subterranean rocks. We can suppose that the general aspect of the lava which consolidates at some depth will differ from that which solidifies above ground.

As a result of the revolutions which the crust of the earth has undergone, the roots of many ancient volcanoes have been laid bare. We have been, as it were, admitted into the secrets of these subterranean laboratories of nature, and have learned much regarding the mechanism of volcanic action which we could never have discovered from any modern volcano. Thus, while on the one hand we meet with beds of lava and consolidated volcanic ashes which were undoubtedly erupted at the surface of the ground in ancient periods, and were subsequently buried deep beneath sedimentary accumulations now removed, on the other hand we find masses of igneous rock which certainly never came near the surface, but must have been arrested in their ascent from below while still at a great depth, and have been laid bare to the light after the removal of the pile of rock under which they originally lay.