

originally not less than four thousand feet above the base of this astounding lava-deposit.

This vast and ponderous sheet of lava appears to have flowed through fissures from the Cascade Mountains, and naturally to have accumulated to greatest thickness along that range. The sheet extends across eastern Oregon to the Blue Mountains. From this range, also, other, but less copious, lava streams were poured forth.

The chain of volcanic outbursts continued southward into the Sierra Nevada. The lava vents here were more local and isolated. The lava, though enormous in quantity, was less than in Oregon, and overspread the surface less generally. Under these circumstances, great volcanic cones were built up—such as Lassen, Shasta, Hood, and Ranier. From Lassen's Peak the sheets of lava form a regular slope to the Sacramento river. Through this the streams have cut their channels five hundred to eight hundred feet deep.

Nearly all the so-called Basin Ranges lying eastward of the Sierra Nevada, through Utah and parts of California and Arizona, are composed, at least in part, of ancient lavas. Through the Plateau Region, farther east, lavas are equally abundant. In the Sevier Basin, according to Gilbert, the great Sevier fault, or break, through the rocks, exposes a maximum thickness of two thousand feet. South of the Colorado is a much larger lava-basin, spreading several broad lobes over into New Mexico, the most easterly of which reaches nearly to the Rio Grande. Its extreme limits are three hundred and twenty-five miles apart. It includes the San Francisco, Mogollon, and Sierra Blanca mountains. This outflow proceeded from a large number of vents. In San Francisco Mountain we have a pyramid of compact lava nearly five thousand feet high, with slopes of ten to twenty degrees.

The examples cited are sufficient to impress the imagination and enable us to appreciate the magnitude of the work of heat in the geological æon not long antecedent to the dawn of modern times. We mark the Tertiary, and especially the