

thrown by M. de Beaumont on the laws regulating the flow and consolidation of lava, I do not conceive that these laws are as yet sufficiently determined to warrant us in assigning so much of the inclined position of the beds of Somma to the subsequent rending and dislocation of the cone. But even if this were admitted, it is far more in harmony with the usual mode of development of volcanic forces to suppose the movement which modified the shape of the cone to have been intermittent and gradual, and not to have consisted of a single effort, or one sudden and violent convulsion.*

Vesuvian lavas. — The lavas of Somma are characterized by containing disseminated crystals of leucite (called, by the French, amphigène), a mineral said to be very rare in the modern lavas of Vesuvius, which are in general much more scoriaceous and less crystalline than those of Somma.†

At the fortress near Torre del Greco a section is exposed, fifteen feet in height, of a current which ran into the sea; and it evinces, especially in the lower part, a decided tendency to divide into rude columns. A still more striking example may be seen to the west of Torre del Annunziata, near Forte Scassato, where the mass is laid open to the depth of twenty feet. In both these cases, however, the rock may rather be said to be divided into numerous perpendicular fissures, than to be prismatic, although the same picturesque effect is produced. In the lava-currents of Central France (those of the Vivarais, in particular), the uppermost portion, often forty feet or more in thickness, is an amorphous mass passing downwards into lava irregularly prismatic; and under this, there is a foundation of regular and vertical columns; but these lavas are often one hundred feet or more in thickness. We can scarcely expect to discover the same phenomenon in the shallow currents of Vesuvius, where the lowest part has cooled more rapidly, although it may be looked for in modern streams in Iceland, which exceed even those of ancient France in volume.

Mr. Scrope mentions that, in the cliffs encircling the modern crater of Vesuvius, he saw many currents offering a columnar division, and some almost as regularly prismatic as any ranges of the older basalts; and he adds, that in some the spheroidal concretionary structure, on a large scale, was equally conspicuous.‡ Brieslak§ also informs us that, in the siliceous lava of 1737, which contains augite, leucite, and crystals of felspar, he found very regular prisms in a quarry near Torre del Greco; an observation confirmed by modern authorities. ||

Effects of decomposition on lavas. — The decomposition of some of the felspathic lavas, either by simple weathering, or by gaseous emanations, converts them from a hard to a soft clayey state, so that they

* See a Paper by the Author on "Craters of Denudation," Quart. Journ. Geol. Soc. 1850.

† Dufrenoy, Mém. pour servir, &c., tom. iv. p. 285.

‡ Journal of Science, vol. xv. p. 177.

§ Voy. dans la Campanie, tome i. p. 201.

|| Mr. Forbes, Edin. Journ. of Sci., No. xviii., Oct. 1828.