

Madeira, although some of the newest currents, like those at the foot of the cones, *m*, *n*, *o*, fig. 653, are basaltic.

I may here allude to another feature in the mineralogical structure of Madeira, namely, that most commonly the uppermost of all the volcanic rocks, when we ascend to heights of 1200 feet or more above the sea, consist of compact felspathic trap, with much olivine, separating into spheroidal masses several feet in diameter, especially when some of the contained iron has become more highly oxidated in the atmosphere. M. Delesse, after examining my specimens, informs me that in France they would call this rock basalt, although it is often without augite, and simply a mixture of blackish green felspar with olivine. Whatever name we assign to it, the superficial envelope of the island, not only in the line of section followed in fig. 653, p. 513, but also very generally, may be said to consist of this trap, except near the sea, where basalts occur which have not the same spheroidal structure.

Among other indications of a considerable difference of age, even in the superficial volcanic formations of Madeira, I may remark, that many of the central peaks, such as *a*, fig. 653, seem to be the mere skeletons of cones of eruption; whereas the forms of the more modern cones, such as *m*, *n*, *o*, are regular, and have no protruding dikes on their summits or flanks.

The newest lavas also in Madeira have, in one district at least, a singularly recent aspect as compared to those of older date, which are decomposed superficially, often to the depth of several feet or yards. I allude to the lava currents near Port Moniz, one of which is as rough and bristling as are some streams before alluded to in Palma (p. 508) of historical date. I am indebted to Mr. Hartung for the annexed drawing of a lava at Port Moniz, which I did not visit myself. It is traversed by

Fig. 656.



Surface of lava near Port Moniz, N. W. point of Madeira; from a drawing by M. Hartung.

*a*. Channel traversing the lava.

a channel, *a*, like one of those already described, p. 503. For how long a period such characters may be retained is uncertain, so much does this depend on the mineral composition of the rock. Some of the lavas of Auvergne of prehistorical date and certainly of high antiquity, are almost as rugged; so that this freshness of aspect is only a probable indication of a relatively modern origin.