Gilbert and Myers (1981; Myers and others, 1981) measured Rb and Sr concentrations in 81 samples of Wichita igneous rocks, with emphasis on the granites. Figure 17 shows Rb/Sr plotted against SiO_2 for the granites. A general increase in Rb and decrease in Sr occur with increasing SiO_2, yielding the ratio increase plotted. The three granite classes, which were defined on the basis of major-element chemistry, can be discerned (see table 8). Note especially the tight clustering of Mount Scott data at the low-silica end. This would seem to argue for an especially homogeneous magma, particularly where the extreme spatial difference between the points is about 55 km. Figure 18 shows the averages for the three granite classes in comparison with other but more limited data from the Wichita province for the rhyolite dikes and Carlton Group. Also shown are data from another A-type granitoid province, the 1.5–b.y. Wolf River Batholith of Wisconsin (Anderson and Cullers, 1978). The Wolf River symbol represents the main granitoid body, and the Belongia Coarse, which is one of the bodies differentiated from it. Bonin and others (1978) reported Rb–Sr data for an anorogenic, hypersolus complex from Evisa (Corsica), similar to those in Nigeria and New Hampshire, and their average is also plotted for reference. The Evisa rocks are thought to be derived by fractional crystallization from mantle sources without important crustal contamination. One could argue for trends in the Wichita data that are compatible with differentiation processes.

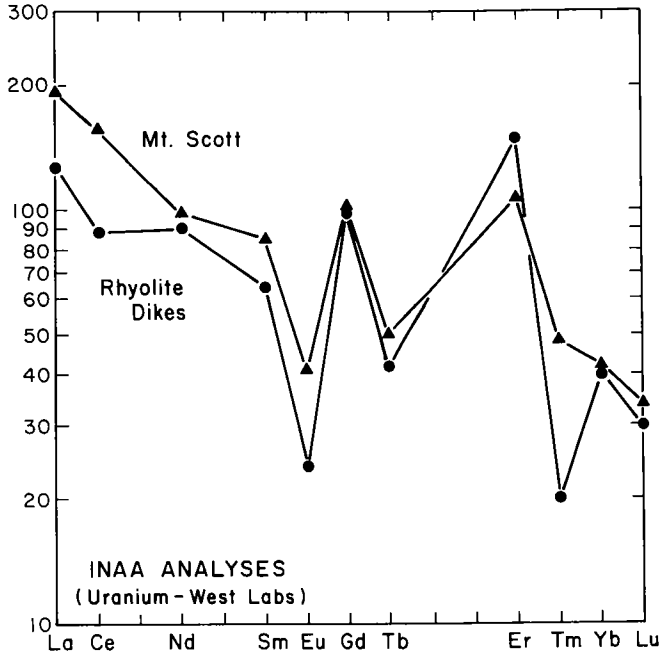

Figure 16. Rare-earth data averaged for three samples of Mount Scott Granite and two samples of rhyolite dikes cutting Wichita granites. These are chondrite-normalized values (Hanson, 1980).

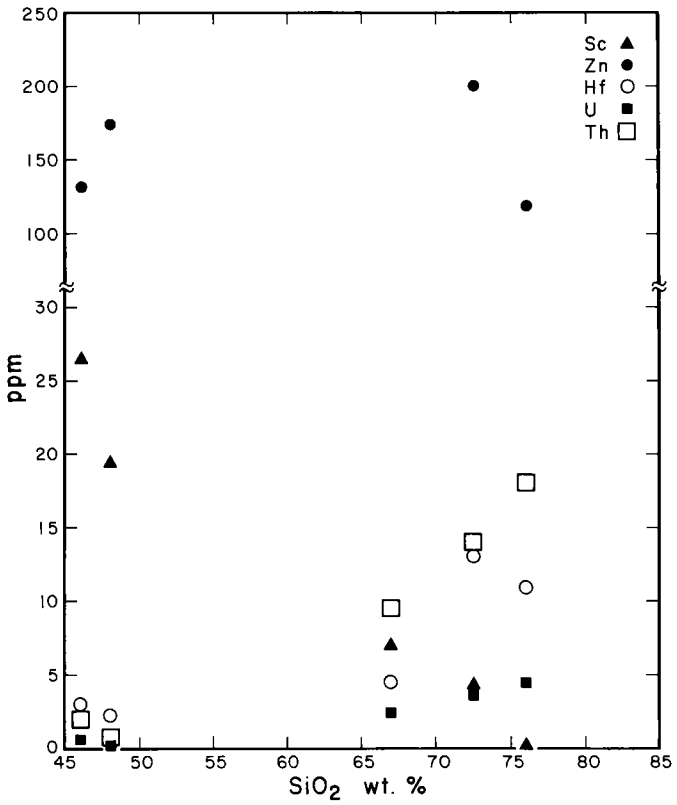

Figure 15. Variation of trace elements with SiO_2 content for rocks of Wichita igneous province.

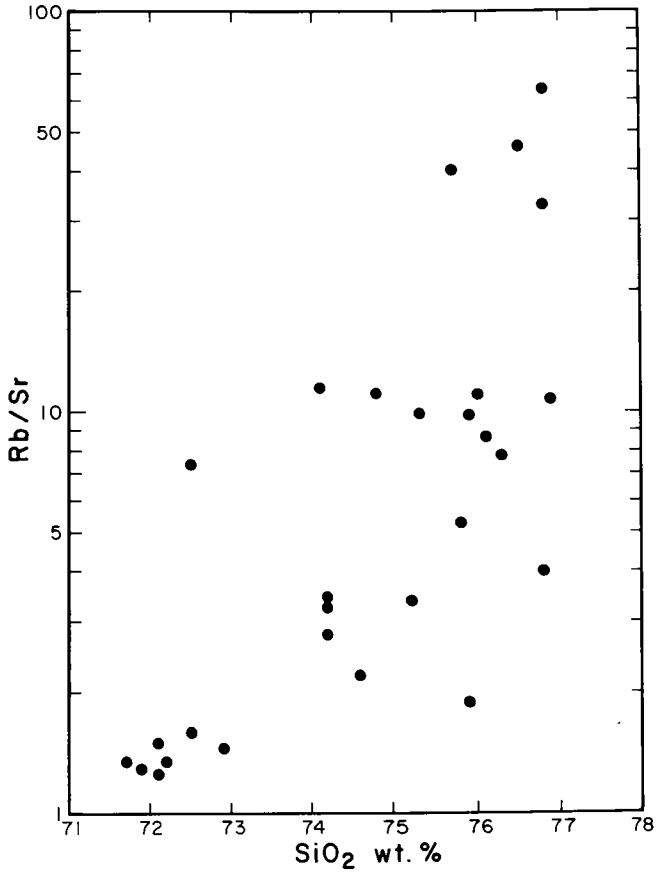

Figure 17. Variation of Rb/Sr with SiO_2 content in Wichita granites.