form of the volcano is determined by several causes, for example, the inequality of the ground, violent winds during eruption, or any obstacles within the vent which may impede the ascent of the lava, or direct it into another course. Stratification is apparent in the structure of the cone of ejection; it is especially clear when there is an alternation of lava and volcanic ash. The inclination of the layers of volcanic rock is always from the edge of the crater to the base of the cone. The liquidity of the lava depends on its composition, texture, and temperature, and according to these and to the superficial relations, the solidified lava assumes the form of horizontal sheets, thick masses, or dome-shaped cones. During the cooling of the lava the escape of the vapours gives origin to the slaggy, vesicular structure of the lava; the liberation of the gases from the lava produces all kinds of minerals, and may take place either in association with escaping vapours as "fumaroles," or independently as gaseous emanations or "solfataras"; sometimes the gases collect from hot springs, or they vanish as exhalations. Pillar-shaped, rounded, cubical, rhomboidal, flaggy or shaly structure develops in consequence of the contraction of the lava during the processes of cooling.

As one and the same volcano may emit basaltic and trachytic lavas, Scrope thought it probable that all volcanic products come from the same subterranean magma, and that their specific difference is due to some condition connected with the access of heat and the subsequent chemical processes during their ascent. Poulett-Scrope opposed the conception of Humboldt and Buch, that trachyte and basalt rocks are of different ages. The larger volcanic mountains, he said, clearly owe their origin and form to repeated eruptions; the original cones of ejection are rent by later outbreaks, and the repeated outpourings and injections of lava still help to strengthen the mountain. In the summit crater, for the most part only vapours escape, together with the blocks and fragments which are carried up by the explosions. Very wide and deep craters form during the violent paroxysms of a volcano; by means of the subsequent eruptions new cones of ejection may arise within this deep crater, and be surrounded by the circular wall of the old crater; or the wall of the old crater may be disturbed and partially destroyed by a new crater (Somma).

Scrope strongly contested the existence of craters of elevation,