



Fig. 3. Linear rilles or graben structures in lava plains of the Tharsis region of Mars (38.2°N, 81.3°W). These graben, part of Tempe Fossae, show a variety of widths and orientations, although the major trend is radial to the Tharsis rise. Viking Orbiter frame 627A15, width 75 km.

1979a; *Plescia and Saunders, 1979a*]. Whether this early fracturing predated or was contemporaneous with formation of the ridged plains units, such as Lunae Planum, is uncertain [*Frey, 1979; Wise et al., 1979a*].

The next episode produced a system of extensional fractures generally oriented radially with respect to a center at about 10°S, 100°W, in Syria Planum south of Noctis Labyrinthus, although the majority of preserved fractures formed at this time have approximately north-south strikes [*Plescia and Saunders, 1979a*]. This system of faults in-

cludes Ceraunius Fossae, the fractures north of Noctis Labyrinthus, portions of Claritas Fossae, and additional faults in Thaumasia and Memnonia. These fractures postdated formation of the ridged plains and were approximately contemporaneous with portions of the cratered plains in the Tharsis area [*Plescia and Saunders, 1979a*]; the fractures predated the emplacement of Syria, Sinai, and Solis Planum in southeastern Tharsis and many of the early plains units identified with eruptions from Alba Patera in the north [*Plescia and Saunders, 1979a; Scott and Tanaka, 1981a*].