

therefore assumed that such dikes were the feeders of the streams of lava with which they unite, and they are supposed to prove that the platform, on the surface of which the melted matter was poured out, was at first so flat, that the fluid mass spread freely and equally in every direction, and not towards one point only of the compass, as would happen if it had descended the sloping sides of a cone. This argument is ingeniously and plainly put in the following terms: — “ Had the melted matter poured down an inclined plane, after issuing from a rent, the sheet of lava would, after consolidation, have formed an elbow with the dike, like the upper bar of the letter F, instead of extending itself on both sides like that of a T.”* It is also contended that a series of sheets of lava, formed on a conical or dome-shaped mountain, would have been more numerous at points farthest from the central axis, since every dike which had been the source of a lava-stream, must have poured its contents downwards, and never upwards.

In reference to the facts here stated, I may mention that the dikes which I saw in the Val del Bove were either vertical, or made almost all of them a near approach to the perpendicular, which could not have been the case had they been the feeders of horizontal beds of lava, and had they consequently joined them originally at right angles, for then the dikes ought subsequently to have acquired a slope of 20° or 27° , like the beds which they intersect. I may also urge another objection to the views above set forth, namely, that had the dikes been linear vents, or orifices of eruption, we must suppose the interstratified scoriæ and lapilli, as well as the lavas, to have come out of them, and in that case the irregular heaping up of fragmentary matter around the vents would, as before hinted, have disturbed that uniform thickness and parallelism of the beds which M. de Beaumont describes.

If, however, some of the sheets of lava join the dikes in such a manner, as to imply that they were in a melted state simultaneously with the contents of the fissures,—a point not easily ascertained, where the precipices are for the most part inaccessible,—the fact may admit of a different interpretation from that proposed by the French geologist. Rents like those before alluded to (p. 383.), which opened in the plain of S. Lio in 1669, filled below with incandescent lava, may have lain in the way of currents of melted matter descending from higher openings. In that case, the matter of the current would have flowed into the fissure and mixed with the lava at its bottom. Numerous open rents of this kind are described by Mr. Dana as having been caused during eruptions in the volcanic domes of the Sandwich Islands, which at various heights run in different directions, and demonstrate the possibility of junctions at right angles, or nearly so.

To me, therefore, it appears far more easy to explain the uniform thickness and parallelism of so many lavas and beds of fragmentary matter seen in the Val del Bove, by supposing them to have issued

* *Mém pour servir*, vol. iv. p. 149.