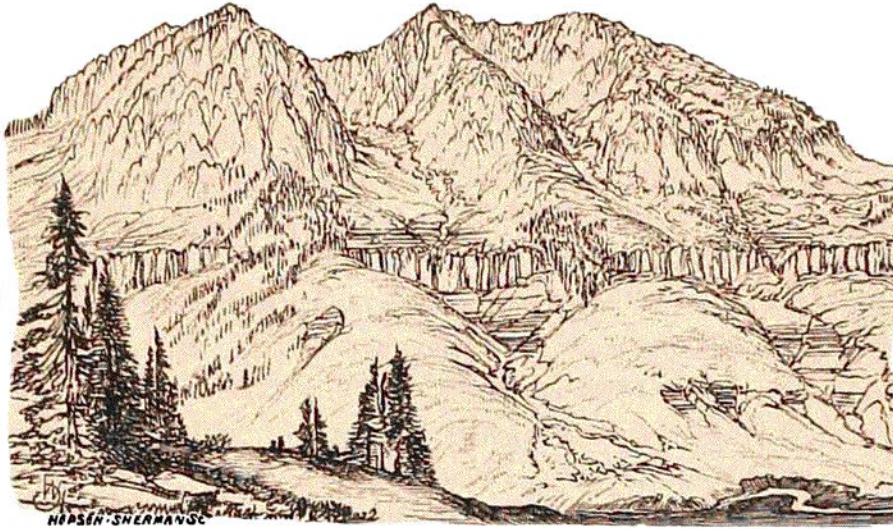


increase as the temperature decreased. Copious streams would have the smaller angle, while small streams would give increased pitch, and drops might make a vertical column. The facts with regard to lavas are the same in principle; for basaltic cones, as in those of driblet origin, may have high angles, even 90° .

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Gothic Mountain, Colorado. A trachytic mass overlying Cretaceous rocks.

If lavas were as liquid as water, cones of sensible slope would be impossible; the most liquid have sufficient viscosity or cohesion to cause some resistance to free movement, and the slope is, in a sense, a measure of this resistance.

2. *Dependence of the forms of lava-cones on place and amount of discharge.*—Since a cone diminishes in diameter upward, a flow of lava from the summit region, having like width throughout, would cover a much larger part of the circumference in the upper part than in the lower. The part of the cone below would require in fact a great number of ordinary lava streams to make one coat over the surface. The consequence of this condition is that such discharges add to the height and make the cone steeper above, and give it also a concave outline. But if the flows commence for the most part a little below the summit, from an eighth to a sixth of the height, the upper part will be widened and the cone take the form of a low dome, like Mount Loa; or if the streams come from fissures in the lower part of the cone and spread beyond the base, the cone will be flattened below, and the lower part of the profile will be made concave.

Lava-cones often, perhaps generally, derive an oblong or parabolic form of area from their origin over a fissure. The fissure was made by a profound rupture of the earth's crust, and probably the location of the crater was fixed by its intersection with a transverse fissure; but along the larger of the fissures an elongate form is given to the crater. The chief focus of action is usually toward one extremity. Over the slopes of the mountain, the belt in the direction of the longer axis is likely to be the region of most frequent eruptions and of long lines of steaming fissures. The craters of both Mount Loa and