

TABLE 23.—REPRESENTATIVE OLIVINE COMPOSITIONS FROM SANDY CREEK AND GLEN CREEK GABBROS

(Microprobe analysis in weight %)

	1	2	3	4	5	6	7
SiO ₂	37.8	36.5	35.5	36.4	36.8	37.6	39.2
FeO*	28.8	31.9	39.0	34.7	33.7	27.9	25.2
MnO	0.37	0.50	N.D.	N.D.	0.37	0.33	N.D.
NiO	0.12	N.D.	0.01	0.08	0.19	0.04	0.10
MgO	32.5	30.9	25.0	27.9	29.3	34.4	36.1
CaO	0.02	0.03	0.04	0.05	0.05	0.05	0.08
Total	99.61	99.83	99.55	99.13	100.41	100.32	100.68
Fo (mol %)	66.8	63.3	53.4	58.9	60.7	68.7	71.9
*Average Fo (mol %)	67.5	66.6	53.6	58.3	60.8	68.6	71.5
*Average NiO	0.12	N.D.	0.03	0.06	0.07	0.07	0.10

Note: Averages are for several grains in the indicated sample. Total Fe is expressed as FeO. Samples: (All Glen Creek Gabbro Samples are from Reid's magnetite pit, NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 14, T. 4 N., R. 17 W., Kiowa County.)

1. Sandy Creek Gabbro, olivine-rich, NE $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 9, T. 3 N., R. 15 W., Comanche County (WM-152).
2. Sandy Creek Gabbro, olivine-rich, SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 4, T. 3 N., R. 15 W., Comanche County (WM-309).
3. Glen Creek Gabbro, gabbroic lithology (MP-2).
4. Glen Creek Gabbro, small amphibole-phlogopite-rich gabbroic lens within ultramafic segregation (MP-27).
5. Glen Creek Gabbro, gabbroic lithology close to ultramafic segregation (MP-22).
6. Glen Creek Gabbro, ultramafic lithology close to gabbroic lens (MP-25).
7. Glen Creek Gabbro, ultramafic segregation (MP-24).

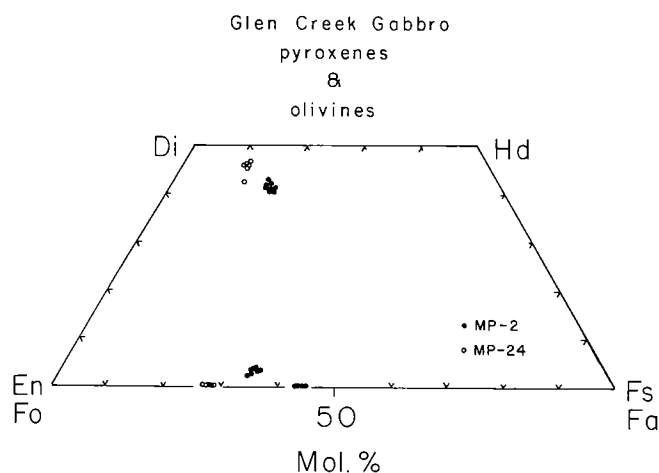


Figure 94. Pyroxene and olivine compositions from Glen Creek Gabbro. Olivines are plotted along base of diagram. Solid circles are from gabbroic rock (MP-2), and open circles are from ultramafic rock (MP-24). Note systematically higher magnesian compositions in latter (see text). Low-Ca pyroxenes are primary hypersthene, not inverted pigeonite. Sample locations are shown in figure 96.

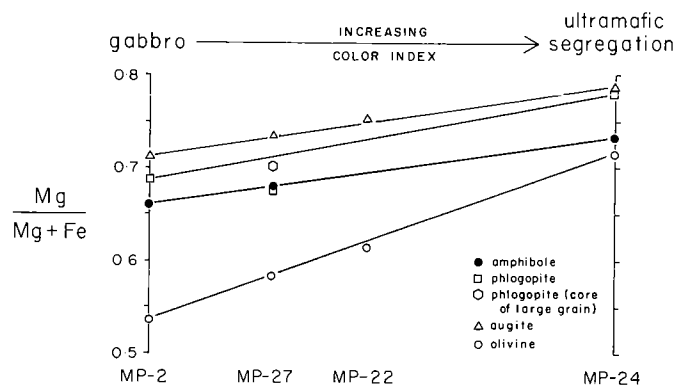


Figure 95. Systematic differences in Mg/(Mg + Fe) ratios in silicate phases in Glen Creek Gabbro and its ultramafic segregations. Horizontal "axis" (color index) is not quantified, lateral positions of samples MP-27 and MP-22 being determined by best fit of a given vertical array of plotted points on "lines" defined by "end-members" MP-2 (gabbro with minor olivine and oxides) and MP-24 (olivine-oxide rock). (Qualitatively, the positions of MP-27 and MP-22 are correct in a relative sense.) Diagram illustrates systematically higher magnesian compositions of silicate phases in ultramafic segregations and magnitude of differences. (See text for discussion and figure 96 for sample locations.)