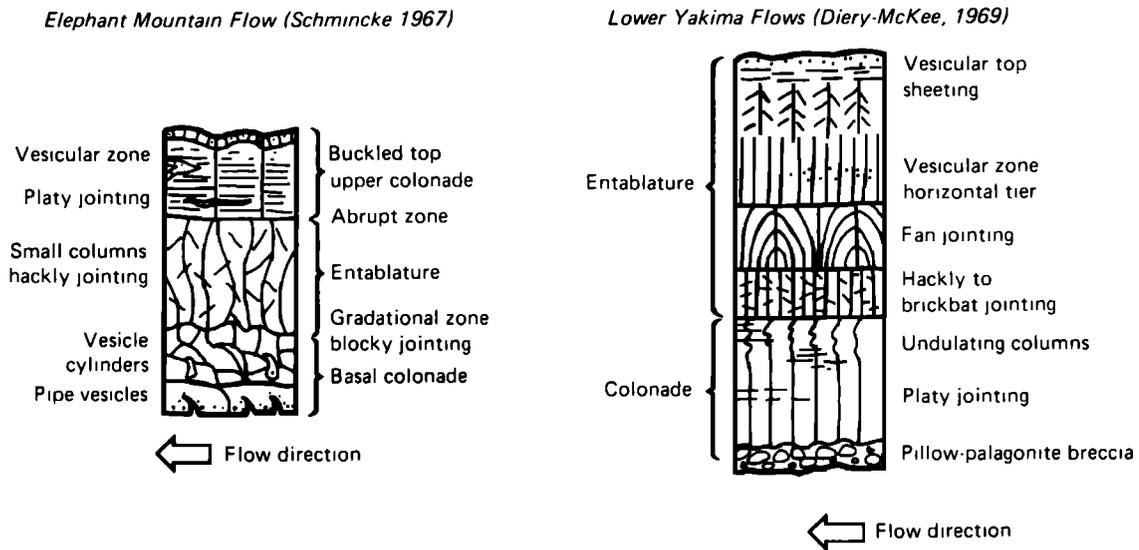


Pahoehoe lavas (flood basalts)



Aa to Blocky lava flows

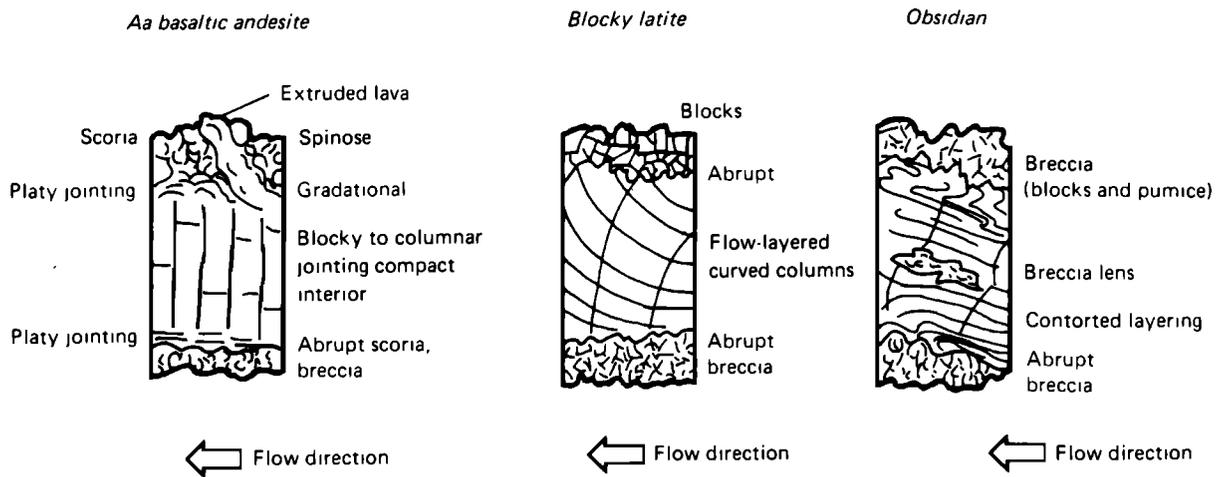


Fig. 14. Cross-sectional features of terrestrial lava flows [after Hammond, 1974]. Note buckled top and platy jointing of pahoehoe flood basalts. See text for comparison with features visible in Venera panoramas.

cess (such as lava extrusion) or the presence of an atmospheric environment that would disperse materials (such as sediments or pyroclastics) in a widespread and even manner.

Regional Nature and Global Extent

The Venera 9, 10, 13, and 14 spacecraft landed in the Beta-Phoebe region [Bazilevski et al., 1982] at elevations within a range of 2 km above mean planetary radius (Plate 1 and Table 1). On the basis of earth-based radar images and altimetry, Saunders and Malin [1977] and McGill et al. [1981] have interpreted the Beta region as a rift structure populated with shield volcanoes such as Rhea and Theia Mons. Recent Arecibo radar backscatter images (1.5–2.0 km radar resolution) (D. Campbell et al., unpublished manuscript, 1983) strongly support a volcanic origin for these features and have shown that flowlike structures extend for a distance of more than 400 km from the summit area of Theia Mons, down the flanks of Beta Regio. Garvin and Head [1983] have examined the

roughness and reflectivity values of the regions surrounding each of the Venera sites as measured by the Pioneer Venus radar experiment at approximately 100-km horizontal scales. They find a positive correlation between radar roughness and roughness as observed in the panoramas. The smoothest site (Venera 14) is near the mean roughness for the planet. Thus large areas of Venus may be even smoother at this scale than the Venera 14 region. Reflectivity values [Pettengill et al., 1982] can be used to relate dielectric constant to bulk density [Krotikov, 1962; McGill et al., 1983]. Model densities for the Venera 9 and 10 regions are 1.9 g/cm³, much less than the 2.8 ± 0.1 g/cm³ determined for bedrock at the Venera 10 site [Surkov et al., 1977b]. This suggests that the regional site values (~300 km² areas) are lowered from the bedrock values by the inclusion of the less dense soil component observed over large areas in the panoramas. Venera 14, the site with a paucity of soil, has a model density of 2.4 g/cm³ for the surrounding region. Thus 2.4 g/cm³ may be a lower limit for the